

The background of the entire page is a photograph of a large white semi-truck with a dark green trailer, viewed from the rear, driving on a two-lane asphalt road. The road curves to the left. The sky is filled with dramatic, orange and yellow clouds, suggesting a sunset or sunrise. The foreground shows a dirt shoulder on the left and a white dashed line on the road.

**GS1 Transport & Logistics and Customs**  
Reference Book - 2014/15  
**18 Success Stories**



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# GS1 STANDARDS **ARE MAKING** A DIFFERENCE.



Welcome to the GS1 Reference Book for Transport & Logistics (T&L) and Customs. Through this collection of stories, players around the world share their experiences of how GS1 Standards are truly making a difference in their operations.

You will learn about their initiatives, best practices and “what’s working” when integrating standards into transport, logistics and Customs processes. Using their stories, you can ignite new ways of thinking and activities to achieve greater efficiencies, interoperability and profitability. Through their stories about proven value, you can better understand the potential value of GS1 Standards in your organisation.

Read a variety of case studies about GS1 Standards in processes spanning transport, warehouse, cross-border, and asset management. Gain new insights from a variety of perspectives such as T&L operators or manufacturers, retailers and others running their own T&L operations. Realise how standards can make a significant difference in your business.

A special “thank you” goes to the companies and organisations that have shared their success stories as well as the following contributors who helped make this publication inclusive, relevant and powerful: Daniela Spring, GS1 Austria; Signe Poulsen, GS1 Denmark; Alexandre Rieucou, GS1 France; Michaela Freynhagen and Heide Buhl, GS1 Germany; Petra Geerdink and Rob Oosterhof, GS1 Nederland; Andy Robson, GS1 UK; Filipe Esteves, GS1 Portugal; Marc Cox, Philips; Mia Lenman, GS1 Sweden; Mats Rosén, DSV; Christer Kjellberg, Stena Line; Goh Chiang Fein, GS1 Malaysia; Sally King, GS1 New Zealand; Reiko Moritani, GS1 Japan; Mikko Luokkamäki, GS1 Finland; Heinz Graf, GS1 Switzerland; and Stephane Pique, Motorola Solutions.

In 2014, GS1 and its Member Organisations are celebrating the 40 year anniversary of the barcode and its first “beep” heard by consumers at points of sale. Consider the number of barcode scans in the distribution channel. It is estimated that scans in transport and logistics (T&L) processes have doubled the total number of GS1-reported scans from five billion to 10 billion. This is where GS1 T&L comes in.

GS1 is driving the adoption of standards in key T&L processes beyond points of sale, making more and better business information available to T&L players for better business decisions.

After all, the T&L industry and its players form the backbone of global supply chains. T&L processes in the supply chain provide critical links in the global economy, connecting the supply chains of countless retailers and manufacturers, serving many different industries in many different countries.

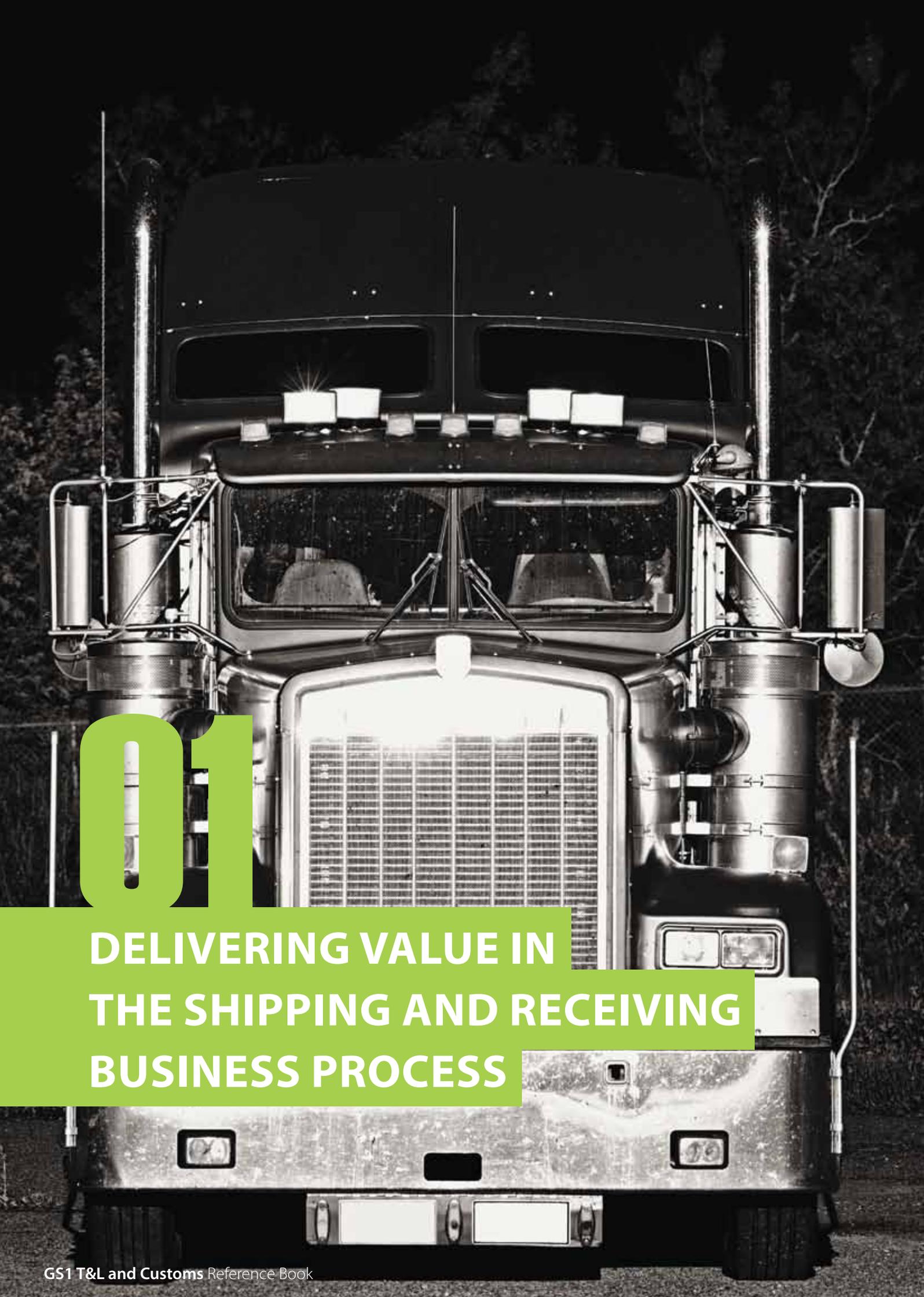
As goods move from points of origin to points of sale, logistics services providers (LSPs), freight transporters and their customers need to know precisely where shipments are at all times to make informed business decisions.

The use of GS1 Standards and solutions by supply chain stakeholders will facilitate interoperability between systems and processes for enhanced supply chain visibility, security and sustainability. Further, it will result in increased efficiencies in shipping and receiving as well as better warehouse, transport and asset management.

This is why progress has been made over several years to develop the GS1 System of Standards to better support the T&L industry. GS1 is now placing particular emphasis on supporting the drive towards adoption and implementation through various initiatives. This Reference Book is an example of one such initiative.

For more information about GS1 T&L activities, visit [www.gs1.org/transportlogistics](http://www.gs1.org/transportlogistics) or contact Audrey Kremer at [audrey.kremer@gs1.org](mailto:audrey.kremer@gs1.org) and Nora Kaci at [nora.kaci@gs1.org](mailto:nora.kaci@gs1.org). For your nearest GS1 Member Organisation, go to [www.gs1.org/contact](http://www.gs1.org/contact).





01

**DELIVERING VALUE IN  
THE SHIPPING AND RECEIVING  
BUSINESS PROCESS**



# Schachinger Logistics Uses GS1 Standards to Deliver Innovative Logistics Services



## CHALLENGE

As an innovative logistics services provider, Schachinger Logistics (Schachinger) wanted to streamline transport processes from its section of METRO Cash & Carry's central warehouse for an improved delivery and receipt process at its distribution centres (DCs).

## SOLUTION

Schachinger implemented GS1 Standards, specifically the GS1 Serial Shipping Container Code (SSCC) and GS1 Global Trade Item Numbers (GTINs) that are encoded in a GS1-128 barcode. The barcode is on a GS1 Logistics Label that is applied to each of the company's logistics units or pallets. The GTINs and SSCC are also included in an EDI Despatch Advice, which is electronically transmitted to METRO Cash & Carry DCs to pre-announce the delivery of the shipment.

## BENEFITS

- Reduced time spent receiving and checking products for improved productivity.
- Improved visibility of products as they travel from warehouse to METRO Cash & Carry's DCs for greater delivery reliability.
- Streamlined receipt and warehouse management processes helping to reduce costs.



## Innovative Logistics

Schachinger Logistics is dedicated to innovative and sustainable logistics practices, serving well-known brands in Austria, Germany, and throughout Central and Eastern Europe. Backed by years of experience, Schachinger brings extensive industry knowledge and services like dedicated warehousing, distribution, dedicated networks, temperature control, IT and communication, and logistics engineering. Retailers like METRO Cash & Carry in Austria put their trust in Schachinger as their logistics services provider-of-choice.

## Standards-Driven Logistics

Since September 2013, Schachinger has provided METRO Cash & Carry with central warehouse services, supplying food and non-food products, five times a week, to 12 METRO Cash & Carry markets throughout Austria.

To optimise supply chain processes, Schachinger decided to standardise all labelling and data transmission practices with GS1 Standards. For delivery, receipt and warehouse management processes to operate flawlessly, a mandatory prerequisite was the use of accurate, readable Logistics Labels on logistics units such as pallets.

Today, Schachinger uses GS1 Logistics Labels for each of its pallets traveling to the METRO Cash & Carry DCs. Data elements required on each label includes the following:

- GS1 SSCC that uniquely identifies the logistics unit, basically any combination of products loaded on a pallet for transport and storage.
- GTINs that uniquely identify the products and/or cartons contained on the pallet.
- Number of cartons on each pallet.
- Batch/lot number.
- Best-before date.

The data elements are encoded in a GS1-128 barcode complete with GS1 Application Identifiers for efficient scanning. Each logistics unit is identified with its own SSCC, which stays on the logistics unit as it travels through the supply chain, giving both Schachinger and



METRO Cash & Carry a single, common reference to track and trace the logistics unit. The SSCC is also especially helpful for METRO Cash & Carry to confirm receipt of an accurate shipment of products.

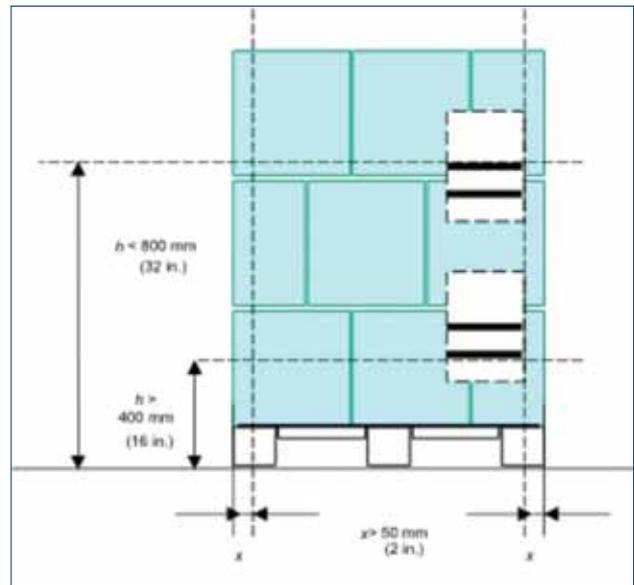
## Pre-Announced Deliveries

For delivery notifications (DESADV), invoices (INVOIC) and other logistical transactions, the companies chose EDI-based transactions with GS1 Standards. Before the delivery of a Schachinger shipment, METRO Cash & Carry is notified via an electronically transmitted Despatch Advice containing the logistics unit's data elements: the SSCC, GTINs and number of cartons on each pallet.



This pattern of a Logistics Label demanded by METRO contains a GS1-128 barcode encoded with the SSCC and GTIN of a singular type of product loaded on the pallet. The label shows 123 cartons of the product with the batch/lot number and best-before date.

For quick and accurate scanning, multiple copies of the transport label are placed on cartons based on GS1-recommended practices. GS1 technical support specialists provided the needed expertise and assistance to Schachinger and METRO Cash & Carry during the implementation of GS1 Standards on the labels as well as in EDI transaction documents.



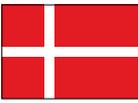
### Schachinger section of the new central METRO Cash & Carry warehouse

- 3,300 food and non-food different SKUs are stored.
- 320 suppliers supply the warehouse.
- Temperature-controlled warehouse and distribution.
- Approximately 11,900 pallets in stock.
- 75,000 pallets per year are delivered.
- Storage and cross docking are possible.
- GS1 Standards are encoded in the GS1-128 barcodes of suppliers and used 1:1.

### Contact Information

Interested in learning more about this case?

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# Smooth Operation of Third-Party Storage Facility

## CHALLENGE

With a high volume of sweets and need for storage capacity, Toms Chocolate Factory (Toms) called on a transport and logistics partner, Frode Laursen, to provide a more efficient, common storage facility for all its business units. To facilitate this outsourcing arrangement, the company needed a way to jointly manage its inventory.

## SOLUTION

Toms decided to digitise its inventory management using GS1 Standards and Electronic Data Interchange (EDI) technology. Each pallet traveling from Toms' facilities to storage is labeled with a GS1-128 label, containing information such as the number of crates on the pallet, best-before data and batch number. The labels are scanned each step of the way for visibility of goods as they travel to the warehouse and then, on to customer locations. Customers place their orders electronically, automatically notifying Frode Laursen to pick and deliver the orders while Toms invoices customers.

## BENEFITS

- Approximately 85% of products received by Frode Laursen are labeled with the GS1-128 label, leading to increased visibility as they travel along the supply chain.
- Improved customer service and satisfaction since Toms can provide them with status on order deliveries.
- Increased efficiencies of in warehouse management based on available logistics information.

## Outsourcing to Third-Party Storage Facility

Toms Chocolate Factory in Ballerup, Denmark, produces 16,000 tonnes of chocolate a year, mainly destined for the Danish market. An additional 10,000 tonnes of sugar confectionery are produced at Toms' factory in Avedøre Holme, also in Denmark. And yet another 4,000 tonnes of sugar confectionery are made at the Habo factory near Jonköping, Sweden. This impressive volume of sweet



goods means that Toms has a huge demand for storage capacity, and this demand has increased significantly over the years. To improve its efficiency, Toms wanted a common storage facility for all its business units, but none of its three factories had sufficient space. The solution: find an external partner.

## Saving Time and Work

"To facilitate outsourcing of our storage needs, we required a way to jointly manage things with our external partner. We chose to digitise our entire storage logistics, and based our integration on the GS1 EDI standard and the GS1-128 pallet label," says Per Lerche Møller, IT Manager, Toms. "If everything runs by the book, which it usually does, no one at Toms basically has to have anything to do with a product after it leaves the production facility – physically or manually – until it reaches our customer. Everything is done by means of electronic transactions. Imagine if we had to sit there keying in all our orders and information manually! That would be an expensive exercise," says Per Lerche Møller, adding: "Of course, it's a matter of trust and requires us to maintain a complete overview of our stock at any time so we can trace a delivery no matter where it is in the system."

## GS1 Standards for a Smooth Supply Chain

Since 2005, transport and distribution operator Frode Laursen has arranged for the transportation of all of Toms' sweet products to customers throughout Denmark and in parts of Sweden. "Frode Laursen's drivers transport some 120,000–130,000 pallets from our three factories to the storage facility every year. Everything runs smoothly, requiring only a minimum of resources on our part. We have developed a system and a logistics operation that work, meaning that at Toms we now feel that we have the same contact with our storage management as if it were an internal operation. Both Frode Laursen and Toms have acquired vast experience with GS1 EDI and the GS1-128 pallet label which is central to all the information required for transporting our products to the customer's doorstep.



This is the joint system we use and which is also used by our major retail-chain customers like Coop, SuperGros and Dansk Supermarked,” says Per Lerche Møller.

## Keeping Track of the Product at All Times

After packaging a pallet of chocolate at Toms’ production facilities, a GS1-128 pallet label is affixed to the pallet, containing information such as the number of crates on the pallet, best-before date and batch number. The fork-lift terminals are then automatically notified and a fork-lift truck is sent to pick up the pallet. When the fork-lift driver scans the label on the pallet, it tells him whether to take it to the shunting area or storage. When a truck from Frode Laursen arrives, each pallet is re-scanned to ensure that the agreed number of pallets is loaded. The product status at Toms now changes from in-house to being in the care of Frode Laursen. At the same time, an electronic message is sent to inform Frode Laursen that the goods are in transit. This gives both Toms and Frode Laursen a complete up-to-date picture of the process and allows them to follow the product and see who is responsible for it at any time – exclusively facilitated by scanning and electronic data sharing.



## High-Quality Labeling Throughout the Supply Chain

Pallets are scanned on arrival to Frode Laursen’s storage facility. “At this point, we feed all pallet content information into our system. Then we send electronic data back to Toms to let them know the products are now at our storage facility. This gives Toms a complete up-to-date overview of which products they can sell, even though we’re an external storage facility,” explains Søren Andersen, Logistics Manager for Frode Laursen. One reason for the robust and efficient partnership between Toms and Frode Laursen is that Frode Laursen has great knowhow



and experience in the use of GS1 Standards: “We use the GS1-128 label for all our customers because using the GS1 Standard guarantees swift, readable information to ensure high-quality, transparent goods delivery. Today, some 85% of the products we receive in our storage facilities are GS1 labelled. And the same label is used when the product is forwarded to the customers. If we receive products with a different type of label, we set up a GS1 label and affix this instead. This enables us to assure the quality of deliveries from Frode Laursen. We also give feedback to customers and suppliers if their labelling fails to comply with the GS1 Standard. In this way, knowledge and use of the system is increased to the benefit of all,” explains Søren Andersen.

## Foundation for Superior Customer Service

The last stage from storage to customer is also supported by digital information. “As soon as we receive an order from our customers, Frode Laursen is automatically notified of when to deliver the order. Frode Laursen handles order-picking and delivery. After delivery, Toms is notified so that we can invoice our customers,” says Per Lerche Møller, adding that the electronic transaction also improves customer service: “We can inform the customer of when to expect delivery because we can track it all the way,” says Per Lerche Møller.

## About Toms

The Toms Group has 725 employees in Denmark

**Tasteful moments - Responsible choices**

and Sweden. Most of the staff work at the headquarters in Ballerup, which is Denmark’s largest chocolate factory. Toms’ Management Board includes Jesper Møller, CEO, who is also chairman of the Danish Confederation of Industries, and Anders Hagh, CFO.



## About Frode Laursen

Frode Laursen is a leading Nordic provider of logistics solutions for the daily

commodities market and the construction sector. Frode Laursen has 1,400 employees and a storage capacity of 330,000 m<sup>2</sup>. Frode Laursen is owned by Thorkil Andersen.



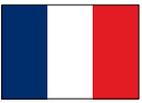
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With special thanks to :





# Cosmetics Manufacturers and Retailers Take Common Logistics Approach with GS1 Standards

## CHALLENGE

Due to its global reach, the cosmetics sector in France is especially concerned about consumer safety and has strict requirements when selling products around the world. When European regulation related to cosmetics required that manufacturers and retailers establish traceability and recall processes, the industry organised for a common approach in logistics operations.

## SOLUTION

Manufacturers and retailers created common logistics processes, common transaction messages and a common data model using a wide array of GS1 Standards. Today, 85% of participating companies are using GS1 Standards for identification and traceability. As a result, withdrawals are swift with cosmetics companies executing a withdrawal in a matter of a few hours for greater consumer safety. Furthermore, significant efficiencies have been realised with GS1 Standards-powered logistics processes.

## BENEFITS

- Compliance with European cosmetic sector regulation.
- Achieved traceability for fast withdrawals.
- Improved productivity with accurate, faster transactions.
- Increased consumer safety and confidence.



## Regulatory Requirements

The French luxury cosmetic sector needed to comply with European regulation related to cosmetics (1223/2009/EU), which was effective July 2013. The regulation requires that every manufacturer and retailer in the cosmetic sector, working with its trading partners, ensure consumer safety by establishing traceability capabilities for all products along the supply chain. Another mandate of the regulation requires trading partners to adopt a withdrawal process in the event of product safety non-compliance.

With support from the national federations for retailers and suppliers, a main goal was set for the entire sector: to adopt the same logistics standards that would support the new legal requirements as well as modernise the supply chain.

In addition, objectives were established to create common logistics best practices for consumer units and cartons, common messages for transactions like orders and invoices, and a common data model for items.

## Common Approach

GS1 France and ECR France partnered to host all working groups (requested by the sector) during a five-year work effort. This mobilisation of so many retailers and manufacturers was unprecedented in the French cosmetics sector.

In 2011, manufacturers and retailers of select cosmetics companies started their conversion to GS1 Standards. Continued work is planned until 2015 to achieve an even more advanced supply chain than the fast-moving consumer goods (FMCG) sector. A total of 29 solution providers are supporting the effort.

For each workflow step, the following GS1 Standards were adopted:

- The Global Trade Item Number® (GTIN®), Serial Shipping Container Code (SSCC), and GS1-128 barcodes to enable common logistics best practices for consumer units and cartons.



- 
- EANCOM® messages, ORDERS (orders), DESADV (Despatch Advise), INVOIC (invoices) and REMADV (Remittance Advise) to enable common transaction messages.
  - Global Data Synchronisation Network™ (GDSN®) attributes, Global Product Classification (GPC) attributes, GS1 eXtensible Markup Language (XML), and GS1-documented Product Image Specifications to enable a common data model for items. In the French market, these players in the cosmetics sector will be first to massively adopt GS1 Product Image Specifications (before the FMCG sector).

## Successful Compliance

Today, 85% of the sector's participating companies are using GS1 Standards for identification like the GTIN and SSCC. And they are also now compliant with the European regulation for cosmetics regarding traceability and the withdrawal process, thanks to GS1 Standards.

Using GTINs, SSCCs and EDI messages, cosmetics trading partners can execute a withdrawal worldwide in a matter of a few hours, greatly enhancing consumer safety. And by using EDI transactions, these companies avoid tedious, manual data entry and re-entry, thus, freeing up time for their employees to dedicate to other pressing activities.

During the work effort, companies collaborated to meet these challenges, including:

- Defining a common and approved global work cycle in cooperation with all players.
- Enrolling companies not using GS1 Standards in the working groups.
- Ensuring neutrality and parity between manufacturers and retailers to guarantee final adoption, especially by small and medium-sized enterprises.
- Adapting GS1 Standards and processes for luxury items based on their own unique attributes: high-value, slow-moving consumer goods, and stringent security requirements all along the supply chain.

## Success Factors

The cosmetics sector attributes its success to several factors:

- Players reached an initial agreement concerning goal and objectives.
- Players understood the benefits of cooperation and of using neutral, open and international standards.
- Communication among players was facilitated by neutral organisations, ECR France and GS1 France that offered working groups and open meetings to every company in the sector.
- Players decided to adopt already tried-and-tested standards and processes from the FMCG sector.

Due to their success, the manufacturers and retailers plan to expand the use of GS1 Standards throughout Europe with help from GS1.

To this end, GS1 in Europe welcomes interested retailers and manufacturers in the cosmetics sector to support the European harmonisation of standards and processes.

## Contact Information

Interested in learning more about this case?

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# Lenze Delivers Highly Efficient Standardised Goods Issue Worldwide with the GS1 Logistics Label

## CHALLENGE

Lenze supplied customers worldwide from its 10 logistics centres that each used its own individual systems and processes. Yet, local sales and service contacts required visibility of goods issue and customer deliveries to effectively answer their queries. In addition, the company wanted to more easily and efficiently integrate new logistics services providers (LSPs) into its operations without making individual adjustment to their labelling systems.

## SOLUTION

Lenze replaced all of its site-specific shipping labels with the universal GS1 Logistics Label containing the Serial Shipping Container Code (SSCC). The company also merged the SSCC data with the Handling Unit (HU) number of the package from the SAP system to set up a direct connection between the customer, product, and logistics unit.

## BENEFITS

- Improved performance of the goods issue processes.
- Elimination of errors.
- Complete flexibility in the selection and integration of new logistics services providers.
- Readily available information about receipt of goods by customers.

*“By opting for the global GS1 Standard, we were able to simplify and optimise our goods issue processes worldwide. In particular, the elimination of external shipping systems with their diverse number ranges has improved performance significantly.”*

**Michael Wilms**

Processes, Logistics and Organisation Manager,  
Lenze



## Standardise Processes Globally

Headquartered in Aerzen, Germany, Lenze is a leading mechanical engineering company that offers drive solutions and complete automation systems and engineering services and tools. With more than 3,000 employees, the company generates annual sales of more than € 550 million worldwide. Lenze is one of the few companies in the market to provide support for the entire development process of custom-made machinery - from the idea through to after-sales, from the control system to the drive shaft.

Sales and service are entrusted to local companies in 60 countries. Based on this proximity to the customer, sales and engineering experts can manage the entire development process of the custom-made machine.



From multiple locations, shipments are delivered directly to customer sites. It is important for the local Lenze contact to be able to track the status of deliveries and respond to customers' queries about the arrival of goods. Due to the use of different IT systems and shipping processes at the individual logistics sites, monitoring the status of deliveries was costly and time-consuming. In addition, integrating new logistics service providers (LSPs) with in-house delivery processes was problematic since it always required individualized coordination of the LSP's shipping label with the respective logistics system at the production site.

Therefore, Lenze decided to restructure the logistic systems and processes of all its sites with one clear objective: to standardise processes globally.

## Visibility of Shipments At Any Time

To achieve this goal for the goods issue processes, Lenze replaced the previous site-specific systems with the GS1 Serial Shipping Container Code encoded in a GS1-128 barcode on the GS1 Logistics Label. The globally standardised SSCC is an 18-digit identification number, which uniquely identifies the Lenze logistics unit. Lenze combines the SSCC with the package's Handling Unit (HU) number from its SAP system, and thus, establishes a direct connection between the customer, product, and logistics unit. Because of the GS1-128 barcode, the SSCC is machine-readable on the GS1 Logistics Label. The label is then applied to the package and may be scanned along the entire delivery route. If a Lenze employee needs to call up the status of a consignment for a customer, he can now ask the transport company at any time since the SSCC links the sales order with the package.



rates while, at the same time, significantly increase the performance of workflows.

New LSPs can now be easily integrated in the Lenze logistics processes. This simplifies the tendering of transport orders locally and increases flexibility when changing logistics partners.

The journey of all deliveries from logistics centres to customer sites can be tracked at all times, giving Lenze local contacts the needed visibility and readily available information to quickly and accurately respond to customer queries. Lenze tested the standardised goods issue process at selected pilot sites and the resounding results prompted its worldwide deployment.

## One Package - All Options

The SSCC (Serial Shipping Container Code) and the GS1 Logistics Label are among the cross-industry GS1 Standards used worldwide. GS1 Standards provide clear identification, consistent communication and optimal process design along the entire goods and information flow -- the ideal foundation to build efficient business processes. Step into the world of GS1 Standards with the GS1 Complete service package.



The GS1 SSCC is a core component of the GS1 Logistics Label since it allows the product to be tracked from one end of the supply chain to the other.

Based on the global GS1 Standards, Lenze has rolled out a standardised goods issue process for its logistics centres and taken advantage of the potential benefits for its operation.

Replacing the individual agreements on shipping systems and number ranges, the uniform GS1 Logistics Label is now used at all sites. This has helped Lenze cut error

## Contact Information

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With special thanks to :





# Dutch Leading Food Retailer Creates a Fast Lane for Receiving Goods, and GS1 Standards Help to Gain Significant Savings

## CHALLENGE

As a leading food retailer, Albert Heijn seeks to grow and improve its service to customers every day. This includes a more transparent, flexible and responsive supply chain to better serve the needs of its consumers.

## SOLUTION

Teaming with suppliers, Albert Heijn streamlined the goods receipt process across its vast network of distribution centres (DCs). The company called on suppliers to start using the GS1 Serial Shipping Container Code (SSCC) embedded in the GS1 Logistics Label to uniquely identify all logistics units travelling to DCs for unloading. The SSCC is also included in the EDI Despatch Advice that pre-announces the delivery, allowing for Albert Heijn to plan for and simply scan the Logistics Label for verification.

## BENEFITS

- Significant net savings in time spent checking goods.
- Shipping errors declined to 1% of all received shipments.
- Significant time and associated cost savings per drop.
- Increased dock capacity. Greater delivery reliability for improved consumer satisfaction.
- Faster product recall process for improved consumer safety.



Albert Heijn is as the leading food retailer in the Netherlands and one of the country's best-known brands. The company has a long and rich history, dating back to 1887 when Mr. Albert Heijn assumed responsibility of his father's store in Zaandam.

Albert Heijn has always looked for new and better ways to serve its consumers. In the 1970s, CEO Albert Heijn, Jr. learned about the "bar code system" and immediately understood the significant opportunity it could bring to consumers and the retail sector.

Mr. Heijn also realised this potential impact could only be achieved if the system became a market standard – one that was widely adopted by all players in the food supply chain. Mr. Heijn envisioned an independent organisation that would bring all players together to take a standards-based approach; thus, the idea was hatched for the creation of GS1.

See for more information: [www.ah.nl](http://www.ah.nl)

## Significant Growth

Albert Heijn currently has more than 850 stores and over 100,000 employees throughout the Netherlands, Germany and Belgium. The company services its customers through both online (webshop) and offline channels (stores). As the company has grown, so has the complexity of its supply chain infrastructure.

Albert Heijn's Dutch logistics network is comprised of four regional warehouses, two national warehouses, two warehouses managed by third-party logistics providers and home-shop centres – locations where order picking for the company's online service takes place. The network supports more than 25,000 SKUs, and the lead-time interval from store order to delivery is 18 hours with more than 400,000 drops at warehouses each year.



## Significant Opportunity

In 2006 Albert Heijn took the lead to adopt and use GS1 Standards. Thus, the company can truly fulfil the needs of its clients, with a transparent, flexible and responsive supply chain.

For suppliers, the call-to-action was to use the GS1 Serial Shipping Container Code (SSCC) embedded in the GS1 Logistics Label as well as the EDI Despatch Advice for speedier receipts of incoming goods at Albert Heijn's docks. The retailer estimated this "fast-lane" receiving process, enabled by GS1 Standards, would save time and money when checking goods at these distribution centres.

Albert Heijn believed the GS1 SSCC with the Logistics Label and Despatch Advice would enable a more transparent supply chain for tracking and tracing shipments, leading to more reliable deliveries and faster product recalls. It would lay the foundation for more automated warehouse processes, minimizing or even eliminating duplicate administrative tasks.

Each supplier starts with a score of 0%. For each delivery without deviation, 10% is added to the score, with a maximum score of 80%. Each delivery with a deviation subtracts 20% from the score, with a minimum of 0%.

Albert Heijn's target for each supplier's fast-lane score is greater than 75%. This means it would fully check less than 25% of the supplier's deliveries. In the other cases, only the number of logistic units is counted with no checking on the content of each logistic unit. If the number of logistic units matches the number of logistic units stated in the Despatch Advice, the delivery is registered by just pressing one button.

Today, over 98% of goods received by Albert Heijn warehouses are tagged with GS1

Logistics Labels and approximately 60% of the goods volume shipped to Albert Heijn is received using the Despatch Advice. Millions of logistic units reach Albert Heijn via the fast-lane goods receipt process.



The GS1 Logistics Label includes both human readable and barcoded formats of GS1 Serial Shipping Container Code or SSCC, which uniquely identifies a supplier's logistics unit – basically any combination of goods put together in a carton, in a case, or on a pallet for transport and/or storage.

## The Fast Lane Goods Receipt Process



## Fast Lane Process and Results

Using the fast lane goods receipt process, SSCC information in the Despatch Advice is compared with the goods received.

## A Reality Today

Through its project-based approach, the company attributes its success to involving all stakeholders in the process – not just the IT organisation. Educating and communicating with stakeholders and partners is very important when changes are made and the new process is put into place. Another prerequisite for success is a disciplined process to continuously measure performance and help guide steps for improvement along the way.

Working closely with its suppliers and with support from GS1, Albert Heijn has created a transparent, flexible and responsive supply chain that fulfils the needs of consumers at any time. It's clear that the future Albert Heijn Jr. envisioned more than 40 years ago is a reality at Albert Heijn today.

## Part of an Industry Approach

To improve the goods receiving process in retailer's distribution centers the Dutch food retail sector has decided to use the GS1 Despatch Advice message together with the GS1 Logistics Label. In 2013 GS1 Netherlands started an implementation program (a uniform testing approach) together with 11 supermarket chains, of which Albert Heijn is one.

Once suppliers have shown that deliveries fully meet the required criteria, they will receive from GS1 Netherlands a proof of compliance. All other retailers will be informed by GS1 Nederland that they meet the criteria for these retailers and that they are able to deliver goods supported by the proper use of the Despatch Advice message and the logistics label.

### Contact Information?

Interested in learning more about this case?

- Contact GS1 Netherlands at [info@gs1.nl](mailto:info@gs1.nl)



GS1 Netherlands compared the traditional goods receipt process with two versions of the goods receipt process in the food sector, both powered by GS1 Standards. The objective was to show that there are benefits for suppliers as well.

The team started by calculating the time needed for receiving 26 pallets in each of three goods receipt processes. The results included:

1. The traditional process of receiving goods took 46 minutes.
2. The second process took only 12 minutes, 74% faster than the traditional way. To clear the shipment, this process involved scanning the GS1 Logistics Label of all pallets, combined with pre-clearance via the Despatch Advice.
3. The third process of receiving goods – called the fast-lane process – took only two minutes, 96% faster than the traditional method. To clear the shipment, this fast-lane process involved scanning the GS1 Logistics Label of only one pallet, again combined with pre-clearance via the Despatch Advice.

### Weekly Cost Savings Based on Time Savings Traditional Goods Receipt Compared to GS1 Solution-Enabled Processes

- 200 shipments of 26 pallets per week, is approx. € 147.000,-
- 50 shipments of 10 pallets per week, is approx. € 14.000,-

The costs of clearing the two shipment scenarios were calculated based on a truck driver's hourly wage of € 25.

Using the GS1 Standards, suppliers can take advantage of other benefits including:

- Delivery reliability: With the Despatch Advice, suppliers can announce, and then deliver their goods for improved reliability and customer satisfaction.
- Faster product recalls: Using the unique SCCC, retailers can rely on suppliers to support track and trace capabilities as pallets of goods travel throughout the supply chain.
- Optimised internal processes: Retailers can better plan and execute receiving and warehousing processes.
- Administrative cost savings: Suppliers can improve the accuracy of what is ordered and delivered, thus reducing errors and corrections to invoices.

With special thanks to :



# Dairy Crest Uses GS1 Standards to Deliver Significant Efficiencies and Meet Tesco's Trading Requirements

## CHALLENGE

Tesco, a major supermarket chain, wanted to speed up delivery times and reduce inventory in its regional distribution centres (DCs) as well as make its goods-in processes more efficient and less costly. One of Tesco's suppliers, Dairy Crest aimed to increase the level of automation of its supply chain. The trading partners teamed to improve the accuracy and flow of information associated with the delivery of goods to the Tesco DCs while maintaining a high standard of customer service.

## SOLUTION

Tesco places orders with Dairy Crest using Electronic Data Interchange (EDI) technology. As consignments are assembled, Dairy Crest identifies each pallet with a GS1 Serial Shipping Container Code (SSCC), encoded in a GS1 Logistics Label. Dairy Crest's warehouse management system issues an Advanced Ship Notice (ASN) message, which is sent to Tesco's receiving facility. When the ASN is received, Tesco knows in advance about the specific goods on the shipment and is able to verify and identify any discrepancies.

## BENEFITS

- For Dairy Crest, achieved a delivery accuracy of 99.5%, in line with Tesco's target.
- Reduced manual, paper-based systems for fewer data errors and invoice queries, leading to improved cash flow.
- For Tesco, improved receipt of goods, warehouse operations and availability of Dairy Crest products for consumers across network of stores.
- Reduced time to unload trucks; e.g., for a 26-pallet truck, from 52 minutes to 11 minutes.
- Reduced errors and labour costs.

*"The introduction of ASNs was a key component in our project to fully automate Dairy Crest's distribution operations and fulfil the requirements of one of our largest customers, Tesco. An important element of automation is standardisation and we couldn't have implemented this system without GS1's universal system for identifying every item in our supply chain."*

**Steve Barrow**, Retail Supply Controller, Dairy Crest



## Introduction

Dairy Crest delivers over a quarter of a million cases a week to Tesco, one of its biggest customers. To distribute these high volumes and meet a requirement to deliver orders within 18 hours, Dairy Crest implemented a range of improvements to its supply chain processes. One of the most significant changes was the introduction of ASNs with Tesco, which provide better visibility and validation throughout the transportation process.

An ASN is an electronic message that provides accurate information about the goods that are despatched by a supplier before they arrive at the customer's premises. They are transmitted using Electronic Data Interchange (EDI) technology, which exchanges standard electronic business documents between two companies' computer systems. These documents could include purchase orders, invoices and despatch advices, known as ASNs.

With the help of ASNs and Electronic Proof of Delivery (ePODS), Dairy Crest has managed to reduce claims queries, improve cash flow and help improve the goods-in process of one of its most important customers. The key to the successful operation of ASNs is the use of GS1 standards which provide a common language between Dairy Crest and Tesco.

## Speeding Deliveries

Dairy Crest was formerly a division of the Milk Marketing Board, which was set up to revive a flagging British dairy industry in the 1930s. In 1996, Dairy Crest became a public company and began a series of acquisitions, which combined with organic growth contributed to its annual turnover of £1.63 billion.

Dairy Crest is a leading supplier of dairy products, including the Cathedral City, Clover and Friij brands, to a number of UK supermarkets. The company has 14 production facilities employing 5,300 people; their products are sold in 40 countries. The majority of Dairy Crest's produce is distributed through its national distribution centre (NDC) in Nuneaton, Warwickshire. Dairy Crest's NDC is one of only a few in the UK that is fully automated and it incorporates cheese maturation, pre-packing as well as a distribution centre function.

The opening of its NDC was the first in a series of improvements that Dairy Crest made to its supply chain processes to meet a forecasted growth in business and new requirements from its key customers, including Tesco. In particular, the supermarket chain wanted to speed up delivery times and destock its regional distribution centres as well as make its goods-in processes more efficient and less costly.

Dairy Crest's ambition was to increase the level of automation in its supply chain. The project team decided to focus on improving the accuracy and flow of information connected to the delivery of goods to Tesco's regional distribution centres. The challenge was to deliver these improvements while maintaining a high standard of customer service.





## Before Deliveries Arrive

Tesco operates a sales-based ordering system and places its orders with Dairy Crest using Electronic Data Interchange (EDI) technology.

Consignments are assembled within Dairy Crest's NDC and each pallet is identified with a logistics label, which contains a Serial Shipping Container Code (SSCC), a unique GS1 number (represented by a bar code) that also identifies the goods when they arrive at Tesco's regional distribution centre. As the pallets in the consignment are loaded onto the delivery lorry, they are scanned which then triggers Dairy Crest's warehouse management system to issue an ASN message, which is sent to Tesco's receiving facility.

The company has managed to achieve a delivery accuracy of 99.5% in line with Tesco's target.

The ASN received by Tesco provides detailed information about the consignment before it arrives. Tesco knows in advance whether there are any discrepancies between what it ordered and what it will receive, which means it can prepare for the arrival of the goods and can authorise payment to Dairy Crest without delay. When a consignment arrives at Tesco's warehouse, goods-in can scan the SSCC on each pallet, which enables them to verify it against the ASN. This means Tesco can now identify any discrepancies between the goods that left Dairy Crest's NDC and the ones that arrived.

The introduction of ASNs has benefits for both Dairy Crest and Tesco. Dairy Crest can now fulfil a key part of Tesco's requirements to deliver within tight timeframes and to provide the necessary information in advance of deliveries being made. The company has managed to achieve a delivery accuracy of 99.5% in line with Tesco's target.

By meeting these requirements, Dairy Crest can maintain an excellent trading relationship with a key customer. The use of ASNs and ePODs has also reduced the number of manual paperbased systems in Dairy Crest's business, which results in fewer data errors. This means Dairy Crest receives fewer invoice queries, leading to improved cash flow.

Tesco can now plan its receiving and warehouse operations in advance of deliveries being made at its distribution centres. This is critical when large volumes of goods are involved and when the chilled goods need to be handled appropriately. With a more efficient system for receiving goods, Tesco can ensure that Dairy Crest's products are available at all times to its customers across its network of stores.

A recent study found that ASNs reduce the time it typically takes to unload a truck with 26 pallets from 52 minutes to 11 minutes when using GS1 logistics labels and ASNs. ASNs have helped Tesco reduce the human intervention when receiving goods, which has reduced errors and therefore labour costs.

## Future Plans

Tesco and Dairy Crest are focused on continual improvement. As they look to the future, the two companies are working to improve the information provided in the ASNs they exchange.

## Contact Information

Interested in learning more about this case?

- Contact Andy Robson, GS1 UK at [Andy.Robson@gs1uk.org](mailto:Andy.Robson@gs1uk.org)

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# 02

## DELIVERING VALUE IN THE WAREHOUSE MANAGEMENT BUSINESS PROCESS



# Reducing Costs and Lowering Administrative Work by Using GS1 Standards

## CHALLENGE

To optimise supply chain operations, the transport and logistics industry wanted to issue more electronic invoices and transfer them via EDI (electronic data interchange) procedures between trading partners.

## SOLUTION

Formed from the ECR Austria Service Platform “EDI Profile” and the Logistics Network Mehrweg (LMW) Initiative, a working group developed message formats for three types of invoices: forwarding invoice, warehouse invoice and pro-forma invoice.

## BENEFITS

- Reduced transaction and communication costs.
- Lower administration costs.
- Reduced errors for lower quality and error-correction costs.
- Improved information base for optimising logistics processes.
- Longer-term partnerships and closer cooperation between trading partners.



## Summary

In April 2013, the sub-working group of the ECR Austria service platform, “EDI Profile,” was launched to define a national invoice standard for freight forwarding and warehouse billing (INVOIC). The working group agreed that the information standard should build on the current EDI-message format, EANCOM®.

During the past decade, all necessary logistics messages between industry players, logistics services providers (LSPs), and transport carriers were defined as part of the ECR logistics information flow. The final process of logistics billing between trading partners was, however, not specified.

Therefore, in the summer of 2013, the working group was revived to address this need. As a result, it defined an INVOIC standard for forwarding and warehouse billing.

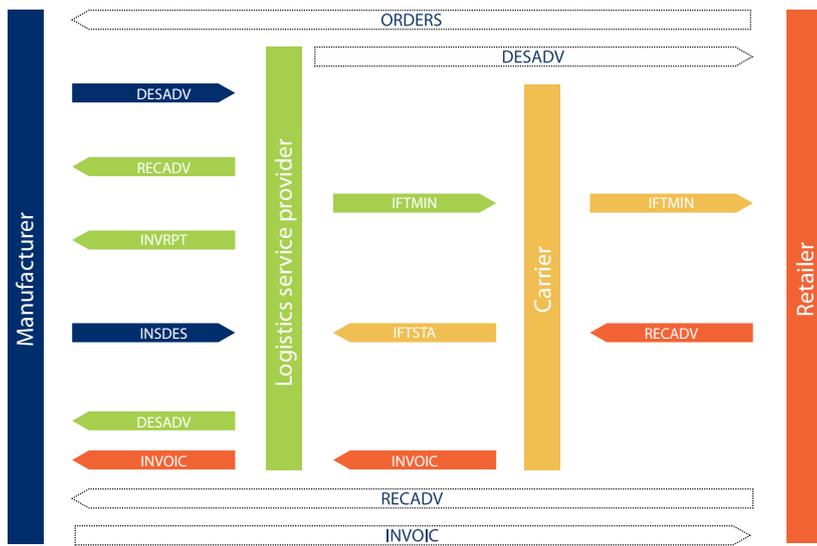
In light of the current Value Added Tax (VAT) legislation and the associated facilitation of electronic invoices, the message-type INVOIC has been, therefore, defined as an industry standard between LSPs, suppliers and retailers. This enables automated invoice data management and coverage of logistics services through Global Trade Item Numbers (GTINs).

## Cooperative Approach

The reason for re-establishing the working group came from suppliers and retailers that expressed the desire for more electronic invoices as well as the ability to transfer them via EDI procedures for improved supply chain processes.

For improved collaboration, companies representing industry and trade from the existing ECR Austria Service Platform “EDI Profile” also invited forwarding and freight companies of the Logistics Network Mehrweg (LMW) Initiative to take part in the working group. All participating companies exclusively consist of members of the ECR Austria initiative. This was greatly appreciated by all participating companies since synergies between GS1, ECR and LMW could be fully leveraged and exploited.

## Logistics Handling



The **forwarding invoice** includes the physical transport of one or more shipments from the delivery point to the receiving point. For example, this can be a ramp from the goods shipper, consignee of the goods, and LSPs. A forwarding invoice or credit note can be created between the shipper of the goods and the LSP, as well as between LSPs and the actual carrier or service provider.

The **warehouse invoice** includes warehouse services invoiced in various forms, such as a value-added service (VAS). It shall be established as a rule between the consignor of the goods and a LSP that is responsible for the warehousing of goods shipped.

The process of forwarding and warehouse billing is enhanced with standardised electronic invoicing.

Anticipated benefits from the introduction of electronic invoices in logistics processes include:

- Reduced transaction and communication costs through bundling, standardisation and automation of information processes.
- Lower administration costs by ensuring the complete information is provided in a timely manner without any media disruption.
- Minimized quality and error-correction costs through up-to-date transparency in the physical flow of goods such as shipment tracking, freight tracking, and more.
- Reduced errors by eliminating manual data-collection processes.
- Improved information base for optimising logistics processes; for example, inventory reduction, customs clearance acceleration, and improved presence through higher product availability.
- More long-term partnerships and closer cooperation between the trading partners in the supply chain.

After only three meetings, the working group quickly created a concept and content model for the logistics invoice. Two message formats were defined: a commercial invoice and a consolidated invoice. The syntactic structure of messages – EANCOM® message INVOIC = invoice – was adapted for the existing message definition based on the electronic invoice from the consumer goods industry and extends only to some fields determined by the group.

## Invoice Types

The specified invoice types are the forwarding invoice, warehouse invoice, and pro-forma invoice.

The **pro-forma invoice** is required as a proof-of-order or delivery for the transacted deliveries and logistics services. It is the preliminary information for either the invoice recipient or for any other partner involved in the logistics process. This type of invoice is used primarily for transparency and automation of the process, and is typically in-use only for a certain period of time. It should be noted that the pro-forma invoice has no payment character, and thus, does not trigger a payment by the receiving company.

## Implementation Support

The first implementations in the Austrian market are already in the pipeline.

With the successful definition of the invoice types, message descriptions can now be publicly viewed by all users on the GS1 Austria website. To review the full message definitions, visit [www.gs1.at/downloads](http://www.gs1.at/downloads).

Recommendations in this report describe the use of the electronic invoice with delivery details and credit (INVOIC), as defined by the initiative LDL-Austria.

## Contact Information

If you have any questions regarding the document, "Logistics Services Provider – eInvoicing for Forwarding and Warehouse Billing," (written in German) or would like to request the report, please contact the ECR Austria team at [ecr@gs1.at](mailto:ecr@gs1.at) or contact: Klaus Schober, MA Projectmanager eCom +43 (0)1 505 86 01-74 [Schober@gs1.at](mailto:Schober@gs1.at)



With special thanks to :





# Luís Simões Uses GS1 Standards to Create an Intelligent Logistics Operations Centre

## CHALLENGE

A market leader in logistics, Luís Simões wanted to achieve a competitive advantage by creating a “logistics operations centre of the future” by automating its processes for significant business results.

## SOLUTION

Luís Simões teamed with solution partners and clients to create the Logistics Operations Centre, enabled by GS1 Standards such as the Serial Shipping Container Code (SSCC) and Global Trade Item Number® (GTIN®) that are encoded in EAN-13, GS1-128 or ITF-14 bar codes on GS1 Logistics Labels. GS1 Standards are also included in transaction messages like the Despatch Advice and Received Advice.

## BENEFITS

- Improved warehouse storage capacity by 200%.
- Reduced unit costs from 13% to 22%.
- Improved service level to > 99.97%
- Improved stock quality to > 99.96%
- Able to store 2.8 pallets per square metre.
- Up to 600 pallets can be stored or retrieved per hour.

## Intelligent Logistics



Luís Simões (LS) is the holding company of 10 independent businesses in three business units: transport, logistics and diversification. The company is a market leader in the road transportation sector in Portugal.

LS provides integrated logistics services in large-scale warehouses and manages a fleet of nearly 2,000 vehicles. Employing 1,800 people, LS has distribution and operational centres in most significant Iberian cities and manages 500 daily routes of full-truck loads throughout the area.

As a market leader, LS wanted to achieve an even greater competitive advantage in its given market by creating the “Logistics Operations Centre (LOC) of the Future” project.

The project’s overall goal was to develop an “intelligent,” multi-client and multi-product warehouse by automating all operations where human-resource execution would not add value to the processes. At the same time, the project aimed to maintain the flexibility of a conventional warehouse, integrating the automated processes with the manual operations where human resources provided an advantage.

## Automation with Manual Processes

The strategy was to automate the movements of logistics units or pallets, whether homogeneous or heterogeneous and complete or incomplete, while keeping some of the manual operations, including preparation of orders (picking), inverse logistics, and choice of unfit products.

Specific objectives included:

- Increase LOC capacity by 200%.
- Attract new, large clients with large-scale daily-flow needs.
- Improve productivity via automated systems like unloading and loading activities and preparing orders.
- Reduce the unit cost of internal logistics activities by 15% to 20%.
- Increase inventory accuracy.
- Raise operational flexibility and accuracy of processes, using automated systems.
- Create brand differentiation in the market.
- Implement GS1 Standards as part of the automated processes.

Perhaps the biggest challenge was to develop a solution that could provide the needed flexibility of a conventional warehouse – something not typically found in automated warehouses. To solve this problem, LS contracted Hanhart Logistics, a consultancy firm that provided the necessary expertise and experience. Efacec, a solution provider, delivered all services associated with layout design, automation machinery, and integrating GS1 Standards into the processes.

The LOC of the Future project attracted new large clients that participated during the testing and implementation phases.



With this team of experts and supportive clients, LS was able to overcome obstacles and successfully reach its goal as the LOC of the Future.

## New Logistics Operation Centre

Today, the LOC of the Future can store as many as 56,000 pallets and move up to 600 pallets per hour, working 24 hours a day, seven days a week.

The majority of the activities are supported by automated systems managed by software working on three integrated and hierarchical management systems.

The warehouse management system manages product, task and warehouse function information. There, the article master files are managed and operating rules are defined for each client, operation and article. The flow management system specifies how products will arrive at the correct locations. Finally, a photocell recognition system is used to manage traceability of the product in the warehouse, from origin to destination.

## GS1 Standards Enable Intelligence

GS1 Standards also play a major role in the new Logistics Operations Centre.

In the receiving process, trucks are loaded and unloaded in the traditional way; yet, when pallets are received, they are validated by scanning the SSCC and additional information like the GTIN, due date, batch/lot number, production date, and quantities – all encoded in the GS1-128 bar code. In the picking process, workers scan the product GTIN encoded in EAN-13 or ITF-14 bar codes.

It takes only 35 minutes for receiving a full-truck load of 33 pallets, or approximately one minute per pallet.

The GS1 Logistics Label is used in all logistics processes. The workforce management system only recognises a single SSCC in all warehouse storage processes.

For logistic units not labelled with the GS1 Logistics Label, information is manually collected and a new label is printed with a new SSCC from Luís Simões.

For shipping, a Logistics Label is applied with a unique SSCC. The order information is shared with the respective client via Despatch Advice (DESADV) messages that contain the same GS1 Standards' information as provided on the GS1 Logistics Label.

Standard information sharing with trading partners include:

- The Luís Simões GLN and clients' GLNs for each transacted message.
- DESADV received with order information and the SSCCs.
- RECADV sent with information of the order received.

As a result, there has been an improvement in data quality, shared by all trading partners in a timely manner.

Also by using the INVRTP messages for inventory "holds" along with SSCC information, there has been an improvement in the security of quarantined inventory.

Using GS1 Standards, the LOC of the Future has also reduced its operational lead times while reducing costs associated with storage processes for different clients. Further, by scanning the SSCC, it has achieved complete traceability within its company's supply chain and a more stable inventory.

## Intelligent LOC Today

Luís Simões attributes several factors as critical for the success of the LOC of the Future project.

By using GS1 Standards, the company not only achieved its objectives, it is now using a continuous improvement methodology, also enabled by GS1 Standards.

By combining GS1 Standards with software-driven, automated processes and select manual processes, Luís Simões was able to achieve significant improvements in operational efficiency and inventory accuracy.

The company has truly created an "intelligent" Logistics Operations Centre that is no longer an idea for the future, but a reality today.

## Contact Information

Interested in learning more about this case?

- Contact Filipe Esteves, GS1 Portugal at [f.esteves@gs1pt.org](mailto:f.esteves@gs1pt.org)

With special thanks to :





# Philips Uses GS1 Standards to Streamline Operations and Control Costs with LSPs

## CHALLENGE

A large number of logistics services providers (LSPs) provide contracted logistics services to Philips around the world. Each LSP used its own proprietary system to interface with Philips. This model required that Philips maintain each of these separate interfaces, leading to increased costs and inefficiencies. The company wanted to transition to a common set of interfaces based on GS1 Standards.

## SOLUTION

Philips now requires that all contracted LSPs use GS1 identification keys and one common set of 18 interfaces, based on the GS1 XML standards. All new contracted LSPs have complied with these new requirements. In addition, the Philips Purchasing Department has added “the use of GS1 Standards” as a selection requirement for new LSPs.

## BENEFITS

- Increased visibility throughout the entire supply chain for improved operational efficiencies.
- Decreased costs of maintaining interfaces.
- Faster start-up time with a new LSP.
- Flexibility to switch between LSPs and their services, when needed.



## Thousands of Interfaces

Royal Philips (Philips) of the Netherlands is a diversified technology company and a leader in cardiac care, acute care and home healthcare, energy efficient lighting solutions and new lighting applications, as well as male shaving and grooming and oral healthcare.

In 2012, the company posted sales of € 24.8 billion and employs approximately 114,000 employees with sales and services in more than 100 countries. As a global business, Philips contracts with more than 20 Logistics Services Providers (LSPs) to support its transportation and logistics needs throughout the world.

Philips had to integrate with each LSP’s proprietary interfaces and systems as well as maintain these separate interfaces. “We were making changes for each one and ended up with thousands of interfaces that we were maintaining,” says Marc Cox, senior business analyst of Warehousing, Logistics, and MIS. “This business model was no longer feasible.”

Documentation was created for each implementation. Different logistics solutions were being used for the same Philips’ logistics requirement. And flexibility was compromised; it was next to impossible to transition from one LSP to another when needed.

A team started researching how the company might streamline its processes with their network of LSPs. They considered how other large companies were interfacing with LSPs, using a standards-based approach.

“At Philips, we have been using GS1 identification keys for several years,” says Cox. “It made sense for us to extend the use of these GS1 identification keys with GS1 eCom XML Standards – the only set of standards that complied with our requirements – to our relationships with LSPs.”

## Required Common Approach

Today, Philips requires that all of their contracted LSPs use GS1 Standards as a common way to interact and conduct business.

Specific standards requirements include the GS1 identification keys: Global Trade Item Number® (GTIN®), Global Location Number (GLN) and Serial Shipping Container Code (SSCC) embedded in the GS1 Logistics Label to uniquely identify products, locations and logistics units as they travel through the supply chain.

These same identification standards can also be included in the company's EDI transactions, enabled by another GS1 Standard, GS1 XML. "We now have one set of interfaces, internal documentation, and guidelines for projects, testing and monitoring," says Cox.

The Philips team also created an implementation guide for LSPs, outlining the content of messages from Philips and the detailed information Philips expects from them, including examples of messages.

"The implementation now goes relatively fast. In approximately six weeks, we can connect a newly contracted LSP, using the new GS1 Standards-based processes. It has significantly improved our cost structure and productivity."

"We also contacted our Purchasing Department to ensure the "use of GS1 Standards" was part of our company's initial negotiations with LSPs," says Cox. "We requested that Purchasing investigate the level of familiarity with and maturity in using GS1 Standards. The LSP selection process is now based on cost, quality, and the LSP's agreement and ability to conform with GS1 Standards." Cox advises that all but a few LSPs were willing to implement and use GS1 Standards. Since it is a "knock-out" criterion, those not willing to implement GS1 Standards are not considered.

*"In the end, I believe most of our LSPs realised they would benefit as much as we would from using standards-based processes," explains Cox. "Like us, they can gain operational efficiencies for reduced costs and greater visibility of the entire supply chain – not just their portion of it."*

**Marc Cox**, Senior Business Analyst of Warehousing, Logistics, and MIS, Philips

## Successful Transition

Cox advises about the factors and benefits associated with Philips' successful transition to a common set of interfaces with the LSP community, to include:

- **Consistent use of GS1 identification keys:** End-to-end visibility is now possible, using much less effort than ever before. The LSPs can easily track and trace shipments throughout their supply chains as well as the Philips supply chain. "When considering a logistics provider, we select only companies that are using GS1 Standards since they can provide us with the needed supply chain visibility to meet our required performance expectations," says Cox.
- **Global standards:** As a global company, Philips needed standards that would be recognised from country to country.
- **Support from the GS1 organisation:** Experts from GS1 provided support the Philips team when questions or issues arose. The ability to quickly get answers was important for an expeditious implementation.

Cox sums up the value of the standards-based approach, "The installation of the standard set of interfaces for logistics has provided some major benefits. Maintenance costs have considerably dropped and the ease of implementation has significantly improved. It's been a 'win-win' for Philips and our LSPs."

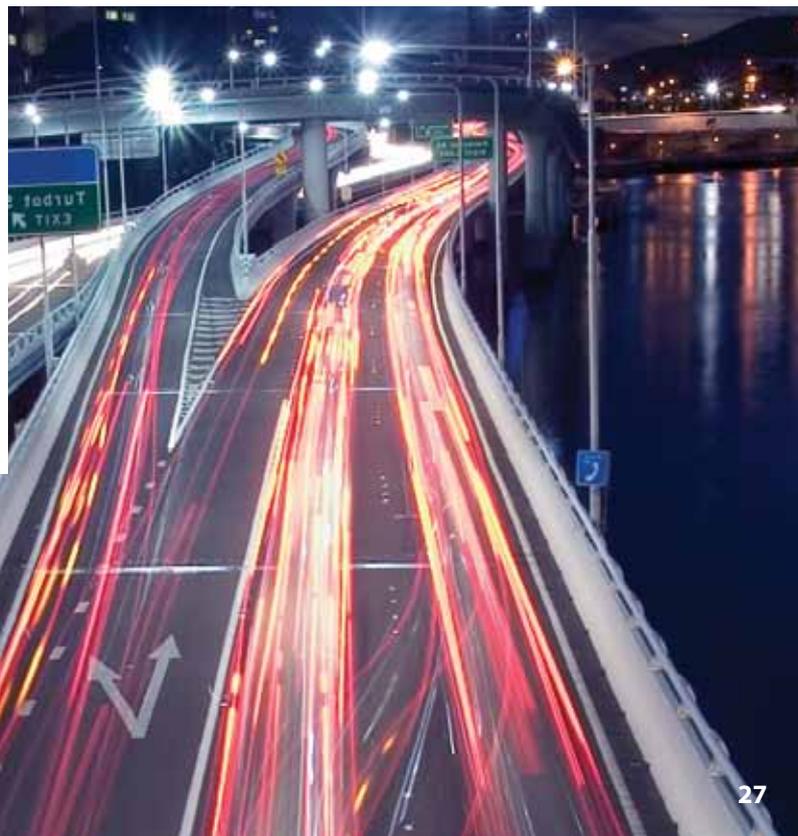
## Contact Information

Interested in learning more about this case?

- Contact Marc Cox , Philips at [m.cox@philips.com](mailto:m.cox@philips.com)



With special thanks to :





**03**

**DELIVERING VALUE  
IN THE TRANSPORT MANAGEMENT  
BUSINESS PROCESS**



# Transport Management Using GS1 Standards in a SME Project

## CHALLENGE

Germany-based Spedition Martin and its French trading partner, GCF, participated in the PROZEUS project to achieve standardised, paperless execution of invoices and transport instructions in a cross-border deployment. They aimed to accelerate their communication processes for significant cost and time savings as well as avoid loading and accounting errors.

## SOLUTION

For the successful implementation of cross-border electronic data transfer, the companies use Electronic Data Interchange (EDI) along with GS1 EANCOM® recommendations. The GS1 Electronic Transport Instruction (IFTMIN) is being used from GCF to Spedition Martin, and the electronic invoice (INVOIC) is used from Spedition Martin to GCF.

## BENEFITS

- For Spedition Martin, improved competitiveness and stronger customer relations, helping to win more customers.
- Payback period of 1.6 years with an annual savings of € 13,200 based on time savings for transport instruction and billing creation.
- Accelerated communication between trading partners
- Eliminated need for manual data entry.
- Avoidance of accounting errors and incorrect shipments.



Using EANCOM® to accelerate the communication processes and to achieve cost and time savings

## Need for Standardisation

The PROZEUS project was jointly carried out by GS1 Germany and IW Consult, with the support of the German Federal Ministry of Commerce & Technology. The aim of the project was to achieve a paperless execution of invoices and transport instructions in a cross border deployment with Germany and France. To execute the project, SMEs (Small and medium-sized enterprises) were selected to test within their own operations.

### IN BRIEF

The objectives of the project were:

- Accelerate the processes.
- Avoid manual input.
- Create savings in printing costs.
- Reduce postage costs.
- Create a cross-border win-win situation.

Duration of the project: 9 months

Investments hardware & software: 11,500 €

Person-days: 23 (9,000 €)

Payback period: 1.6 years

Economic benefit savings: 13,200 € per year

German Spedition Martin and their French trading partner GCF participated by testing eBusiness solutions based on globally applicable processes and standards. Partnered for many years, the two companies have already identified the potential of standardised cross-company processes for the entire value chain.

The first step of the project was to determine an efficient process for the electronic transmission of invoices and transport instructions. By switching to the Electronic Data Interchange (EDI), the companies aimed to accelerate their communication processes and to achieve significant cost and time savings. In addition, they wanted to avoid loading and accounting errors by establishing standardised international processes.

Essential for the successful implementation of cross border electronic data transfer was the creation of appropriate structures within the companies and their participation in the global GS1 System.

In order to monitor and steer the project's progress, including the necessary technical changes, a detailed timetable was drawn up which was regularly checked and adjusted.

"The introduction of the two electronic EANCOM® messages IFTMIN and INVOIC has led to considerable savings in terms of time and cost. Our processes have been improved and the numbers of manual steps could be reduced to a minimum. Within two years the initial project cost was paid back by the savings entailed through the electronic messages."

Georg Martin, chief of operation in Spedition Martin

Another important step was to define the interfaces. The formulation helped the EDI Clearing Centre in the implementation of technical aspects and created higher transparency regarding data sources and integrity.

## Critical Success Factors

- Definition of EDI-interfaces.
- Organisational adjustments.
- Cross functional project.
- Dedicated project leadership.
- Analysis of the as-is-state.
- Definition of the target-state.

## Key Learnings

- Project management is an essential factor in the planning, implementation and control of a cross-border EDI-introduction.
- Cooperation, accurate planning, management and documentation of activities are all crucial.
- Test phases and the rapid implementation of corrections were also important criteria for success.

### Proven

With the conversion to electronic data exchange:

- Need for manual data entry was eliminated.
- Communication process was accelerated.
- Accounting errors and incorrect shipments were avoided.

## Partners Involved

**PROZEUS** provides clear information on eBusiness standards to help small and medium-sized companies (SME) acquire eBusiness competence. [www.prozeus.de](http://www.prozeus.de)



**Spedition Martin** was established in 1975. They focus on procurement and distribution logistics, especially in the areas of Fast Moving Consumer Goods and General Industrial Goods.





**Groupe GCF** / Les Grands Chais de France (GCF) was founded in 1979 and has since become one of France's largest wholesalers of wines and spirits. The group is active worldwide with a worldwide distribution network.



**Result**  
Savings of 13,200€/year with  
Payback in 1.6 years.

## Significant Results Achieved

Spedition Martin was able to strengthen and expand their competitiveness. Customer satisfaction improved, strengthening their existing business relations and helping them to win new customers. An economic analysis showed that investment costs of Spedition Martin would already be paid back in the second year if two other EDI-partners could be found, which was the case.

The cost savings from the introduction of electronic message IFTMIN (70% of savings) and through the introduction of cross-border INVOIC accounts (30% of savings) come from time savings:

- 80 min. per day saved in terms of transport instruction creation (for GCF and 2 other partners).
- Daily time savings during billing (5 minutes/day to GCF and 15 minutes/day to other business partners).

## GS1 Standards Used

Based on the GS1 EANCOM<sup>®</sup> recommendations, the following GS1 standards were implemented:

- Electronic Transport Instruction (IFTMIN): transport assignment from GCF to Spedition Martin in Germany.
- An electronic invoice (INVOIC) from Spedition Martin to GCF in France.

## Contact Information

Interested in learning more about this case?

- Contact Heide Buhl, GS1 Germany at [buhl@gs1-germany.de](mailto:buhl@gs1-germany.de)

With special thanks to :





# GS1 Standards go to Sea: Streamlining the Administrative Process Brings Measurable Results

## CHALLENGE

More and more demands are being placed on transport and logistics companies to ensure goods arrive at the right place at the right. As many as ten different players can be involved in the transport chain, most with their own unique systems for communicating with each other. Stena Line Freight wanted to streamline and speed-up administration and paperwork at the terminal, customs clearance, and during loading and unloading.

## SOLUTION

Stena Line Freight along with logistics providers, DSV and Schenker, used part of the GS1 Logistics Interoperability Model (LIM) to standardise the structure and content of data interchanges. In Phase one, transport instructions and bookings were handled with phase two focusing on sending status messages.

## BENEFITS

- Increased efficiency by reducing the workload by half based on less time required for loading and unloading.
- Greater control of process and time required for each step.
- Improved productivity by dramatically reducing the required manual work for dangerous goods.
- Enhanced quality of data transmitted each step of the way.



“In today’s transport chain, there may be as many as ten different actors between the seller and the buyer,” notes Christer Kjellberg, IT Manager at Stena Line Freight, “And generally, they each have their own separate systems.”

## Right Place, Right Time

Today, the demands on transport and logistics companies are increasing. At the same time the world is shrinking, trade is becoming increasingly global. Consequently, there is added pressure for everything to arrive at the right place at the right time.

## Logistics Interoperability Model (LIM)

Gain benefits for global supply chains by increasing the business interoperability and the visibility of operations. The GS1 LIM achieves this by harmonising the business processes, as well as by standardising the structure and the content of the data interchanges.

Christer Kjellberg, IT manager at Stena Line Freight, is one of the leaders pushing for standardisation of information flow in the transport industry. The sea freight sector, as well as other modes, wrestles with the question of how to streamline and to speed up administration and paperwork at the terminal, at customs clearance, at loading and unloading; and other transports to the customer.

“We have many players involved in the transport chain,” notes Mr. Kjellberg. “There may be ten different actors involved between the seller and the buyer. Today, it is usual that they have their own systems for contact with each actor in the chain.”

More goods, more routes and more customers place greater demands on EDI and automated flows. The GS1 Serial Shipping Container Code (SSCC) has long been used to identify a package. It is required for being able to work with shipment tracking and warehouse management, as well as for more efficient handling during transport.

## Standardise the Administrative Work

During Spring 2012, Stena Line along with logistics providers DSV and Schenker, used part of the GS1 LIM in a project. In Phase one, transport instructions and bookings were handled and, in Autumn 2012, the second phase was to send status messages.



“In the ‘90s, the Swedish International Freight Association (SIFA) developed Pharos, which is a Scandinavian industry standard for information flows for freight traffic. However, Pharos development has stopped and it has limitations in an increasingly international environment,” states Mr. Kjellberg. “Now that we can use the GS1 LIM, we can use the rest of the GS1 system which enables us to communicate with users worldwide.”

## Workload Reduced by Half

There are great potential benefits in the coordination between GS1 LIM and e-Freight, an EU project for the standardisation of transport documentation. Information to authorities would be sent in the same way while all necessary documents, such as electronic manifests and hazardous-goods reports, would be standardised.

## Efficiency Realised

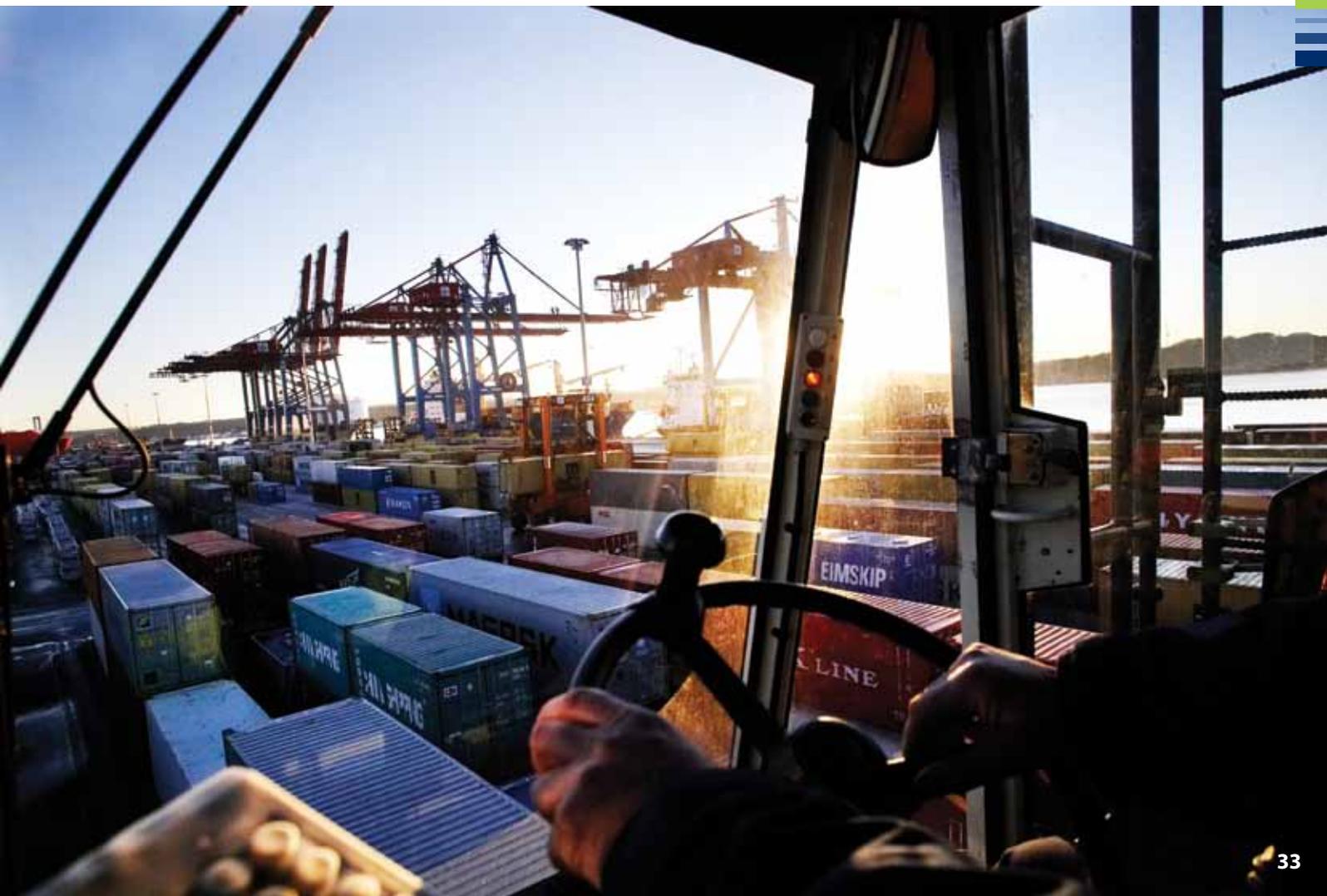
Efficiency is the main benefit for Stena Line, as well as other shipping companies, freight forwarders, hauliers and other partners along the transport chain.

“We reduced the work by half compared to manual booking through reducing the time for loading and unloading. We can also control how long each step takes,” explains Mr. Kjellberg.

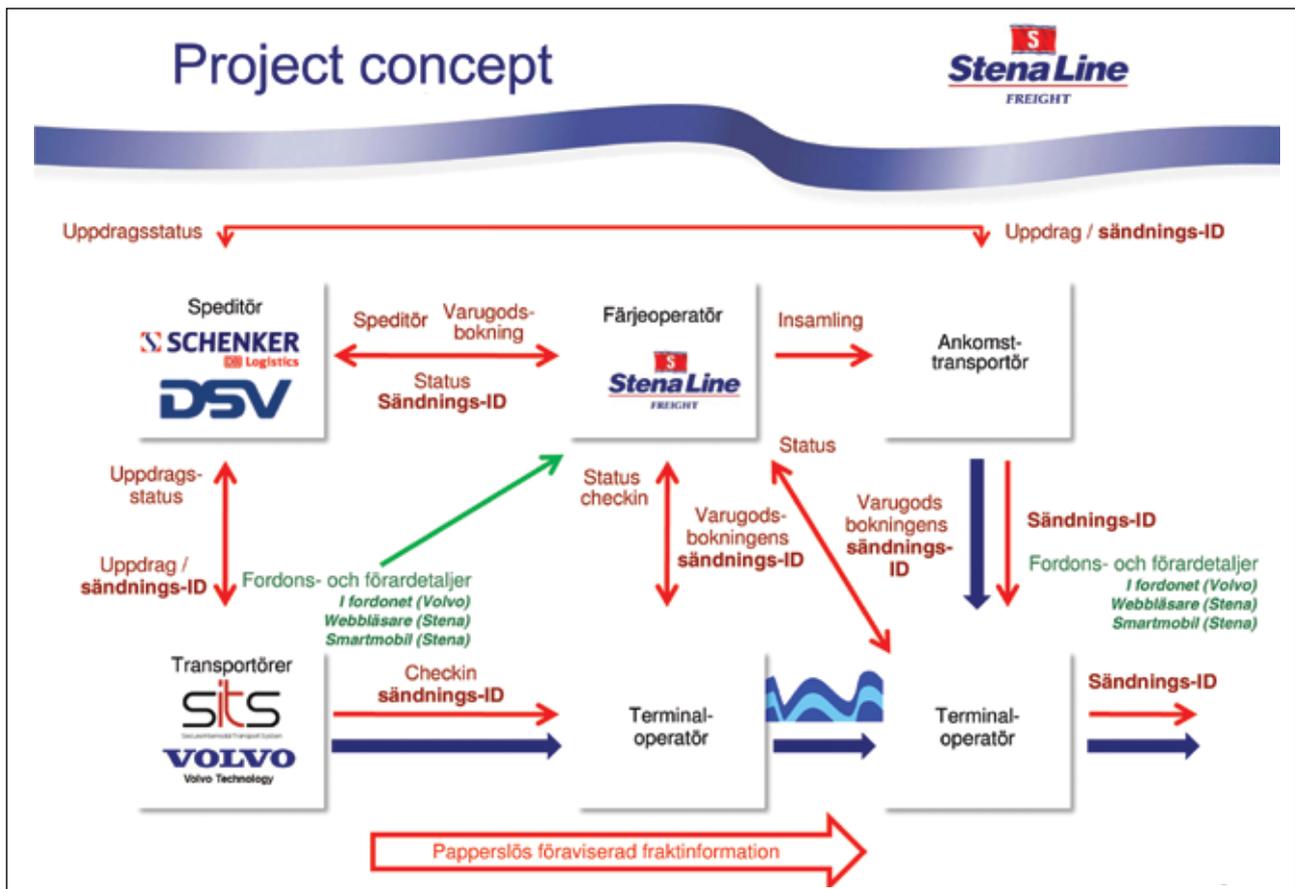
As an example, a haulier sends a tractor to pick up a container. Using the new system, it is possible to obtain precise information on when and where the container can be picked up.

Another benefit is that quality assured information can be transmitted to each link. Considering that five percent of all shipments contain dangerous goods, Stena Line must have a service at every port to administer and control. When the information is standardised and transferred electronically, the manual work around dangerous goods is dramatically reduced.

Mr. Kjellberg sees the introduction of GS1 LIM as an important step for the transport industry. “With GS1 LIM, we can show how cooperation and common standards benefit everyone!”



# Project concept



## DSV Road AB

One of Europe's largest logistics providers, worked with Stena Line and others in this project in conjunction with GS1 to standardise information between all links in the transport chain



"Today, we send e-mail without thinking about the format or protocol that is used, no matter who we send to. It should be that simple to transfer business information between different business systems via EDI," states Mats Rosen of DSV Road AB.

"The starting point is traceability so all partners in the supply chain have information and can plan better. By giving everyone access to the same information in real time, we can reduce delays, be better prepared when something happens, and speed up handling."

"The hope is that more shipping lines, freight forwarders and eventually all other companies involved in logistics and transportation, will be connected. We want simple general solutions based on the same standards that work in all countries," emphasises Mr. Rosen.

Sweden and Scandinavia are at the forefront when it comes to using EDI. They both have experience working with standardisation of information flow through Pharos, an information system that was developed by the Freight Association in the '90s.

Mr. Rosen is optimistic about the possibilities to get a quick commitment to the use of GS1 Standards. He states, "We are ready to take the next step with a more international solution. GS1 standards are established globally and they have a good management process. It is the right direction and there are several of us dedicated to the introduction of GS1 standards."



## Contact Information

Interested in learning more about this case?

- Contact Mia Lenman, GS1 Sweden at [Mia.Lenman@gs1.se](mailto:Mia.Lenman@gs1.se)

With special thanks to :





**Customs  
Douanes**

**04**

**DELIVERING VALUE IN THE  
BORDER PROCEDURE MANAGEMENT  
(CUSTOMS) BUSINESS PROCESS**



**STOP  
FOR INSPECTION  
ENTER WHEN  
CLEAR**

**ARRÊT  
INSPECTION  
AVANCEZ QUAND**

Canada  
Customs  
Douanes  
Canada

# Rapid Detection of Counterfeits with WCO's IPM and GS1 Standards

## CHALLENGE

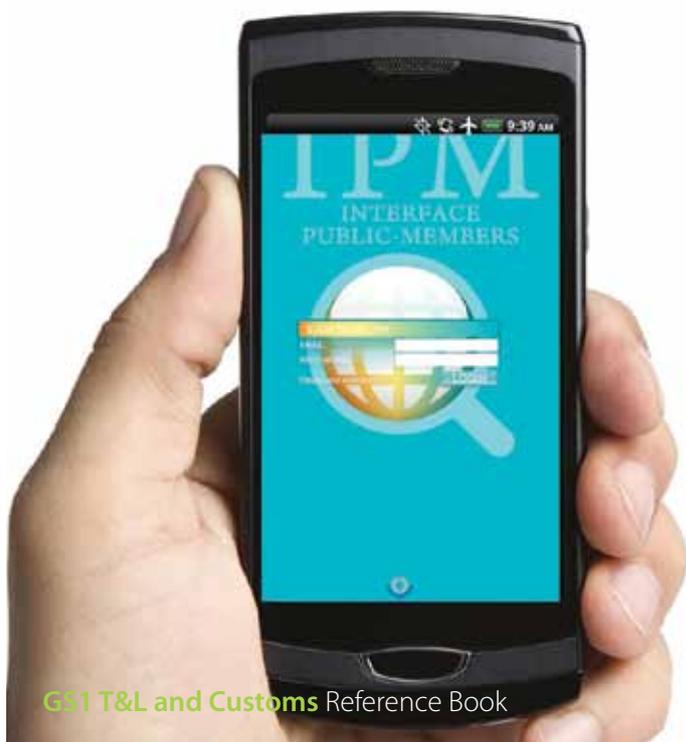
Counterfeit products pose a significant threat to consumer safety and welfare. Billions of Euros and 100,000 jobs in the European Union (EU) are lost each year from counterfeit products, most of them traveling through international borders.

## SOLUTION

To strengthen the ability of Customs to detect counterfeit products, the World Customs Organization (WCO) provides them with the Interface Public-Members (IPM) anti-counterfeiting tool. Field Customs officers scan the GS1 Global Trade Item Number® (GTIN®) encoded in the product's barcode or input key words. IPM compares the product information to a database of legitimate products for counterfeit detection.

## BENEFITS

- Reduced volume of counterfeit products traveling through international borders.
- Increased consumer safety and confidence.
- Improved brand reputations.
- Avoidance of lost costs and jobs.



## Stopping Counterfeit at Borders

Every year, everywhere in the world, millions of counterfeit products are sold to consumers, resulting in safety issues and damage to brand reputations.

For country members of the G20 that represent over 75% of world trade, costs from counterfeit products total € 71 billion each year; for France alone, the loss is € 6 billion. Yet, the loss extends beyond the financial aspect: the European Union has determined that counterfeit products are responsible for the destruction of 100,000 jobs every year.

Customs officers are on the front line in the fight against counterfeiting. They account for 90% of counterfeit goods seized in Europe, and over 70% worldwide.

Now, the WCO, in collaboration with GS1, offers Customs Administrations the IPM tool that gives them the ability to detect counterfeit products more efficiently, stopping them at the borders.

## GTIN is the Key

The vast majority of products sold today are assigned GTINs that are encoded in a GS1 barcode. By scanning the GTIN data in the barcode, Customs officers can check if the product they are inspecting is compliant with its description by the brand owner.

They do this via the WCO's IPM global anti-counterfeiting tool. IPM is for Customs use only and gives officers direct access – either via web-based or mobile application – to a database of product information provided by participating companies worldwide. Customs officers can scan the GTIN in the barcode or enter keywords such as the brand name and item name.

Once the information is entered or scanned, IPM sends a request to different databases to provide Customs officers with authentication data related to the inspected product.

# CUSTOMS AND BORDER

## Widespread Support and Benefits

There is widespread support for IPM within national Customs Administrations throughout the world. Today, 71 countries worldwide use IPM with over 3,000 Customs officers trained to use it.

Since many Customs authorities in the world do not have the means – human and financial resources – to combat counterfeiting, a key success factor for IPM was its ready-to-use attribute. To access the IPM product databases, Customs officers only need a smartphone to control product authenticity and communicate with brands.

There is also strong support from the business and solution provider communities. Consider that brand owners from major companies in more than 20 sectors have given the right to Customs to consult their product records using IPM.

Furthermore, 10 authentication and traceability solution providers, to date, have signed the IPM Connected Programme agreement to interface their services with IPM.

With the IPM tool, Customs Administrations have an easy and immediate way to proceed with product authentication. Brands also benefit by giving Customs access to their product information to stop counterfeit products at the borders before causing potential issues. And above all, consumers benefit through enhanced product safety.

The GS1 GTIN is the key for the IPM application to point to authentication product data. In addition, GS1 symbols – GTIN-13, U.P.C.-12, and DataMatrix – are used to seamlessly access data for Customs use and benefit.

## Strengthening Protection

IPM acknowledges the importance of GS1 Standards in helping Customs organisations and companies alike fight against counterfeiting and the many issues it causes worldwide.

However, IPM can be further strengthened when brand owners adopt and use the Global Data Synchronisation Network™ (GDSN®). The more brands that use the GDSN, the stronger and more expansive IPM's protection against counterfeit products. Lastly, IPM will be even more effective and successful as new brands grant Customs officers access to their GDSN-enabled product information.

## Contact Information

Visit our websites at: [www.gs1.org/customs](http://www.gs1.org/customs)  
<http://ipmpromo.wcoomdpublications.org/>  
Or contact: Audrey Kremer : [audrey.kremer@gs1.org](mailto:audrey.kremer@gs1.org)  
Nicolas Pauvre : [nicolas.pauvre@gs1fr.org](mailto:nicolas.pauvre@gs1fr.org)  
Samantha Gompel : [samantha.gompel@wcoomd.org](mailto:samantha.gompel@wcoomd.org)

With special thanks to :





# Port Klang Authority and Operators to Gain Significant Benefits with GS1 Standards

## CHALLENGE

The Port Klang Authority supported by Malaysian Customs wanted to improve its port and maritime operations for increased efficiencies and transparency of goods as they traveled through the supply chain.

## SOLUTION

The first step will be to register all users of the port with GS1 Global Location Numbers (GLNs) to uniquely identify them and their physical sites. The next step will expand to the use of the Global Trade Item Number® (GTIN®) that will uniquely identify the products traveling through the port operation. Finally, the GS1 Electronic Product Code Information Services (EPCIS) platform will enable all trading partners to share data about the location of goods or other assets, making it possible to understand what actually happened as goods and assets are handled by trading partners in manufacturing sites, warehouses, retail stores and other facilities.

## BENEFITS

- Boost in business confidence and economic growth.
- Reduced costs and significant supply chain efficiencies.
- Enhanced product traceability and more effective recall process.
- Data interoperability between all stakeholders.
- Improved visibility and supply chain connectivity.

## GS1 Standards in Port Operations

GS1 Malaysia has secured a project with the Port Klang Authority supported by the Malaysian Customs administration to drive adoption of GS1 Standards in its port operations. To do this, Customs will integrate GS1 Identifiers with technologies in tracking, monitoring, validating and authenticating for improvements in the port and maritime operation.

Initial work will focus on the implementation of GLNs to identify all registered operators or users of Port Klang, including shipping agents, forwarding agents, freight forwarders, bonded warehouse operators, hauliers, and both importers and exporters.

The planned next step is to expand the use of the GS1 GLN to other ports in Malaysia and ASEAN, and to potentially move to the use of the GS1 GTIN for product identification.

## Steps and Milestones

The steps and major milestones for the project include:

- Use GLNs to identify all registered users and operators in Port Klang to enable real-time visibility and the efficient flow of containers, goods and information between trading partners.





These benefits will be realised as trading partners exchange messages electronically, route information about logistics units, and designate the physical locations of logistics units as they travel through the supply chain.

- Support the establishment of the GS1 EPCIS platform in the near future to share real-time logistics information with authorities and registered port users, operators and brand owners.

EPCIS enables trading partners to share data about the location of goods or other assets (transport equipment, returnable assets like pallets), making it possible to understand what actually happened as goods and assets are handled by trading partners in manufacturing sites, warehouses, retail stores and other facilities.

Barcodes (encoded in GS1 labels) and/or EPC/RFID tags efficiently capture and record event data. EPCIS is a way to efficiently share the data between trading partners. As they are scanned by smart phones, tablets and other mobile devices each step of the way, EPCIS gives trading partners information about each event: what, where, when and why.

- Implement an integrated track and trace system for commodities of high value as well as security products.
- Engage Customs, port authorities, and logistics services providers in driving the adoption of GS1 Standards – the GS1 Identifiers like the GLN and GTIN as well as the GS1 EPCIS.
- Measure success via agreed-upon key performance indicators.

## Benefits for All

Expected benefits for Malaysian Customs, the Port Klang Authority, and operators include:

- Boost in business confidence and economic growth.
- Reduced costs and significant supply chain efficiencies.
- Enhanced product traceability and more effective recall process.
- Data interoperability between all stakeholders.
- Improved visibility and supply chain connectivity.

## Contact Information

Interested in learning more about this case?

- Contact Goh Chiang Fein, GS1 Malaysia at [cfgoh@GS1my.org](mailto:cfgoh@GS1my.org)

With special thanks to :





# New Zealand Customs Redesigns Cross-Border Services with Support from GS1 Standards

## CHALLENGE

The New Zealand Customs organisation wanted to redesign its cross-border activities to address the common challenges of facilitating the clearance of legitimate goods while maintaining secure borders and protecting consumer safety.

## SOLUTION

Customs implemented World Customs Organisation (WCO) Data Model, version 3.0 as the “single-trade window” through which imports gain clearance at New Zealand’s borders. The Data Model provides a framework of standardised and harmonised sets of data along with standard electronic messages to be submitted by businesses.

## BENEFITS

- Reduced costs associated with compliance for businesses.
- Controlled costs of providing border management services.
- Maximised protection from harmful products for consumer safety.

## High Assurance

New Zealand expects greater pressures on border services over the next 10 years with increasing trade volumes. Like many, the Government of New Zealand looks to its agencies for improved productivity and collaboration, including Customs.

New Zealand Customs, the Ministry of Primary Industries, and industry are all working together to implement a Joint Border Management System (JBMS) that provides a “single-trade window” through which to speed goods transit and increase visibility for risk management purposes.

With the JBMS, the New Zealand Customs organisation wanted to redesign its interactions with all Government services provided at the border – phyto-sanitary, biosecurity and Customs regimes.

## Single Trade Window

The intent was to organise Customs border control activities to address the common challenges of facilitating the clearance of legitimate goods while maintaining secure borders and protecting consumer safety.





Customs has identified GS1 Standards as important to support within the JBMS, and GS1 New Zealand is regarded as a strategic partner. While the use of GS1 Standards will not be mandated, they are supported by the JBMS based on the expected value they deliver for more complete and high-quality data.

As a result, the New Zealand Customs was the first to have truly implemented the World Customs Organisation (WCO) Data Model, version 3.0 as the single-trade window.

Launched in 2013 for imports, the WCO Data Model provides a framework of standardised and harmonised sets of data along with standard electronic messages to be submitted by trade.

Mostly for imports, traders can now interface with Customs directly; for example, small businesses will have a web-based interface to upload relevant documents. (The export market is targeted for implementation in the near future.)

This information, in turn, is used by Customs to provide faster product clearances for imports and, in the future, will be used to meet receiving countries' legal requirements for New Zealand exports.

## Speed Goods Through Borders

Customs believes this will help with border requirements for advance advice, and therefore help speed goods through the border. The use of standards will also help minimise corruption.

Customs also expects to better control its costs while maximising its protection of New Zealand citizens from harmful imports.

Businesses hearing about the new trade management system have been "extremely excited" about the potential efficiency gains and reduced costs, especially for large businesses where Customs brokers will no longer be needed.

## Contact Information

Interested in learning more about this case?

- Contact Sally King, GS1 New Zealand at [sally.king@gs1nz.org](mailto:sally.king@gs1nz.org)

With special thanks to :



A black hand truck with three grey boxes is positioned on a metal ramp. The ramp is set against a brick wall. The hand truck is tilted upwards, and the boxes are stacked on it. The ramp is supported by a stone base. The background is a brick wall. The foreground is a dark, textured surface.

**05**

**DELIVERING VALUE  
IN THE ASSET MANAGEMENT  
BUSINESS PROCESS**



# Improve Supply Chain Efficiency by Tracking and Managing Your Assets

## CHALLENGE

Transport and logistics (T&L) companies need to effectively track and manage their assets as they travel through supply chains. Manual processes and audits are inefficient and ineffective, requiring a significant amount of time and labour and, most times, only providing a snapshot of assets' current locations, which quickly change.

## SOLUTION

By using GS1 Standards along with automatic identification and data capture (AIDC) or radio frequency identification (RFID) technologies, T&L companies can accurately and automatically track asset movements at strategic points in the supply chain.

## BENEFITS

- Increased visibility of assets throughout supply chain.
- Improved staff productivity.
- Lower operating costs from greater efficiencies.
- Improved asset utilisation, fewer losses for better inventory management.



## Manage Assets Throughout Supply Chain

Your supply chain assets, properly managed, can be a powerful tool to support efficient and sustainable supply chain practises, helping you to free valuable capital and resources by reducing the time and money spent on transporting goods.

The challenge has always been to effectively track and manage your assets. The assets are often used by other companies, with little accountability, so manual audits are very inaccurate and at best can only give a snapshot of your current position.

Poor management and tracking of assets causes lost revenue and increased costs<sup>1</sup>:

- 50% of companies' logistics asset operations consume at least 5% of revenue
- 7% of companies have logistics asset operations that consume more than 10% of revenue
- 25% of companies lose more than 10% of their container fleet each year, with 10% of these losing more than 25%

On average, companies run with 30% more assets than would be required if they were managed in an optimised way. This is money that could be used more productively within the business to drive revenue and increase sales.

## Boost Supply Chain Efficiency

Effective asset management enables you to track and trace your assets by increasing their visibility throughout the supply chain. This enables you to use your assets efficiently, boost supply chain efficiency and improve the maintenance and repair of the assets through their life.

- Increase the number of monthly round trips by 16% – more cycles means lower operating costs, lower asset inventory and lower cost of ownership
- Reduce your annual asset loss by 7.5% through more accurate tracking and greater accountability throughout the supply chain
- Reduce your asset requirements by 20% through reduced losses and better utilisation





## Manage Assets – Accurately, Efficiently

The use of AIDC (Automatic Identification and Data Capture) technologies, such as bar coding or RFID (Radio Frequency Identification), combined with the use of GS1 global supply chain standards to uniquely identify your assets, offers an affordable and efficient way to get the greatest value from asset inventories.

Unique identification makes it possible to accurately and automatically track your assets' movements, using reading devices, which can be fixed, mobile and handheld, at strategic points in the supply chain.

Automating the management of these assets means all users can be held accountable for the units that pass through their facilities, so shrinkage and other losses can be curtailed, cycle times optimised and inventories match requirements.

“At METRO Group we believe that RFID with GS1 standards can help enhance customer service and increase the availability of products due to higher visibility of the flow of goods.”

Dr Gerd Wolfram, Managing Director, METRO Group

## Support Available

Our team of highly experienced consultants will help you build a compelling business case based on a detailed analysis of how your company tracks its assets.

We can help you develop a plan and project manage the implementation process, and with the support of our GS1 UK Accredited Solution Partners help you implement an industry standard solution.

## GS1 UK and GS1 Standards

The GS1 System is the most widely used set of supply chain standards in the world and is used by over 1.5 million companies. We are dedicated to the design and implementation of these standards and solutions to improve efficiency and visibility of supply chains. We have worked with many of the leading companies in the UK to help them implement supply chain solutions that deliver lasting benefits, including greater efficiency, reduced costs and improved customer service.



## Contact Information

Interested in learning more about this case?

- Contact Andy Robson, GS1 UK at [Andy.Robson@gs1uk.org](mailto:Andy.Robson@gs1uk.org)



# Kibun Gains Visibility on Location of its Trolleys with EPC/RFID

## CHALLENGE

The Kibun Group uses wheeled metal cage trolleys to transport ingredients and products across their supply and distribution chain. Many of these cage trolleys were being lost, resulting in both costs and delays. When workers didn't have enough trolleys, new ones had to be purchased; and in some locations insufficient trolleys were causing delays in shipping, particularly problematic in this fresh food business.

## SOLUTION

Now, each individual Kibun cage trolley is equipped with an GS1 EPC-enabled RFID tag encoded with a GS1 Global Returnable Asset Identifier (GRAI), designed specifically for capital assets.

## BENEFITS

- Visibility of each cage trolley's exact location at any point in time. Only one cage trolley has been lost since implementing the GS1 Standards solution – and that was due to human error.
- Payback period was only one year based on the cost of replacing lost cage trolleys.
- Improved, faster inventory of trolleys, which previously took several days, can now be done in less than 15 minutes.
- More streamlined logistics process that ensures the quantity of cage trolleys needed to ship fresh food promptly.



The Kibun Group operates a diverse array of businesses, all centered on chilled food, and principally surimi-based products. Headquartered in Japan, the group's 3100 employees strive to not only respond to consumer demands for tasty and safe food, but also to anticipate them. Kibun recorded sales of ¥101,000 million last year.

## Missing Trolleys

To transport ingredients and products across their supply and distribution chain, the company uses wheeled metal cage trolleys that travel from location to location. But these trolleys were not being capitalised as a company asset, and Kibun teams noticed that too many of these cage trolleys were being lost. Worse, the missing trolleys were generating both costs and delays. When workers didn't have enough trolleys, new ones had to be purchased; and in some locations insufficient trolleys were causing delays in shipping. This is a problem in any business, but in fresh food, shipping delays are particularly problematic.

Inventory of trolleys can now be done in minutes instead of days, and shipping logistics are smoother and faster. Only one single trolley has been lost since the system was launched.

## GS1 Standards Tracking Trolleys

To resolve these issues, Kibun decided to implement an asset management system for their cage trolleys. Kibun Trading Inc developed a solution built upon GS1 standards and EPC/RFID, which was implemented by Kibun Fresh Systems Inc at major distribution centres for refrigerated food. Today, each individual Kibun cage trolley is equipped with an EPC/RFID tag encoded with a GS1 Global Returnable Asset Identifier (GRAI).

This GRAI is a GS1 identification key specifically designed for use with capital assets that move across the supply chain, but belong to a particular company.



A return on investment within the year:  
the cost of the system was less than the  
cost of replacing lost assets every year.

Destinations in the Kibun supply chain are identified by barcodes. When trolleys are shipped, the destination store's barcode and each trolley's EPC tags are read by a handheld reader and linked together. In this way, the location of each trolley is known. When empty trolleys return to a Kibun distribution centre, they pass through a gate equipped with EPC/RFID readers that automatically record the arrival of each trolley and log them in the central Kibun database as being properly returned.

## Gaining Full Visibility of Assets

Thanks to the system, Kibun can now know the exact location of any and all of its cage trolleys at any point in time. Inventory of the trolleys, which previously took several days to complete, can now be done in less than 15 minutes. The time and labor necessary to manage trolleys has been reduced. And perhaps most importantly, the quality of the company's overall logistics process is better and smoother, because no location is ever without the quantity of cage trolleys it needs to ship fresh food promptly.

Since its launch, only one single cage trolley has been lost – and that was due to a human error. The reduction in lost cage trolleys easily justified the investment. For example, Kibun was spending ¥10 million per year replacing lost cage trolleys at one distribution centre.

This was more than the one-time cost of the hardware and software needed to install the EPC/RFID system at that centre, ie. ¥9.8 million. Thus, in one year, the company had recouped its investment.



## Next Steps

With such concrete cost and quality benefits apparent, Kibun is gearing up to deploy this tracking system at all of their distribution centres, and to extend it to other assets such as egg carts, stock carts and shipping crates.

## Contact Information

Interested in learning more about this case?

- Watch the video from GS1 Japan about the implementation of EPC/RFID at Kibun: [www.gs1.org/epcglobal/implementation](http://www.gs1.org/epcglobal/implementation)
- Contact GS1 Japan at [epcdesk@dsri.jp](mailto:epcdesk@dsri.jp)

“Thanks to GS1 standards, it is now possible to know who owns each cage trolley. This system makes it easy to claim our trolleys as our assets – and because many of our partners are also using these standards, they can also know which trolleys, pallets and containers in the warehouses are theirs.”

Mr. Toru Suzuki Manager, Packaging Materials Department - Kibun Trading Inc.

With special thanks to :





# Efficient Railyard Processes with GS1 EPC/RFID

## CHALLENGE

VR Transpoint, Finland's leading transport and logistics service company, wanted to improve overall wagon shunting efficiency, optimise wagon maintenance, and boost customer service by offering real-time wagon traceability information.

## SOLUTION

The company implemented a GS1 Standards-enabled solution. RFID EPC Gen 2 tags, specially designed to work on metal, are affixed to each side of all VR Transpoint rail-freight wagons, locomotives and passenger cars.

Each wagon is uniquely identified thanks to a GS1 Global Individual Asset Identifier (GIAI), encoded in an EPC RFID tag. More than 350 handheld RFID readers are in use by shunting yard workers in 50 different Finnish stations, and 100 fixed RFID readers are scheduled for installation at critical points across the Finnish railway network.

## BENEFITS

- Improved yard management via automated work orders and optimised train composition.
- Achieved annual average savings of € 5 million based on removal of unnecessary work steps, reduced delays, and elimination of the errors that accompany pen-and-paper process.
- Significantly improved customer service performance, specifically through increased wagon availability.
- More efficient and quicker wagon maintenance process.



## Inefficient Manual Processes

Finland's unique geography, its extremely northern location and its long, dark, cold winters can make it difficult to have efficient logistics that enable Finnish companies to successfully compete in global markets.

VR Transpoint, Finland's leading transport and logistic service company, has long been meeting that challenge. It operates in several European countries including Russia, and offers rail, groupage, bulk goods and international transport and logistics services.

A substantial portion of VR Transpoint's rail activity is devoted to shunting, the task of moving wagons from place to place in the yard as they are loaded and unloaded with goods. Until recently, the work was manual: yard workers with pens, paper and walkie-talkies walked through loading and unloading stations, radioing information about the contents and condition of each wagon they verified. An office worker on the other end of the radio would manually enter the data into an ERP system.

It was a time-consuming, inefficient and error-prone process.

VR Transpoint wanted to improve overall wagon shunting efficiency, optimise wagon maintenance and boost customer service by offering real-time wagon traceability information.

## GS1 Standards Chosen

After discussions with other railway organisations of European countries and a small-scale pilot project that demonstrated the many benefits, in the last quarter of 2009, VR Transpoint implemented a solution built upon GS1 standards.

RFID EPC Gen 2 tags specially designed to work on metal were affixed to each side of all 11,000 VR Transpoint rail-freight wagons, locomotives and passenger cars, creating the world's first full-scale EPC RFID system in the rail sector.





Each wagon is uniquely identified thanks to a GS1 Global Individual Asset Identifier (GIAI) Key encoded into an EPC RFID tag.

More than 350 handheld RFID readers are in use by shunting yard workers in 50 different Finnish stations, and 100 fixed RFID readers are scheduled to be installed at critical points across the Finnish railway network.

All data gathered by handheld and stationary RFID readers flow automatically through a mobile network connection to and from back-end planning systems.

The entire project was deployed with the support of solution provider Vilant Systems. Equipment and software comply with the technical specification regarding interoperability for telematic applications for freight (TAF/TSI), as regulated by the European Railway Agency (ERA).

Beyond the fact that other RFID systems not built on open GS1 standards were more expensive, the choice to

use GS1 standards was also made because they are more “future-proof.” For example, it will be cheaper and easier to add applications to this open, standards-based system in future, and the company is not tied to one supplier if they wish to upgrade hardware in years to come.

## Wide Range of Tangible Benefits

The EPC RFID solution has helped VR Transpoint improve yard management by automating work orders and ensuring the correct train composition.

VR Transpoint teams now simply walk alongside a train and use a handheld device to interrogate each rail car’s EPC RFID tag. The information is automatically transferred to the company’s logistics system, allowing employees in the field to remove cars slated to be shifted to another train, and arrange the remaining cars in an optimised order for their onward journey.

The information provided by the system is also invaluable for companies receiving goods. Because they now automatically receive data about incoming shipments, VR Transpoint's customers can know whether a particular rail car will arrive with the front end or back end facing forward, and be ready to unload it accordingly.

By removing unnecessary work steps, reducing delays and eliminating the errors that accompany pen-and-paper work, VR Transpoint has seen an average of 5M€ annual savings. In addition, the company's customer service performance improved measurably, in particular through increased wagon availability.

VR Transpoint has also developed a wagon maintenance process that is built upon this RFID system. Rail yard teams can report technical issues with wagons and alert their colleagues about breakdowns or defects. These efforts have made wagon pool maintenance more efficient and quicker.

## Next Steps

Fixed RFID readers could be implemented at the private terminal rail stations of VR Transpoint customers, enabling true end-to-end services.

The Finnish Traffic Agency has plans to deploy RFID readers in connection with railway network sensors, which would make it possible to automatically collect useful information such as the condition of wagon wheels or the imminent overheating of wagon axles.

Train tracks in Finland have a different distance between their rails than those in neighboring Sweden or continental Europe; however, rail width is practically the same in Finland as in Russia. Extending VR Transpoint's wagon traffic tracing to Russian rail transport services is thus a logical next step as well.

## Contact Information

Interested in learning more about this project?

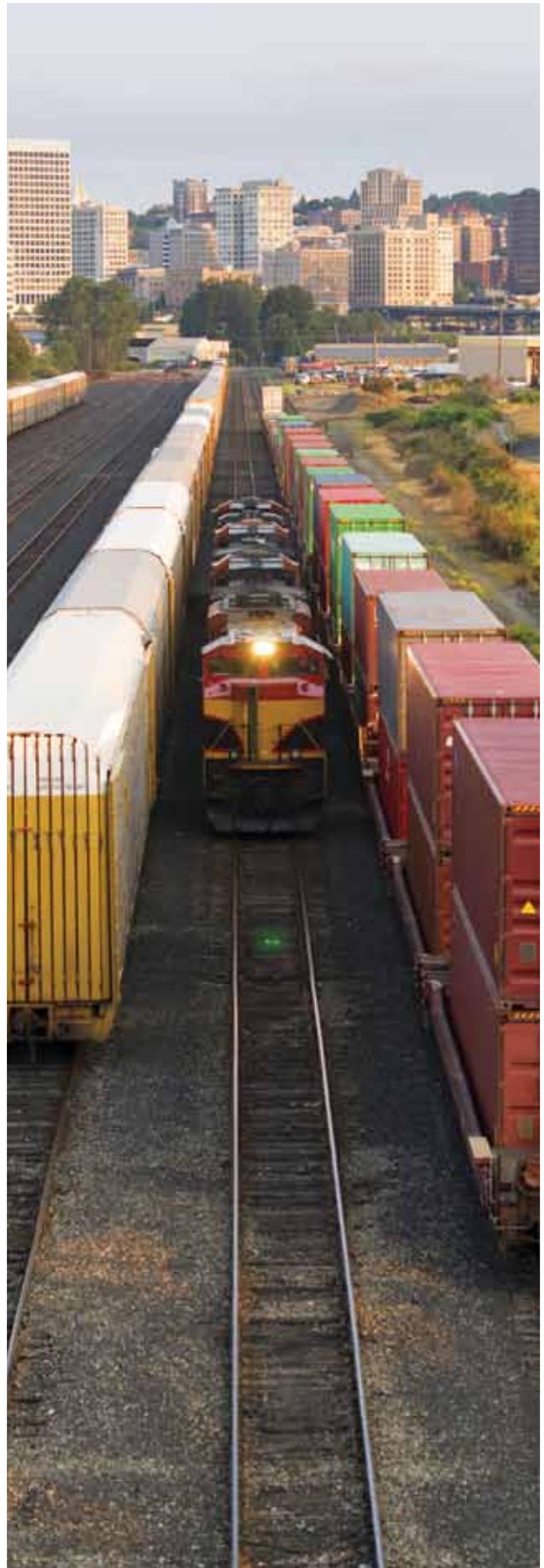
- Contact Mikko Luokkamäki, GS1 Finland at [mikko.luokkamaki@gs1.fi](mailto:mikko.luokkamaki@gs1.fi)

**VR** TRANSPORT



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With special thanks to :



# Managed Smart Pallet Services: Improving Supply Chain Efficiency While Driving Down Costs

## CHALLENGE

Logistics networks across the world depend on millions of returnable transport items (RTIs) to keep goods moving. Due to poor tracking and control of RTI stocks by manual or spreadsheet-based systems, many companies are not sure about their actual RTI inventory levels, where they are located, or if they are damaged or in need of repair or replacement. This lack of visibility and control introduces costs, time and risks into logistics processes.

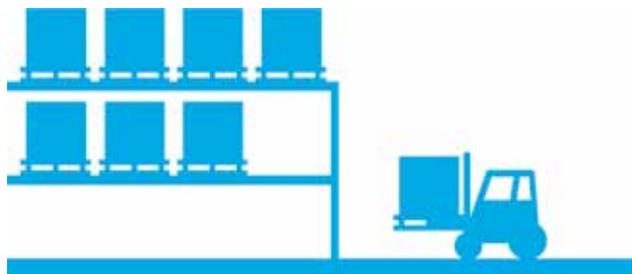
## SOLUTION

Many organisations are adopting intelligent pallet management solutions with GS1 EPC radio frequency identification (RFID)-enabled pallets. Each RTI is fitted with two RFID tags that hold a unique GS1 Global Returnable Asset Identifier (GRAI). The RTI management system, also based on GS1 Standards, records the each RTI's current location, its age, the number of exchange cycles it has so far completed and the length of time since it was last repaired or inspected. Every time an RTI is moved, RFID readers located at a location's entry and exit points automatically retrieves the GS1 data encoded in the RFID tags, automatically updating the management system.

## BENEFITS

- Increased visibility of RTI inventory by appropriate parties in the supply chain based on access to up-to-date information for improved inventory management, reduced stock levels, and better decisions.
- Improved maintenance programme for greater accessibility of RTIs for high performance and increase customer satisfaction.
- Reduced number of RTIs lost, by up to 95%, with reduced costs associated with searching for missing RTIs, dropping to 75%.
- Elimination of time-consuming manual tasks for improved staff productivity.
- Typical cost reductions for RTI management can be as high as 50% for distributors and retailers and 25% for manufacturers. Based on these savings, payback on the investment could be in 100 days or less.

Increasingly, companies are recognising that intelligent pallet solutions can deliver immediate benefits, which include cutting costs and streamlining operations within months of installation. Smart pallets also promise improvements in order management and forecasting, as well as inventory management, with the potential to drive considerable efficiencies throughout the supply chain in the medium to long term.



## Pallet Management: A Weighty Burden

Whether transporting food and beverages, industrial components or apparel, logistics networks across the world depend on millions of reusable pallets to keep goods moving. It is estimated that there are 500 million of these returnable transport items (RTIs) in Europe alone. However, due to poor tracking and control of pallet stocks, the real quantity is unclear at this moment.

**SIGNIFICANT INVESTMENT.** With wooden pallets costing approximately €10 each, individually, they are a relatively low-cost item. However, if a company has an overall stock of many thousands of pallets, the annual expenditure for purchasing and repairs can run into millions of Euros.

When products cannot be stored and shipped without the use of RTIs, running out simply is not an option. So,

in addition to investing significant funds each year into the replacement of pallets that have been damaged or lost, companies must also ensure that they have a 'security' stock of surplus pallets in addition to their actual transportation requirement.

**INADEQUATE TRACKING SYSTEMS.** Managing and tracking large-scale pallet usage is a complex challenge. Most companies operate a policy of equal exchange with their suppliers and distributors: for each loaded pallet they receive, they provide a pallet that conforms with the same EPAL-approved criteria in return.

However, with many organisations using inefficient manual or spreadsheet-based systems, managing this process can prove problematic. Errors can occur when recording pallet movements and it is all too easy for omissions to happen. As a result, many organisations have a far from accurate view of the total number of RTIs they have in circulation and where they are located.

In addition, there is often a lack of proper checking procedures to ensure that the pallets received back actually meet EPAL standards and are in good condition. By introducing poor quality pallets that are in need of repair or do not conform to EPAL standards into the logistics network, organisations increase the risk of stock being damaged or of incurring security and safety issues.

## Smart Pallet: Improving Transparency

To improve efficiency, many organizations are adopting intelligent pallet management solutions across their networks. These solutions introduce 'smart' radiofrequency identification (RFID)-enabled pallets into the supply chain.

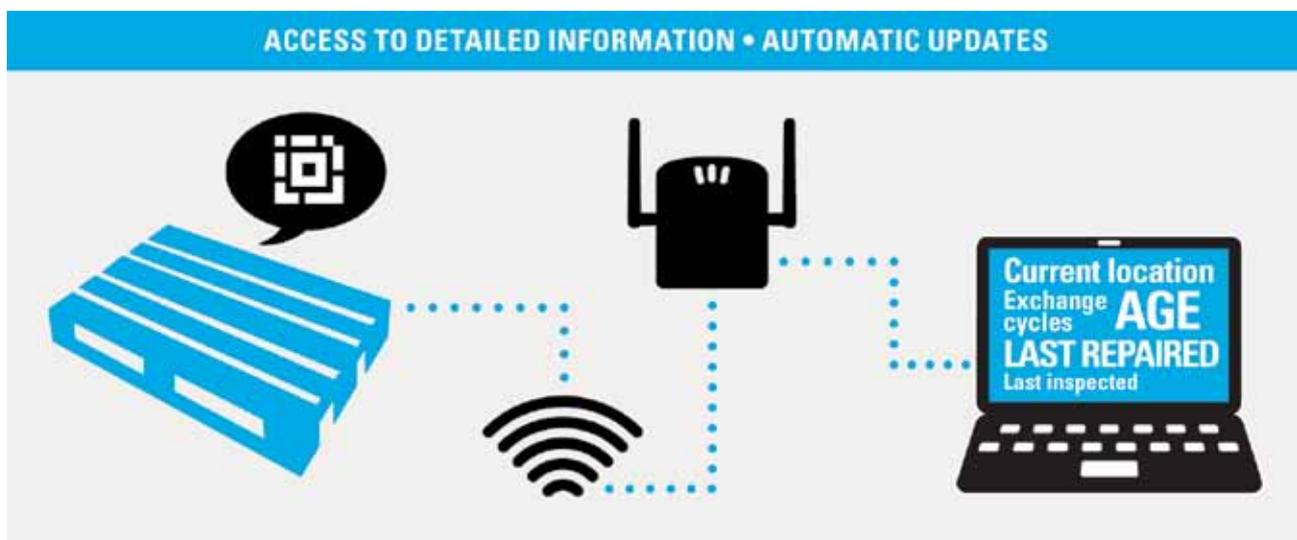
**ACCESS TO DETAILED INFORMATION.** Each pallet is fitted with two RFID tags. These hold a unique identification number key (GRAI – Global Returnable Asset Identifier) issued by GS1. The RTI management system, which is also based on GS1 standards, records the current location of the pallet, its age, the number of exchange cycles it has so far completed and the length of time since it was last repaired or inspected.

Every time a pallet is moved – from manufacturer to carrier to distributor and then from the distributor to the carrier and on to the retailer – the RFID tags are identified on the fly and the RTI management system is updated in real time. For example, a retailer receiving the pallet can see straightaway that it last underwent maintenance 40 days ago and was previously used in the food processing industry.

**AUTOMATIC UPDATES.** RFID readers situated at entry and exit points within warehouses automatically retrieve the GS1 identification key from the RFID tags on the smart pallets. The process information of what, when, where and why is then immediately updated

“Almost every company has RTIs in use and only very few actually know how many of these (often very expensive) RTIs are in circulation or even where they are located. Nevertheless, each year many companies invest a lot of money in the procurement of new RTIs, instead of concerning themselves with the improvement and optimisation of their management.”

The Management of RTIs by GS1 Standards, Identification and Process Description, GS1 Switzerland



in the corresponding local RTI management system. A secure authentication process can allow specific parties within the distribution network to access this information.

## Improving Supply Chain Efficiency

**EARLY RETURN ON INVESTMENT.** Intelligent pallet management solutions deliver quantifiable benefits from day one. According to GS1, smart pallet solutions can cut the number of RTIs going astray by up to 95%, with expenditure on searching for missing pallets dropping to 75%.



Thanks to increased visibility of the number of pallets that are available and ready to use, companies can drastically reduce their security stock levels. Typical reductions of 10% can be achieved and represent a significant saving for companies looking to streamline operational costs.

Moreover, with the need for time-consuming tracking and manual recording of pallet movements eliminated, administration costs are reduced and staff can be redeployed onto other tasks. Plus, a more effective inspection and maintenance regime extends the life-cycle of RTIs.

“...for a process that requires a new or newer pallet, a suitable pallet can more easily be identified.”

The Management of RTIs by GS1 Standards, Identification and Process Description,

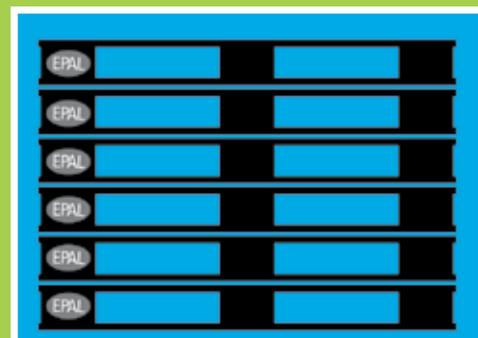
These automatic updates eliminate the need for manual recording of dispatch information. They also ensure that everyone in the supply chain can have access to up-to-date information about the pallet.

In seconds, warehouse managers can access reports that help them to identify issues and make accurate and timely resourcing decisions. At any time, they can see how many pallets are available and ready to use, and how many are due for inspection or planned maintenance. They can also order new replacement pallets based on accurate figures about the current levels of pallets in use.

### LEADING THE WAY: THE EPAL EURO PALLET

The EPAL Euro Pallet is Europe’s most commonly used pallet with 70 million produced each year. All pallets bearing the EPAL mark comply with strict EPAL quality standards. This ensures that goods arrive safely and can be stored in a stable manner, while providing a safe working environment.

The pallets are exchangeable worldwide and independent inspection companies maintain strict quality controls. RFID usage with the EPAL Euro pallet is tested and proven. It employs a data architecture that is defined and agreed between GS1 and EPAL.



Overall, typical cost reductions for pallet management can be as high as 50% for distributors and retailers and 25% for manufacturers. With savings on this scale, payback on the original investment within 100 days is not uncommon.

**STREAMLINED OPERATIONS.** In addition to pallet management efficiencies, RFID-enabled smart pallets provide improved availability of information about product movements. This can drastically improve efficiency across the wider supply chain.

The ability to track and count stock items faster and more accurately can result in inventory management savings of up to 28%. Meanwhile, administrative costs associated with the receipt of goods can fall by up to 70%, while loading and unloading times can be cut by as much as 13%.

## ROI

By implementing a fully managed solution, you can expect an overall return on investment within 8 to 12 months.

## Overcoming Barriers to Adoption

While the Smart Pallet solution is economically viable and the advantages are clear, partly because its based on proven and reliable RFID technology, adoption to date is still limited. Research reveals several perceived barriers:

- **Impact on operations**

Radically changing existing identification methodologies, such as barcoding, can have a significant operational impact. However, by using barcodes that are printed on each RFID tag, companies can ensure a smooth transition during the ramp up to full RFID automation.

- **Integration risk**

The tag, reader and software usually have different suppliers. This means the technology needs to be properly integrated to work effectively.

- **Data management**

Compared to traditional barcodes, RFID technology may generate a multiplicity of data that needs to be filtered and transferred. This will impact on backend systems such as ERP solutions and changes to hardware and software may be required.

- **Partner collaboration**

A successful implementation requires close cooperation with supply chain partners. As well as manufacturers and distributors, customers must also have the technology in place to read the RFID tag and manage the data.

- **Investment**

A significant investment is required to replace existing pallets with RFID-enabled models. Where pallets are exchanged on a like-for-like basis, detailed asset management is required to ensure effective tracking.

Integration across three different areas is key to overcoming these barriers:

- **Technology**

Integration of the tag, reader equipment and software.

- **Information management**

A middleware solution is required to secure, link, enrich, analyze and transfer data.

- **Logistics**

Vertical integration of supply chain partners is needed.

## Integration across three different areas is key:

- Technology
- Information management
- Logistics



## Straightforward Deployment with Managed Services

When offered as an integrated managed service, smart pallets become considerably more accessible to a wide range of companies. The solution can be deployed in a “plug and play” roll out that does not impact significantly on backend systems and does not necessitate investment in new equipment. A managed service also facilitates vertical integration with external partners.

Ideally, the solution should complement existing processes, using generally accepted data transfer standards, and with equipment managed as a pooling service. The service provider will handle data interpretation and exchange as well as pallet supply and recovery.

## Transforming Future Logistics Operations

As smart pallet solutions become more widespread, organisations will benefit from greater transparency of stock movements across entire logistics networks. Having accurate, real-time information about the quantity and location of different products will help organisations to forecast more accurately.

Real-time visibility of product movements will enable companies to see easily when stocks of a particular product are running low and when they need to be replenished to avoid stock-out situations. In this way, organisations can serve their customers more efficiently, improving satisfaction levels and increasing sales.



“RFID-enabled pallets have the potential to transform warehouse and logistics operations,” says Stephane Pique, Director, RFID Industry Solutions at Motorola Solutions. “Better visibility of information will mean that participating organisations throughout the supply chain will benefit from lower costs, increased profits and happier customers.”

## Contributors



### **Stephane Pique, Director, RFID Industry Solutions Group, Motorola Solutions**

Motorola’s RFID solutions help organizations increase visibility through automation and enable them to manage their operations more efficiently.



### **Toine Domensino, General Manager, 2Return**

2Return is a European service provider that maintains and manages reusable transport items.



### **Toon de Jong, General Manager, Interaxi**

Interaxi provides a managed UHF RFID solution, based on the international EPC global standards to create full supply-chain transparency.



### **Pim van Loosbroek, CEO, The Tag Factory**

The Tag Factory is a leading manufacturer of RFID tags and the official supplier of EPAL pallet tags.



### **Heinz Graf, Identification & Communication**





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