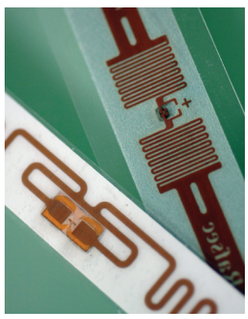

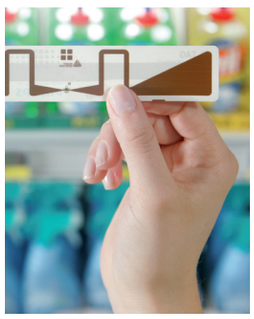

GS1 EPCglobal Standards in the Transportation and Logistics Services Industry

Creating actionable visibility from shipper to consignee

The GS1 EPCglobal Transportation and Logistics Services Industry Action Group (TLS IAG) looks at the benefits of using RFID enabled business processes through the utilization of the Electronic Product Code (EPC).

The aim of TLS IAG is to improve the Transportation and Logistics Services global supply chain from shipper to consignee by creating actionable visibility in today's fast-moving, information rich supply chain. Professionals in the industry such as shippers, consignees, port terminals, customs, governments and logistical service providers are working toward the day when tracking of containers, pallets and assets will deliver benefits for businesses, consumers and the environment.

As the credit crunch bites harder, companies are being pushed to look for ways to cut costs while maintaining the same quality of service for their customers. In turn the global sourcing strategies adopted by these companies to obtain efficiencies have become even more difficult to negotiate.

Businesses are now beginning to take advantage of the new supply chain efficiencies possible through EPC and RFID. Hence, the need for standards behind this technology enabling the secure sharing of real-time information between trading partners, which allows businesses to monitor the location and state of individual items as they pass through the supply chain providing increased visibility to support the safety, security, efficiency and traceability of the supply chain.

EPC/RFID and supporting supply chain visibility standards enables you to acquire much more information about events in the global supply chain. This detailed and frequent collection of event data provides a revealing view of how the supply chain is operating.

GS1 EPCglobal's standards enable businesses to maximize efficiency and profitability by allowing for real-time reaction to problems within the supply chain, reducing complexity, lowering inventory and costs, and increasing ROI. It's this unique ability to have in-depth visibility into what is really happening in a company's operations that gives them the opportunity to establish trends, identify problems and subsequently resolve them resulting in improved key performance indicators.

The ultimate benefit is that these RFID enabled businesses become visible to other companies and organizations within the Transportation and Logistics Services global supply chain.

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It's all about Visibility	
Inventory Visibility • Product Visibility • Asset Visibility • Factor Utilization • Aggregation/Disaggregation	**Visibility provides a means to determine where a product is (track) and where a product has been (trace)**
Protection • Anti-theft/Diversion • Inspection • Homeland Security • Anti Counterfeit	**Visibility enables authentication of products**
Chain of Custody • Electronic Pedigree	**Visibility supplies the custody information for creating authenticated chain of custody**

Challenges of the Transportation and Logistics Services Supply Chain

The Transportation and Logistics Services Supply Chain faces particular challenges that EPC-enabled RFID can help address:

- Maximize yard and warehouse efficiency by managing the flow of goods coming in and out of your yard
- A smooth passage of the flow of goods between the supply chain partners is essential for cost competitiveness and customer service as TLS Supply Chains can be geographically dispersed with a high ratio of goods manufactured in Asia then shipped into markets all over the world
- Load verification in a warehouse or on the terminal can be time consuming as the goods have to be stopped and lined up in order to be read
- Optimize the level of inventory as keeping too much goods can be costly and being unable to identify the inventory at the right time could delay shipments
- Inventory can be held in a central warehouse and only kitted at the last moment before being dispatched to the customer. It is vital to ensure that everything that should have gone into a specific box has, and nothing is in there that shouldn't be
- The receipt of goods is today only checked at receiving docks. In case something goes wrong, a lengthy process to prove who had the goods, when and where starts
- Make precise forecasts and know where goods are within the supply chain
- Be able to easily identify and manage expensive assets

Benefits of EPC/RFID Technology in the Transportation and Logistics Services Supply Chain

- Business:

RFID tags on items, pallets and containers will provide traceability from the shipper to the consignee, through the different intermediary stages.

RFID technology will facilitate collaboration among TLS supply chain partners leading to a reduction in the complexity of their global supply chains, higher profitability and improved productivity.

Further advantages, as item-level tagging becomes a reality for the TLS Supply chain, include asset visibility, product authentication, and aiding in the efficient administration of guarantees.

- Environment:

The Transportation and Logistics Services industry plays a key role in environmental protection. Most transportation is burning fossil fuels, which emits greenhouse gases into the atmosphere. Reducing burn reduces environmental impact too. Knowing where things are, improves overall supply chain efficiency, reducing the transport of additional materials or redirected shipments that have been misrouted. Being able to know exactly where things are in the supply chain enable an airplane, train, truck or vessel to take on more cargo for the same journey.

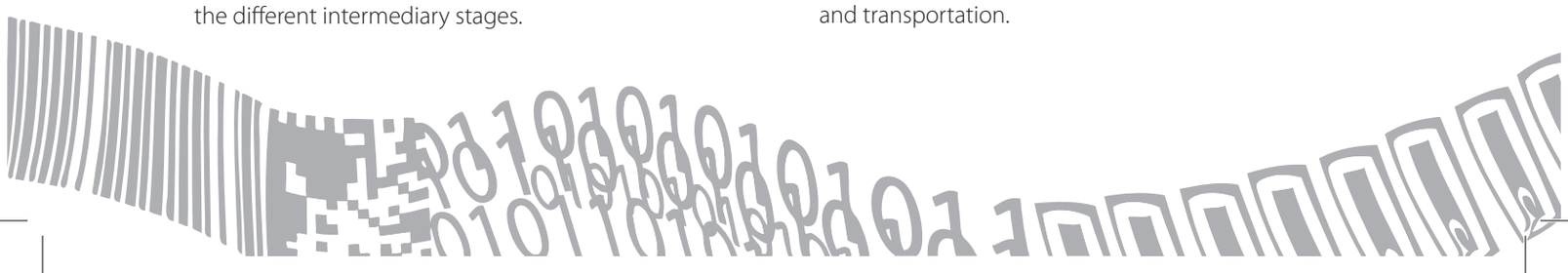
And the environment needs to be protected from hazardous materials that are being transported or stored. But this depends upon not only knowing what is hazardous but how it is too. Existing labels can display this information provided you have line of sight, which RFID doesn't need. RFID could also be used to ensure that a mix of materials, relatively harmless on their own, is not combined into a dangerous shipment.

TLS Global Supply Chain Partners

Improving operations takes a global approach to supply chain processes. All supply chain participants find themselves involved in all (or some) of the following operations:

- Shippers:

Packaging materials, manufacturing, commissioning, aggregating items to pallet, finished product inventory management, plant localization, order picking, shipping and transportation.



• Logistics Service Providers:

Receiving and forwarding containers and products, inventory management, aggregate pallets to container, consolidation/deconsolidation, order picking, tracking, shipping, storage, distribution, fulfill transportation requirements (Cold Chain, shock, high security, hazardous goods, tracking and tracing) and administration

• Port Terminals:

Receiving and dispatching of containers and products, loading and unloading of vessels, asset management, inventory management, order picking, administration, tracking, shipping, storage, traceability of products, convenience by supplying product related information and anti-theft management

• Customs:

Transportation information, inspecting products, customs clearance, security, alerting, convenience by supplying product related information and Electronic Data Interchange

• Government:

Green logistics, collecting fees (highways), security management (hazardous goods), and controlling of driving times of truck drivers

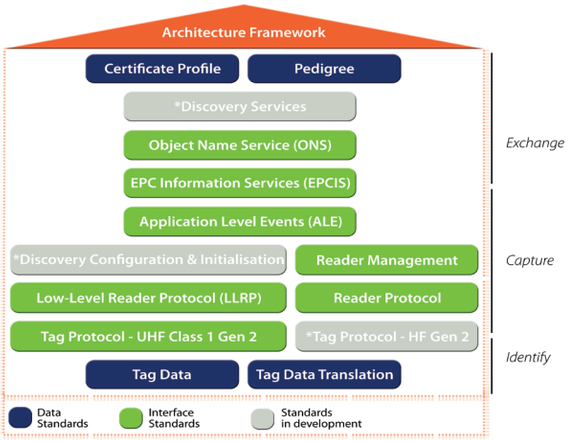
• Consignee:

Receiving of pallets and products, inspecting products, purchase order, Electronic Data Interchange, inventory management, order picking, selling of product, administration and traceability of products, convenience by supplying product related information, anti-theft management and after-sales services, and package information

About GS1 EPCglobal Standards and EPCglobal Inc

GS1 EPCglobal Standards are a set of integrated industry-driven standards which have been developed to meet user requirements enabling the identification of objects, data capture and sharing of information among partners throughout the supply chain. These standards are developed within the framework of EPCglobal Inc.

EPCglobal Inc is a subsidiary of the global not-for-profit standards organization GS1, and supports the global adoption of the Electronic Product Code as industry-driven standards to enable accurate, immediate and cost-effective visibility of information throughout the supply chain.



About GS1 EPCglobal Transportation and Logistics Services Industry Action Group

• Mission and Goal:

The Transportation and Logistics Services Industry Action Group (TLS IAG) is one of an expanding number of industry focused global RFID standards groups developed under the GS1 EPCglobal standards framework. The GS1 EPCglobal standards Development Process is critical to ensuring that the standards developed and ratified by the EPCglobal Board of Governors are user driven, global and royalty-free wherever possible.

The objectives of the Transportation and Logistics Services Industry Action Group (TLS IAG) are to develop RFID enabled business processes through the utilization of EPC to improve the Transportation and Logistics Services supply chain from shipper to consignee.

The GS1 EPCglobal Transportation and Logistics Services Industry Action Group comprises representatives from leading global companies and explores the benefits of EPC and RFID and the visibility data it supports to enhance

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business processes and customer service. The aim of TLS IAG is to improve the Transportation and Logistics Services global supply chain in all aspects from shipper to consignee.

• Target audiences:

The TLS IAG is targeting different players who all have an interest in adopting RFID enabled business processes in the Transportation and Logistics Services supply chain; shippers, consignees, customs, port authorities, terminals, TLS industry associations, logistical solution providers and service providers such as test centres and certification organisations.

• Our relevance:

The Transportation and Logistics Services industry faces many challenges in today's global economy. The TLS IAG has identified examples where EPC/RFID enables competitive advantages in supply chain visibility and efficiency by reducing out of stocks, reducing theft and diversion, and increasing factor utilization and productivity. Improved visibility enhances asset management, and supports a broad range of safe and secure initiatives such as anti-counterfeit, supply management, and traceability to ensure products are dependable, safe and easy on the environment.

The TLS IAG has described high-level business scenarios and their associated use cases in order to identify and drive business requirements in the context of GS1 EPCglobal standards concerning Identification, Data Capture and Data Exchange. By describing high priority use cases from a global perspective, the TLS IAG will derive the maximum possible benefit from the implementation of EPC/RFID.

• The GS1 EPCglobal Transportation and Logistics Services RFID Pilot Program:

Within the framework of the TLS IAG, the GS1 EPCglobal Transportation and Logistics Services RFID Pilot Program (TLS Pilot Program) was launched to review existing global standards against "real life" transportation and logistics services processes. A primary focus of this activity was to determine if the standards support business objectives as defined by multiple industry participants utilizing the Electronic Product Code (EPC) and Radio Frequency Identification (RFID) to create value through increased visibility across stakeholders, countries, and continents.

The TLS Pilot Program consists of different phases; the first phase validated the use of both passive and active UHF EPC tags for sea-shipment of cartons and containers between Hong Kong and Japan whereas the second phase demonstrated the impact of GS1 EPCglobal Standards on providing visibility of goods on a global level between source factories in China and distribution centers in the US, flowing through the ports of Shanghai and Los Angeles. The third phase of the Pilot Program focused on testing out the use of EPCIS to track the progress of physical products in cartons, containers and pallets across the supply chain using the trade lane from Tokyo to Amsterdam. The members of the TLS IAG are currently preparing the next phases of the Pilot Program.

• Why MTI/NYK Line and DHL are leading the TLS IAG initiative

"Complete visiblity was almost unheard of until Auto-ID technology made it possible to identify the many different levels of logistics information in the real environment. It is pretty obvious no single technology can cover the entire flow in the transport and logistics services. Rather, several technologies such as barcodes, passive and active RFID's must be integrated for maximum visibility and peak efficiency. It would be a pleasure to discuss your needs and concerns about standardization of Auto-ID technology in the transport and logistics field. GS1 EPCglobal is looking to include more industries and more participants".

Naotaka Ishizawa,
Co-Chair EPCglobal TLS IAG
Senior Technology Officer
Technical Strategy Group of MTI/NYK Line

"As Auto-ID and data exchange strategies continue to evolve, GS1 EPCglobal standards are a way to extract the most value from these technologies worldwide. The more we can "sense and respond" to changes in the supply chain, the better the transportation and logistics services industry and the members of the TLS IAG can serve retailers, manufacturers and distributors around the globe."

Tony Hollis
Co-Chair EPCglobal TLS IAG
Director Innovation & Technology Management
DHL Supply Chain - Americas

How to Join the GS1 EPCglobal Community

In order to find out more about the GS1 EPCglobal community, including becoming a subscriber, and to participate actively in the development and implementation of global standards to create visibility and improve efficiency throughout the supply chain, please visit http://www.epcglobalinc.org/home.

Transportation and Logistics companies, organizations and associations are more than welcome to join the activities of the GS1 EPCglobal Transportation and Logistics Services Industry Action Group. In order to participate in this group as well as the GS1 EPCglobal Standards Development Process, it is mandatory to become an EPCglobal subscriber.

For more information regarding the GS1 EPCglobal Transportation and Logistics Services Industry Action Group, contact Ian Robertson at ian.robertson@gs1.org, Shirley Arsenault at shirley.arsenault@gs1.org, Karl Van der Spiegel at karl.vanderspiegel@gs1.org or your local GS1 Member Organization (contact details are available on www.epcglobalinc.org).