











ROAD TO GS1 RWANDA

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What is GS1?

In today's world, goods and services are no longer just about the point of consumption itself. In times of globalisation and the networking of different countries, companies and people, other aspects of services, but especially of goods, are gaining in importance. The value chains are networked, which leads to bigger markets that are becoming more complex.

Everyday streams of goods and information are permanently flowing and the amount of big data is constantly growing. However, not only the amount of information is growing, but also the need for information is becoming stronger on every step of the supply chain.

Motivation

Consumers, patients, business partners and regulators are demanding more and better product data than ever before but complex and costly data exchange infrastructure and processes are producing a surge in low quality data. GS1 empowers industry's digital transformation by enabling businesses to create one widely accepted digital version of a product that is as good as the physical one. Ultimately, consumers and patients finally will benefit from increased product track and trace as well as the seamless experiences that this brings.

Solution

GS1 is a network of mostly non-profit-organisations that supports companies in all industries worldwide in applying globally valid identification, communication and process standards in practice and thus improving the efficiency of their business processes and leading to a common business sense of the four pillars: identify – capture – share – use.

More than two million companies are using GS1 standards nowadays. It is the market leader in the development and distribution of global standards. Transparent communication within the entire value chain and common standards for the identification of articles are the aims of GS1 and are the basis for a successful business.

Benefits

By using the global GS1 system, unique identification keys can be generated across industries for almost all objects that are relevant in business-to-business, business-to-consumer and business-to-government transactions, such as products, locations, companies, assets or transactions.

The use of unique standards facilitates steps in the entire supply chain from producers over transport and logistics to retail sales. Another large area where GS1 standards are widely used and essential is the healthcare industry.

In this sector, GS1 is an Issuing Agency (IAC) designated by the European Commission and the FDA for the Unique Device Identification. This might be important for any producer of medical products, especially if they want to sell their products in the EU market.

The GS1 system is used in various industries and consists of different individual shapes of standards, depending on the industry. In retail, however, it is the unchallenged leading system. Particularly well known is the Global Trade Item Number (GTIN) in the EAN barcode, which can be found on all retail products. It can be scanned to automate checkout and other back office processes.

Retailers can also track the product at any point in the supply chain. Furthermore, for example the Global Location Number (GLN) is widely used to identify locations, such as warehouses, shops, laybys, etc. The GLN is used to identify the location of a product or a partner.

Target Groups

Retailers can use GS1 standards for example to get accurate data and complete information about their products and respond to changing demand of consumers right in time.

The standards are nowadays the only established trusted data base for retailers across companies, supporting businesses, no matter whether they are small or large. However, not only retailers need GS1 standards for their efficient processes. Every **producer**, that is planning to sell their product worldwide, online or in their local country would benefit from the EAN barcode or the GTIN for example.

It not only opens new possibilities to every producer but sometimes it is regarded and used as entry key to commercial relations. For example, small coffee farmers would be able to label their product individually, e.g. coffee beans, to uniquely identify each and every article they sell different content, packaging, taste, promotion. Producers of medical devices even need it to fulfil certain legal requirements, especially in the European Union Market.

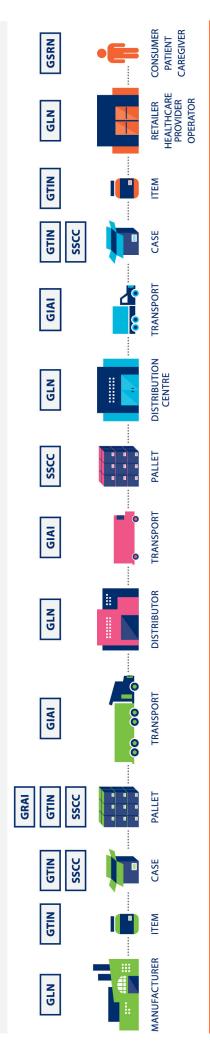
Another big part in every supply chain of a product is the **transport and logistics.**The standards are needed to track and monitor the products all the way on the supply chain and to make sure, that there is no information loss from producers to retailers.

But also along its way across borders and the modal shift of transportation the consistency of the data encoded ensures their usage on the level of the transport units as containers or pallets but often also down the stream to the original level of the product batch. Moreover, GS1 standards besides business are necessary also in societal and environmental topics like circular economy, sustainability or traceability that are growing in importance as well. Those areas are always linked to information flows and thus without the right use of standards for interoperable exchange of data basically inconceivable, even if not totally impossible.

The following picture shows the application of different GS1 Standards along the target groups.

IDENTIFY: GS1 Standards for Identification

GLN Global Location Number GTIN Global Trade Item Number SSCC Serial Shipping Container Code GRAI Global Returnable Asset Identifier GIAI Global Individual Asset Identifier GSRN Global Service Relation Number



CAPTURE: GS1 Standards for Barcodes & EPC/RFID



SHARE: GS1 Standards for Data Exchange

MASTER DATA Global Data Synchronisation Network (GDSN) TRANSACTIONAL DATA eCom (EDI) Event Data EPC Information Services (EPCIS)



From the grower to the consumer: GS1 Standards in action

1 Grower

Steps	Benefits	Standards in action	Did you know?
Identify locations	The ability to uniquely identify locations using GS1 standards increases product traceability and enables more accurate and precise recalls, should they occur.	Grower Global Location Numbers (GLNs) are assigned and managed to identify locations including field, farm or packhouse.	77% of Hong Kong residents believe unsafe food is the most important personal concern they have for their health and well-being, ranking well ahead of air pollution, water pollution and many other issues Civic Exchange Survey, 2009.
Identify products, cases & pallets	GS1 standards optimise business processes, form brand loyalty and build the foundation for an efficient supply chain. The ability to uniquely identify products, cases and pallets globally also enables accurate and precise recalls, should they occur.	Global Trade Item Numbers (GTINs) uniquely identify products. This information is embedded into a barcode, which can also hold extended product data, such as batch/lot number, enabling you to identify products, cases and pallets wherever they are in the supply chain.	The use of brand owner-specific GTINs for fresh food categories enable trading partners to tie product information to brand owners, providing the ability to address a variety of business process needs and capabilities across the supply chain.
Synchronise & share product data	Accurate product data from the source helps improve product visibility for trading partners and empowers consumers to make informed buying decisions considering sustainability data, allergen and nutritional information.	Combined with item and location numbers, (GTINs and GLNs) product data such as dimensions, weight, nutritional information, country of origin, allergens and more – are easily defined, managed, and shared with trading partners via Electronic Data Interchange or the Global Data Synchronisation Network.	Presently, Electronic Data Interchange (EDI) exchanges are deployed for L'Oréal in France. This includes: 87% of sales from orders placed electronically with EDI, 78% of sales are accompanied by electronic despatch advices, and 47% of sales are accompanied by electronic invoices.
Track shipments	GS1 standards improve visibility in product movement, provide the foundation for improved order-to-cash and will help verify the flow of goods – both inbound and outbound. More efficient receiving, inventory management and shipping processes can be achieved.	Global Trade Item Numbers (GTINs) and Serial Shipping Container Codes (SSCCs) are used to track and identify product contents as they move from the field, to the cooler, to shipping. Despatch Advices (or ASNs) containing SSCCs, GTINs and their corresponding batch/lot numbers, and GLNs are sent to customers.	The use of Despatch Advices/Advance Shipping Notifications (ASNs) significantly improve inventory and warehouse management for receivers due to advance visibility of shipment and any substitutions needed, especially in fresh food categories.

Source: https://discover.gs1.org/cpg/grower/

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Track shipments	GS1 standards improve visibility in product movement and will help verify the flow of goods – both inbound and outbound.	Global Trade Item Numbers (GTINs) and Serial Shipping Container Codes (SSCCs) are used to identify pallets and enable tracking of shipments. SSCCs are encoded into bar codes or EPC/RFID tags.	66% of manufacturers' pallets and unit loads have a GS1 Logistics Label with a Serial Shipping Container Code (SSCC), according to a 2011 Consumer Goods Forum "Global Scorecard."
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Source: https://discover.gs1.org/cpg/manufacturer/

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Transport & Logistics

Steps	Benefits	Standards in action	Did you know?
Asset management	GS1 standards can:	Reusable transport items such as pallets and crates – as well as transport equipment such as containers, trailers and wagons – are identified using GS1 standards including Global Returnable Asset Identifiers (GRAIs) and Global Individual Asset Identifiers (GIAIs). Information is shared via EDI messages and real-time event data using EPC Information Services (EPCIS).	A Japanese fresh foods company made trolley inventories in a matter of minutes instead of days, thanks to an EPC/RFID tag encoded with a GS1 Global Returnable Asset Identifier (GRAI), according to a 2012 GS1 Japan case study.
Warehouse management	GS1 standards offer: efficient management of inbound and outbound flows precise and timely exchange of inventory information reduction of safety stock levels and increased on-shelf availability further benefits including less manual errors and improved consolidation and bundling of deliveries	Trade items, logistics units and warehouse locations are identified using GTINs, SSCCs and GLNs respectively. Shipment information is captured on GS1 Logistics Labels and barcodes or encoded in EPC/RFID tags. Item data is shared via the Global Data Synchronisation Network (GDSN). Information such as inventory reports, dispatch instructions and status notifications are shared via standards-based EDI messages.	A leading logistics company and their trading partner, a global manufacturer, significantly improved their operational efficiency – and lowered costs for support and maintenance through the mutual implementation and use of a GS1 eCom XML-based messaging process, according to a GS1 case study.

Transport management	GS1 standards enable better trading partner collaboration and ultimately more efficient business transactions, by reducing costs and improving shipment visibility.	Logistics units, pick-up and drop-off locations – as well as shipments and consignments – are identified using SSCCs, GLNs and other GS1 standards. Information is captured in GS1 barcodes or EPC/RFID tags, and is shared via standards-based EDI messages. Real-time information can be shared using GS1 EPC Information Services (EPCIS).	Shippers and logistic service providers save up to 5€ per transport instruction by using GS1 standards for Transport Management, according to GS1 France's T&L ROI Calculator.
Shipping & receiving	GS1 standards provide measurable improvements in shipment speed and accuracy thanks to more efficient management of inbound and outbound flows.	GS1 standards are used to identify logistics units (SSCCs), products (GTINs) and delivery locations (GLNs). Shipment information is captured on GS1 Logistics Labels and encoded into GS1 barcodes or EPC/RFID tags. Data is shared via the Global Data Synchronisation Network (GDSN) and electronic EDI-messages. Real-time information is shared using the information services EPCIS.	Companies using a Despatch Advice message and GS1 Logistics Label, save 12€ in France, 15€ in Germany and USD\$5 in the USA per transaction, according to the 2011 GS1 Order to Cash Deployment Kit, "Demonstrated Benefits of a Paperless Supply Chain."

Source: https://discover.gs1.org/cpg/transport-logistics/

Steps	Benefits	Standards in action	Did you know?
Inventory management	GS1 Standards optimise inventory management processes and increase order accuracy and speed. The identification of products, cases and pallets provides visibility of inventory, and improves the creation of shipments, the rotation of inventory and quality control. EPC/RFID tags provide accurate and automatic inventory counts.	Global Trade Item Numbers (GTINs) and Serial Shipping Container Codes (SSCCs) are used to put products into inventory, rotate inventory, for quality control and to create shipments.	Companies with a 75% or greater implementation rate of GS1 Serial Shipping Container Codes (SSCCs) had 50% fewer days of stock inventory cover. Furthermore, their supplier service level ranking was 2% higher than competitors with lower implementation rates, according to a 2011 IBM/TCGF Study.
Distribution operations	GS1 standards optimise receiving, holding and shipping operations. How? By improving visibility in product movement and by verifying inbound and outbound shipments. EPC/RFID tags provide visibility of case contents and increase audit capability. Coupled with product traceability, this can help reduce counterfeits. Global Trade Item Numbers (GTINs), corresponding Batch/Lot Numbers and logistic labels enable traceability link management.	Validated customer Global Location Numbers (GLNs) are collected, stored and validated. Barcodes with Serial Shipping Container Codes (SSCCs) and Global Trade Item Number (GTINs) are scanned and used to verify receipt of cases and pallets. Data is shared via the Global Data Synchronisation Network (GDSN) and standards-based EDI messages. Real-time information can be shared using GS1 EPC Information Services (EPCIS).	Warehouse operators see a 21% shorter lead time using GS1 standards, according to the 2011 Consumer Goods Forum "Global Scorecard".
Order fulfillment	GS1 standards increase the accuracy and speed of order fulfillment. They enable product traceability with visibility of shipments and enhance efficient receipt of payment.	A Serial Shipping Container Code (SSCC) is assigned to the pallet after the pick and pack process. Despatch Advices or Advanced Shipping Notice (ASNs) are sent to the retail distribution centre. Inventory and delivery information is stored in the Warehouse Management System. Data is shared via the Global Data Synchronisation Network (GDSN) and standards-based EDI messages. Real-time informa- tion can be shared using GS1 EPC Information Services (EPCIS).	To process high volume orders accurately and efficiently, many distribution centres use voice picking systems, linking the Serial Shipping Container Code (SSCC) and Global Trade Item Number (GTIN) to the Batch/Lot numbers of the products in the outbound order.

Steps	Benefits	Standards in action	Did you know?
Distribution Operations	By verifying inbound and outbound flows, GS1 standards optimise receiving processes, holding operations and shipping procedures, while improving visibility in product movement and brand ownership.	Serial Shipping Container Codes (SSCCs) and Global Trade Item Numbers (GTINs) are used in combination with incoming Despatch Advices (or ASNs), to verify receipt of cases and pallets from the wholesaler or distributor. Standards-based EDI messages are shared to confirm receipt.	Distribution centres reduce their costs by 42% by using GS1 standards, according to the 2011 Consumer Goods Forum "Global Scorecard."
Inventory demand and management	GS1 standards improve inventory management and product replenishment demand to inventory. Case and pallet identification provide true visibility into inventory, and the use of EPC/RFID tags can further lower inventory risks and costs, improve inventory labour productivity, reduce cycle count time, and enable electronic proof of delivery.	Global Trade Item Numbers (GTINs) and Serial Shipping Container Codes (SSCCs) are used to put products into inventory, for inventory rotation, quality control and shipment creation. EPC/RFID tags can also be used to provide information about cases and pallets.	Increased visibility through the use of GS1 Standards-based processes can reduce out-of-stocks by 50%, and safety stock by up to 27%, according to a 2011 University of Arkansas study in the Apparel sector.
Order fulfillment	GS1 standards increase order fulfillment accuracy and speed. EPC/RFID improves labour productivity and drastically increase pick rates. Cycle time, errors in mispicks and short shipments are reduced.	Despatch Advices (or ASNs), containing Serial Shipping Container Codes (SSCCs), Global Trade Item Numbers (GTINs) and corresponding product information, are sent to the retailer. Inventory and delivery information is stored in the Warehouse Management System. Electronic Data Interchange (EDI) processes are synchronised, payments are processed and orders are managed. The Global Data Synchronisation Network (GDSN) is used to exchange data. Real-time information can also be shared using GS1 EPC Information Services (EPCIS).	Improved order fulfillment and on-shelf-availability can lead to a 15% increase in sales with the use of Electronic Product Code (EPC) Radio Frequency ID (RFID) tags, according to a University of Arkansas study in the Apparel sector.

Source: https://discover.gs1.org/cpg/retail-distribution-centre/

Steps	Benefits	Standards in action	Did you know?
Order to cash	GS1 standards for electronic business messaging ensure that the cases and products identified during the manufacturing process and at the distribution channel, end up at the correct store location and match the purchase order sent by the distribution centre.	Validated Global Trade Item Numbers (GTINs) are used to verify receipt of cases from the distribution centre and link them to data encoded into data carriers, including Batch/Lot Numbers and Sell By/Use By dates for each case.	Delivery verification and receiving time of goods can be reduced by 85%, and the time to take in-store inventory can be reduced by 75% through the use of automated processes based on GS1 standards, according to a University of Arkansas study in the Apparel sector.
Inventory management	GS1 standards improve inventory management and on-shelf availability through increased product visibility and traceability data—all of which advance consumer safety and trust. The addition of EPC/RFID tags can reduce time to locate products and vastly increase inventory count.	Global Trade Item Number (GTINs) and corresponding product data are used to drive inventory replenishment. Data is synchronised via the Global Data Synchronisation Network (GDSN). Orders are managed, and inventory/delivery information is stored. Real-time information can be shared using GS1 EPC Information Services (EPCIS).	Retail customers of UK-based jam manufacturer Mammy Jamia's can complete both their inventory and stocking processes quickly and efficiently, based on the use of GS1 standards from point-ofmanufature to store shelf.
Point-of-sale scanning	GS1 standards continue to improve the customer experience at the point-of-sale. They capture important product information that can be used for inventory replenishment, category management, consumer safety, and more.	Global Trade Item Numbers (GTINs) and corresponding Batch/Lot Numbers and Sell By/Use By/Expiry/Production dates encoded into a GS1 barcode are used to drive inventory replenishment and help enhance product traceability and more precise recalls.	The beep of the GS1 barcode scanned at cash registers is heard more than 6 billion times a day around the world.
Product recall & withdrawal	GS1 standards throughout the supply chain improve the readiness for fast and precise recalls. They facilitate the identification, capturing and sharing of product data between trading partners, which enables a product to be traced back to its source-and to locate and quicky remove all unsafe produces from store shelves.	In time, industry-supported recall notifications for specific Global Trade Item Numbers (GTINs) and associated production data, could trigger automatic reports alerting stores of potential issues.	Companies achieved a 37-hour quicker track and trace response time by using GS1 standards, according to a 2011 Aberdeen Food Safety and Traceability Report.

Source: https://discover.gs1.org/cpg/retail-store/

Steps	Benefits	Standards in action	Did you know?
Deliver	GS1 standards offer the interoperability and flexibility in delivery models that make shopping easier for the consumer. As a package makes its journey, GS1 standards improve visibility in terms of tracking and provenance.	GS1 standards support different fulfilment options, whether delivery to home, work, Pick Up Drop Off (PUDO) or collect-in-store. Global Trade Item Numbers (GTINs) help locate product availability, Global Location Numbers (GLNs) help identify pick-up and store locations and Serial Shipping Container Codes (SSCCs) and Global Service Relation Numbers (GSRNs) help customers locate and track their packages.	75% of retailers are experiencing increased demand for more rapid fulfilment by customers – yet 40% of retailers report that they are shipping less than 5 percent of their online orders from stores, according to a 2104 report by SDS Commerce.
Search & Evaluate	Better search results for consumers to find the products and information they need. GS1 Standards help manufacturers and retailers raise the visibility of their products in online searches. Improved, accurate online product information builds trust and helps consumers with their purchase decisions. GS1 standards allow brand-owners to share product information via consumer-facing mobile devices and websites, which ultimately drive sales.	An online product search (GS1 Smartsearch), leads to product availability (EPC/RFID), available in-store information (GTIN+ on the Web) and Global Location Number (GLN) for store locator. The online product search could also start via a promotion such as a digital coupon that utilise a Global Coupon Number (GCN), Serialised Global Coupon Number (GCN), Global Location Number (GLN) and/or Global Service Relation Number (GSRN). GS1 standards enable trusted product information via code scanning and the Global Data Synchronisation Network (GDSN), e.g. sustainability and carbon footprint. Data aggregators can also help to ensure the product information is available to application and web developers, for example, through the application programming interface provided by GS1 source.	82% of shoppers prefer to do product research online according to a 2014 UPS study. 38% of consumers would not purchase the product if they did not trust the product information displayed about it on their mobile phone, according to the 2011 GS1 UK Mobile-Savvy Shopper Report.

Purchase	Consumers expect to be able to purchase and receive goods in a seamless and streamlined way. GS1 standards make it easy for people to discover and purchase products wherever they are. By building on existing investments in GS1 standards, the retail industry can meet the product information needs of the new tech-savvy, omni-channel consumer. Greater consumer-facing inventory visibility is key; if a consumer cannot find the right product online it's a digital out-of-stock the equivalent of an empty shelf in store. The combination of unique product identification (GTIN) and Electronic Product Code-based radio frequency identification (EPC/RFID) can deliver near-real-time inventory visibility as well as inventory accuracy approaching 95%.	After searching for the product online the shopper will check on product availability (EPC/RFID), available in-store information (Gs1 Smartsearch) and fulfilment options.	71% of US consumers expect to be able to view in-store inventory information online. However, only 32% of retailers surveyed by Accenture in 2014 offered that capability. In addition, 50% of US consumers expect to be able to buy a product online and pick it up in a store but only 33% of retailers have operationalized store pickup.
Use	Whether warranties, accessories, recipes, on-pack information or instructions, consumers value today's digital access to additional product information – and GS1 standards make it possible. Food scandals are frequently front-page news. GS1 standards make it possible for businesses to track and trace their products up and down the supply chain and react faster and more precisely to the public concerning possible recalls or outbreaks of foodborne illness.	GS1 standards help deliver trusted post-purchase information, such as detailed product information, warranties, manuals, accessories and Customer Care via Global Trade Item Numbers (GTINs) and Global Service Relation Numbers (GSRNs); returns (Serialised Global Coupon Number {SGCN}, Global Trade Item Number {GTIN}, Global Location Number {GLN} and SRN); and post-purchase loyalty promotion and recommendations (GCN, SGCN, GLN, GTIN and GSRN). In time, industry-supported recall notifications for specific GTINs and associated production data, could trigger automatic reports alerting consumers of potential issues.	51% of consumers will use their smartphones to obtain product information, 45% to read reviews, 41% to find and use coupons, 40% to scan barcodes, and 35% to access social media, according to a 2011 Deloitte survey.

Source: https://discover.gs1.org/cpg/consumer/

Call to Action

Now, as a producer/retailer/logistics company you might ask yourself: Where do you get GS1 barcodes, how to apply them, how to make your processes thus more efficient and how to enhance your business relations by doing so? Wouldn't it be awesome if all of this knowledge would be easily accessible right out of Rwanda? Wouldn't it be beneficial for all business partners in Rwanda to have their own representatives on the global level of GS1? And what about your commercial partner at your side when it comes to nationwide solutions with GS1 Standards?

Short distances, direct support, exchange of thoughts with a like-minded community, formation of opinions to address Rwandan business needs all this is in the conjoint prospect for a GS1 Rwanda to become a local centre for training, capacity building and innovative, efficient business processes.

And the best: You could be provided with barcodes for your products directly from an GS1 organization in Rwanda. Rwandan entrepreneurs will thus have it easier to participate in the global value chain and thus strengthen trade. GS1 is not a company to be established, but a global organization.

To establish your own GS1 Member Organisation in Rwanda for the future progress, different stakeholders from manufacturing to the retail sector need to come together today as a community and jointly submit an application to the GS1 Global Organisation in Brussels, Belgium.

To ensure that this is successful, we are at your side as a project team and with our experts from GS1 Germany to support you throughout the entire process. To achieve our goal, we are holding several workshops and community breakfasts so that you, as entrepreneurs, can gather information and organize together.

Sources:

- https://www.estandards-mittelstand.de/ueber-uns/
- https://www.gs1.org/about/what-we-do
- https://de.wikipedia.org/wiki/GS1
- https://aipi.rw/
- https://www.gs1-germany.de/service/ueber-uns/

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