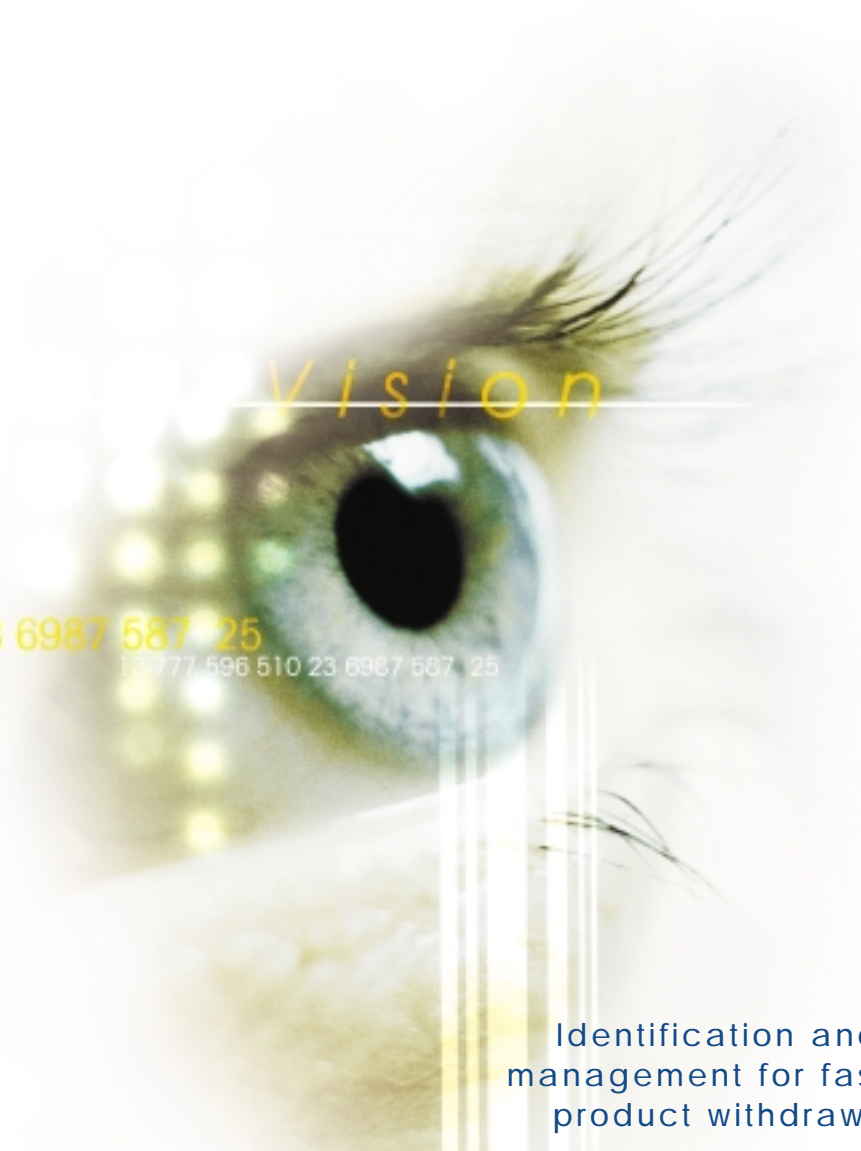


Traceability management tools
for agriculture, food
and beverage products



Identification and information
management for fast and accurate
product withdrawal and recall

EAN•UCC SYSTEM, The Global Language of Business

Since 1977, EAN International has contributed to the efficient production, trade, transport, and safety of food products by creating open, global, multi-industry standards based on best business practices.

We are an international not-for-profit association that develops and administers Identification, Bar Coding, Radio Frequency Identification (RFID), and e-Communications standards, which facilitate business processes such as master data alignment, planning, ordering, delivering, receiving, paying, forecasting, replenishing, and traceability.

Our standards and Supply Chain management solutions are implemented via a network of 101 EAN Member Organisations. More than half of the 1,000,000 EAN International member companies are involved in production, processing, transport, wholesale, and/or retail trade of agriculture, beverage, and food products. It is estimated that over 5 billion scanning transactions are executed daily using EAN•UCC standards.

The mission of EAN International is to play a leading role in Supply & Demand Chain Management improvement worldwide by creating Open, Global, Multi-sectoral Standards based on Best Business Practices, and by driving their implementation.

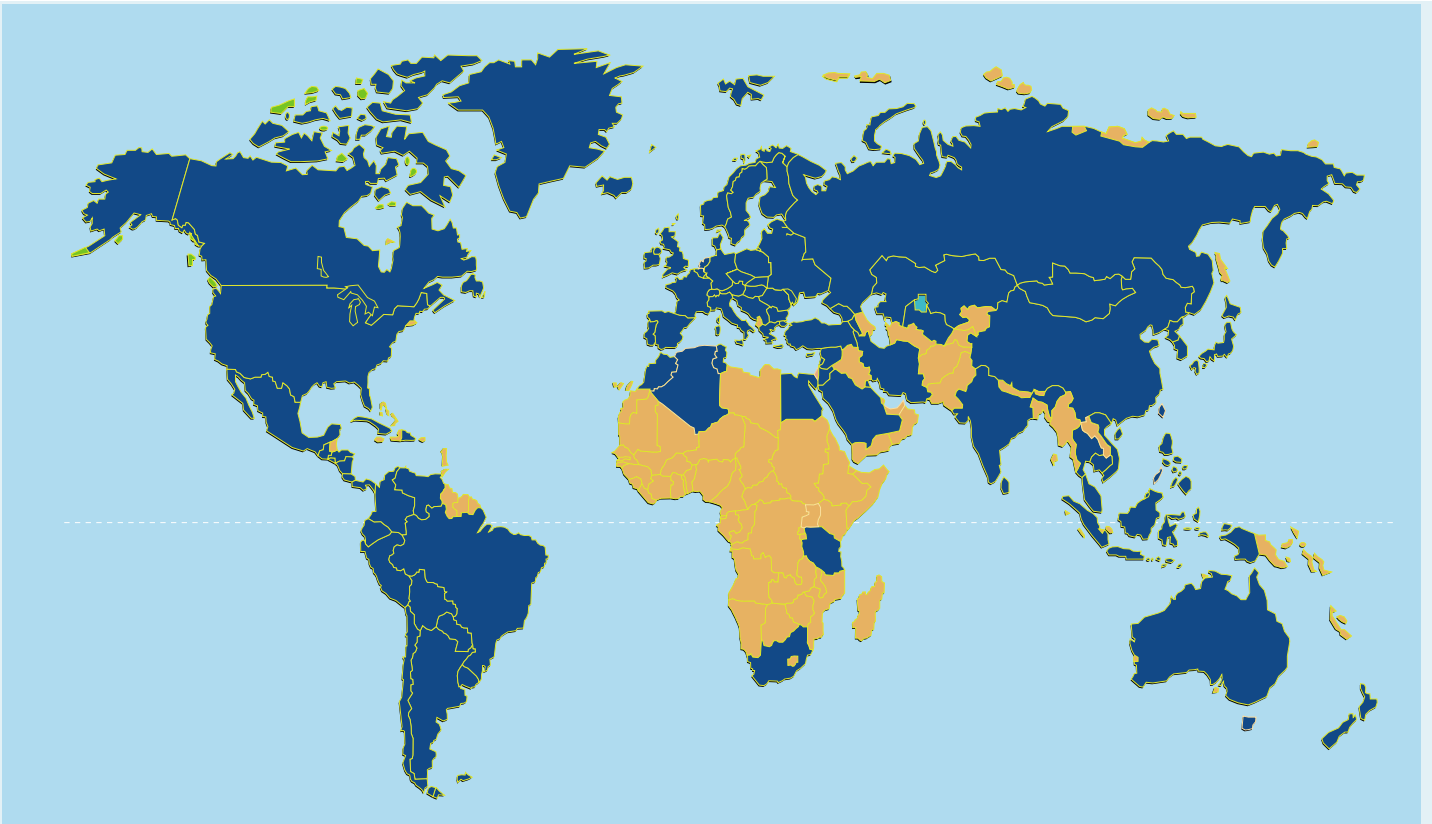


Traceability
of Beef



Fresh Produce
Traceability

The above Guidelines are available on: www.ean-int.org/onlinepub.html



EAN International Member Countries
 Membership allocated on a direct company basis by EAN International

101 MOs representing 103 countries, 1.000.000 members companies in 130 countries



Traceability
of Fish



Traceability
Implementation

Introduction



Food safety and traceability are currently at the forefront of both government and industry discussions around the world. Numerous initiatives designed to introduce various forms of tracking and tracing functionalities in the food Supply Chain are underway.

Because of its ability to provide globally unique identification of trade items, logistic units, parties and locations, the EAN•UCC System is particularly well suited to be used for these purposes.

From an information management point of view, implementing a traceability system within a Supply Chain requires all parties involved to systematically associate the physical flow of materials, intermediate and finished products with the flow of information about them.

This requires a holistic view of the Supply Chain, which is best attained by deploying a common business language – the EAN•UCC System. Its global reach and universal acceptance by consumers, businesses and governments makes it uniquely positioned to provide the appropriate response to traceability system requirements.

To further develop EAN International's capability to assist EAN•UCC System users, we have defined key traceability principles and produced an implementation grid, which links them to enabling technologies and relevant EAN•UCC System tools.

TRACEABILITY PRINCIPLES	ENABLING TECHNOLOGIES	EAN•UCC SYSTEM TOOLS
UNIQUE IDENTIFICATION	AUTOMATED IDENTIFICATION	GTIN, SSCC, GLN, APPLICATION IDENTIFIERS
DATA CAPTURE AND RECORDING	AUTOMATED DATA CAPTURE	EAN/UPC, UCC/EAN-128
LINKS MANAGEMENT	ELECTRONIC DATA PROCESSING	SOFTWARE APPLICATIONS ¹
DATA COMMUNICATION	ELECTRONIC DATA INTERCHANGE	EANCOM®/ XML

¹ Hardware and software manufacturers and vendors are not affiliated with EAN International

Unique identification

Any product that needs to be traced or tracked, must be uniquely identified. The EAN•UCC globally unique identifiers are the keys that enable access to all available data about the product's history, application or location.

Identification of Locations

Unique identification of locations is ensured through the allocation of an EAN•UCC Global Location Number (GLN), to each location and functional entity.



Identification of Trade Items

Unique product identification is ensured through the allocation of an EAN•UCC Global Trade Item Number (GTIN), to each product (consumer unit). For traceability purposes, the GTIN has to be combined with a Serial Number or Batch Number in order to identify the particular item.



Identification of Series

Traceability of Series is ensured through the allocation of an EAN•UCC Global Trade Item Number (GTIN) and Serial Number to each product (consumer unit).



Identification of Lots/Batches

Traceability of Lots/Batches is ensured through the allocation of an EAN•UCC Global Trade Item Number (GTIN) and Lot/Batch Number to each product.



Identification across Product Hierarchies

A GTIN needs to be allocated to each of the three levels of the Product Hierarchy, namely: consumer unit, traded unit and pallet – only include the latter if it is priced, ordered or invoiced at any point in the Supply Chain, in other words, if the pallet is also considered to be a traded unit.



Identification of Logistic Units (pallets)

Identification and traceability of pallets is ensured through the allocation of an EAN•UCC Serial Shipping Container Code (SSCC). Any pallet, independently of its type (mixed or uniform), needs to carry an SSCC allocated at source. A new SSCC must be allocated every time a new pallet (logistic unit) is created.



Data capture and recording

Products, Standard Trade Item Groupings and Pallets identified with applicable EAN•UCC standards [GTIN, SSCC, Application Identifier (AI)] must be bar coded in relevant EAN•UCC bar code symbols.

EAN/UPC BAR CODE



GTIN (EAN/UCC-13)

UCC/EAN-128 BAR CODE



AI

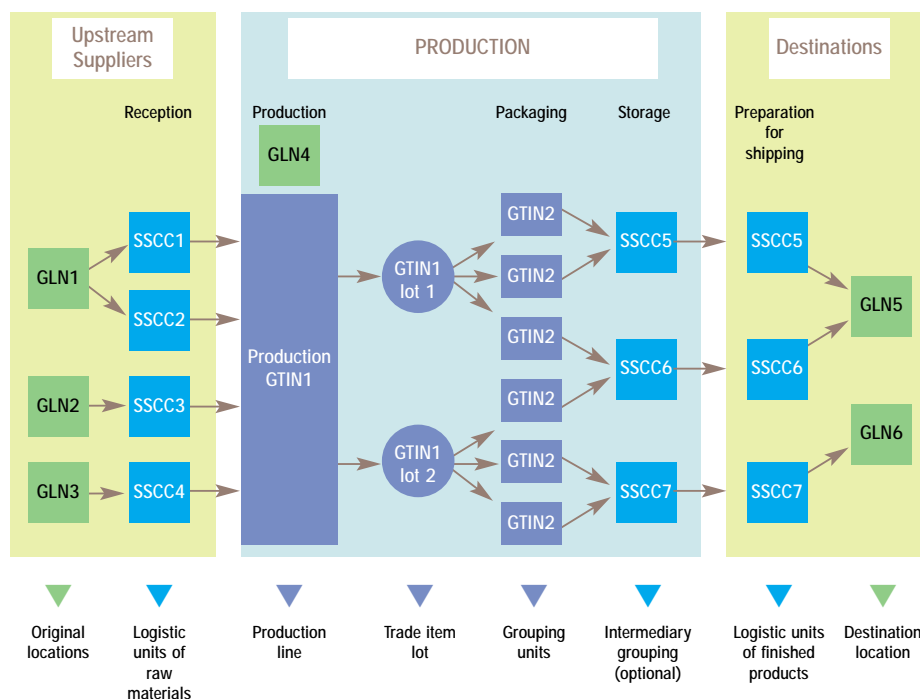
GTIN (EAN/UCC-14)

AI

BATCH
NUMBER

Traceability links management

In a majority of Supply Chains, products are tracked and traced by their production batch, which has undergone the same transformation (production process) and by their transport/storage path (distribution process). The figure below shows the use of EAN•UCC standards for identifying locations (GLN), logistic units (SSCC), manufacturing batches (AI 10) and consumer units (GTIN) in a production environment.



Traceability data management in production

Identification management in a production environment is characterised by:

- Several supplier locations (GLN 1-3), which send pallets of materials (SSCC 1-4).
- At reception, materials are stored and/or ordered for the production process.
- At the production site (GLN 4), consumer units (GTIN 1) are produced in separate batches (each identified with a distinct Batch Number).
- In the packaging step, consumer units (GTIN 1 and its Batch Number) are packed into standard grouping units (GTIN 2).
- In the next two steps - storage and preparation for shipping, pallets are created (SSCC 5-7) and dispatched to customer destinations (GLN 5-6).

Key business rules – Production environment:

1. Reception :

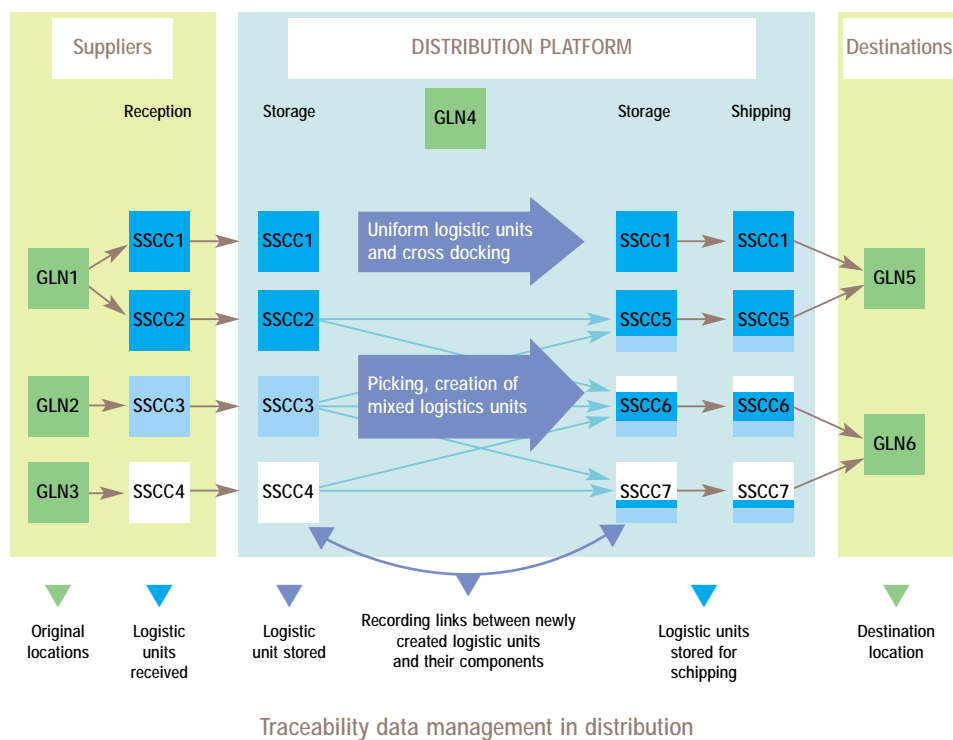
The SSCC of an incoming pallet is recorded and linked to the GLN of the supplier. Each time the pallet is moved, its SSCC is recorded and linked to the GLN of its new location (e.g. to storage or production).

2. Production :

Under ideal conditions the SSCC of the pallet and/or GTIN + Batch Number of materials used in the production process are recorded and linked to the GTIN of the product made and its production batch. At the end of the production process, standard trade item groupings are made from individual products. A new GTIN is assigned and linked to the production Batch Number.

3. Packaging, storage and expedition :

The GTIN of a standard trade item grouping is linked to the SSCC of the pallet onto which it is packed. The SSCC of an outbound pallet is linked via scanning to the GLN of its destination. The GLN of its destination must not necessarily be displayed on the label.



The figure above shows the use of EAN•UCC standards for identifying locations (GLN) and logistic units (SSCC) in a distribution environment, which is characterised by:

- Several supplier locations (identified with GLN 1-3), which send pallets of finished products (identified with SSCC 1-4).
- At distribution centre (GLN 4) reception, pallets are stored and sent to the order picking process.
- In the order-picking step, orders are fulfilled either by shipping uniform pallets, cross docking or creation of mixed pallets. They are either carried forward unchanged (uniform pallet identified with SSCC 1) or newly created (mixed pallets identified with SSCC 5-7) with products originating from different pallets (SSCC 2-4).
- In the last two steps - storage and preparation for shipping, both uniform (SSCC 1) and mixed pallets (SSCC 5-7) are dispatched to customer/point-of-sale destinations (identified with GLN 5-6).

Key business rules – Distribution environment:

1. Reception :

The SSCC of an incoming pallet is recorded and linked to the GLN of the supplier. Each time the pallet is moved, its SSCC is recorded and linked to the GLN of its new location (e.g. to storage, order-picking or distribution).

2. Order-picking and distribution :

- a) The SSCC of an unmodified pallet picked for distribution from the storage area or cross-docked without any storage is recorded and linked to the GLN of its destination.
- b) A newly created pallet contains standard trade item groupings originating from different pallets. In this case, a new SSCC is assigned to it and linked to the SSCC numbers of all other pallets used in its creation and/or, if applicable, the GTIN and Batch Number of each standard trade item grouping that was used. This can create the need for an enormous effort and can be solved through the application of a "time window", to be defined by each company when a product is packed. Newly created pallets during this time window can be linked to pallets used up within the same time frame. The SSCC is recorded and linked to the GLN of its destination.

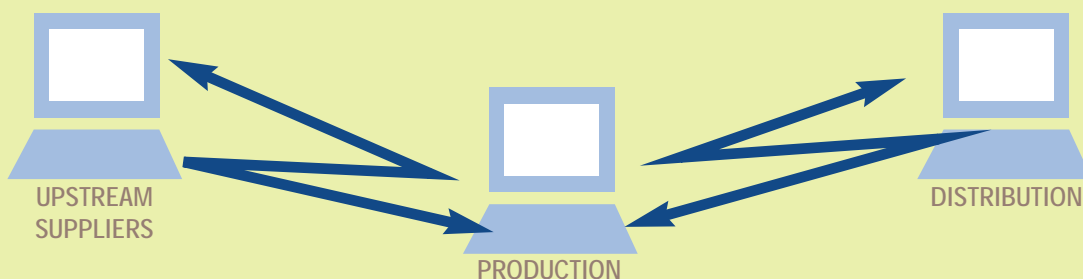
The ability to retrieve traceability data in a fast and accurate manner along of a Supply Chain is critical. This requires the management of successive links between what is received, produced, packed, stored and shipped across the entire Supply Chain (one step up, one step down).

If one of the partners, in the Supply Chain, fails to manage these links, this will result in a break in the information chain and in the subsequent loss of traceability. It is impossible to attain full product traceability without correctly identifying products in all their configurations at each different point in the Supply Chain.

Data communication

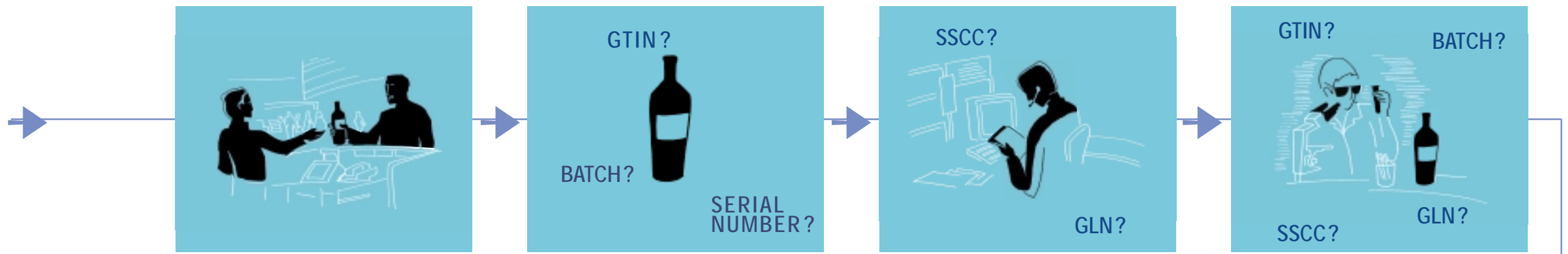
Traceability requires associating the physical flow of products with the flow of information about them. To ensure the continuity of the information flow, each Supply Chain participant must communicate pre-defined traceability data to the next one, enabling the latter to apply traceability principles.

The use of EDI is recommended for the fast, accurate, and cost effective communication of traceability data. Applicable EAN•UCC standards are EANCOM® and EAN•UCC XML messages.



EAN.UCC SYSTEM APPLICATION:

an example of a product withdrawal



1. Consumer

The consumer signals an anomaly in the sales transaction.

2. Distributor

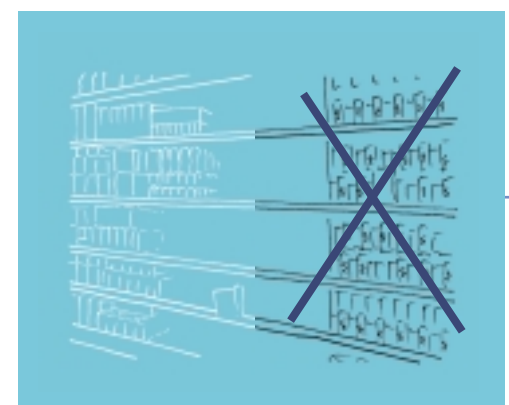
The distributor relays the complaint to its supplier, i.e. the product's manufacturer, specifying the item reference (Global Trade Item Number - GTIN), and if possible, the Batch Number.

3. Manufacturing Plant

The manufacturer identifies the raw material associated with the anomaly and identifies the corresponding upstream supplier (Global Location Number - GLN).

4. Upstream Supplier

- The upstream supplier analyses the cause of the anomaly and identifies the production batches associated with it;
- It identifies all units shipped from these production batches (Serial Shipping Container Code - SSCC);
- Informs receiving customers about the nature of the problem and the Batch Number of the raw material in question.



7. Points of Sale

Retail store quarantines suspect products (GTIN and Batch Number).



6. Retail Distribution Centre

- The retail distribution centre identifies the cartons and pallets (SSCC) to be quarantined and returned from the stock picking and shipment areas, and those already delivered at the retail points of sale;
- Removes and returns affected products still within its premises (SSCC);
- Provides retail stores with the SSCC, GTIN and Batch Number of the items to be removed.



5. Manufacturing Plant

- The manufacturer decides to withdraw the finished products related to the problem.
- Through its traceability system, the manufacturer searches its records for batches of finished products for which the raw material in question has been used;
- Identifies the SSCC of cartons and pallets containing batches of finished products to be withdrawn (which may be in the process of being delivered, in external storage and/or already delivered to customers);
- Quarantines the cartons and pallets still present in its stocks;
- Identifies customers (GLN) and provides them with information related to products to be quarantined and returned (SSCC, GTIN, Batch Numbers).



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