TRACEABILITY – A key building block of consumer trust

TRACK
Where were they?

TRACE
Where are they now?
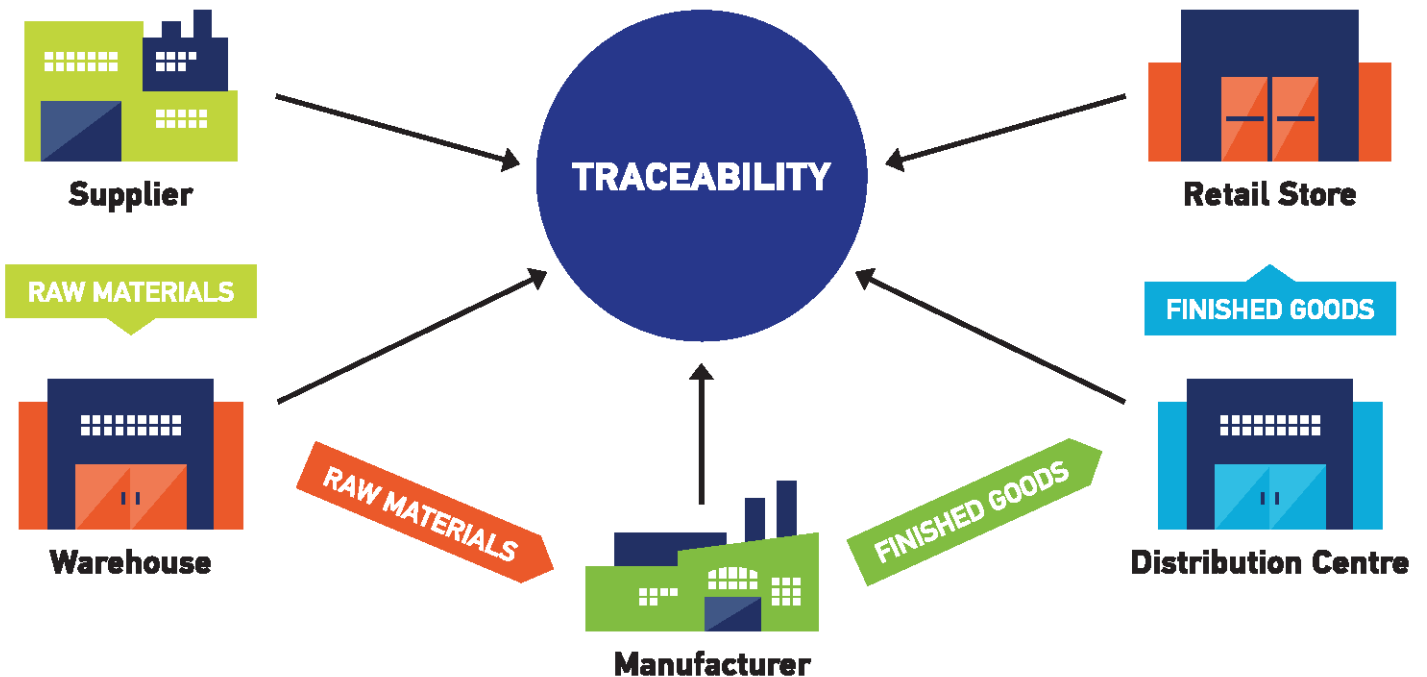
CONTROL
Where are they going?

CHAIN OF CUSTODY
Who handled them?

Supplier

RAW MATERIALS

Warehouse

RAW MATERIALS

Manufacturer

FINISHED GOODS

TRACEABILITY

Retail Store

FINISHED GOODS

Distribution Centre

Why traceability matters – traceability enables product safety, manufacturing efficiency and quality assurance. Importantly, it also builds trust with modern consumers.

Introduction

Any product for sale starts as raw materials, passing through a series of processes and a supply chain before reaching the end consumer. The final customer may not know the origins or the content of the goods. Yet today's customer cares deeply. Is it fresh? Where are the components from? Where was the item made? Traceability is the concept of capturing, recording, and sharing the data for every item sold, and allowing other parties access to this data.

Traceability is essential in quality assurance systems and forms part of international quality standards such as ISO 9001 and food safety. It also helps to manage product liability in the case of a product recall. The onus is on manufacturers and importers to meet the regulations, label goods correctly, and demonstrate that their products are safe.

The EU has required traceability of food for several years, and certain classes of consumer goods have their own standards: tobacco, fish, and seafood. Traceability is also required in furnishings, fashion, vehicles, pharmaceuticals, electronics, and healthcare with the introduction of UDI.

However, traceability brings benefits as well as obligations. It can add value to a product and justify a premium selling price. For example, a food that is shown to be organic can be sold at a premium price.

"An estimated 600 million – almost 1 in 10 people in the world – fall ill after eating contaminated food and 420,000 die every year, resulting in the loss of 33 million healthy life years/ disability adjusted life years."

Traceability, trade, and trust

European food regulations and international quality standards have been with us for years, and they exist primarily to ensure that food, and consumer goods are safe. Traceability is key to achieving compliance with these laws and standards. It enables manufacturers to build quality assurance into their processes and demonstrate their compliance. It also helps lower the costs of quality control and reduce the volume of complaints and warranty claims.

However, today's consumers are increasingly discerning. Besides safety, they also care deeply about modern slavery, animal welfare, and sustainability. They want to know what their products contain and if they are environmentally friendly. This is where traceability becomes even more valuable. It allows brands to provide this information and earn their customers' trust.

Besides helping brands to build trust, traceability provides way to respond quickly and effectively if something should go wrong. Product recalls are damaging. They are not just labour-intensive and costly; they also cause lasting harm to a company's reputation. With a traceability system in place, a recall is less likely, and easier to manage if it should be needed. A manufacturer can pinpoint the cause of the trouble, and which supplier is liable. They can also see exactly which purchasers are affected, and contact only those, without worrying other customers.

"We are standing at the dawn of a trust revolution in the retail sector, in which food traceability becomes a global trend and consumers obtain visibility on the entire food journey."
Hani Weiss, The Consumer Goods Forum, global consortium of retailers and brands

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For this reason, retailers increasingly want traceability and end-to-end visibility of the supply chain. They want to promote responsible brands in food, fashion, and household goods.
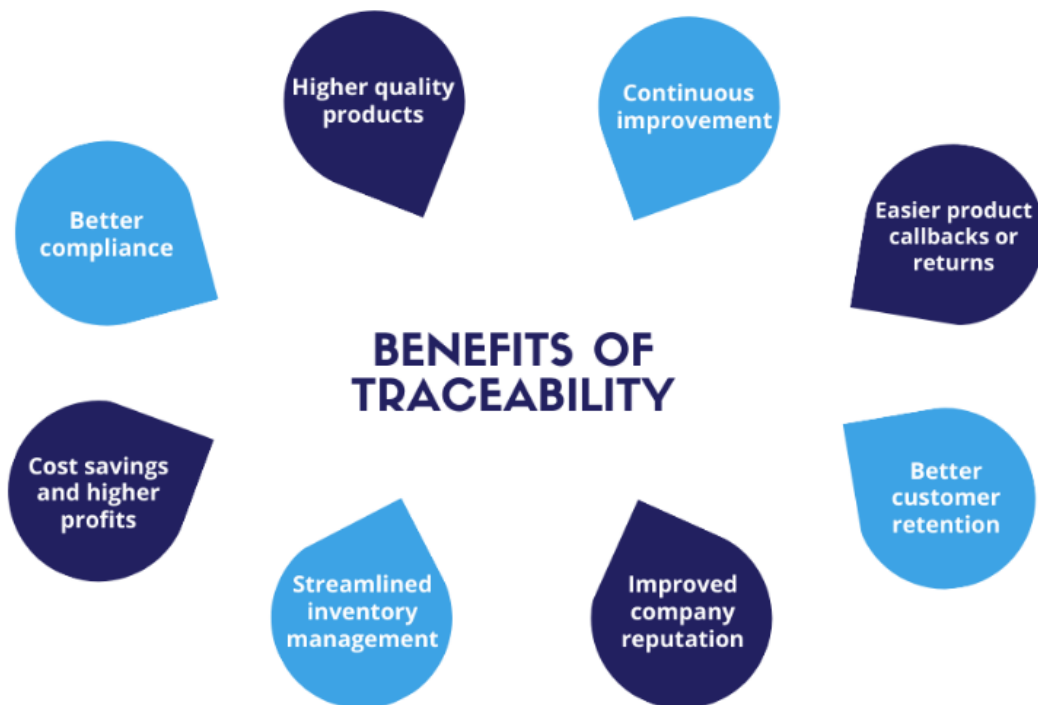
Traceability throughout the supply chain

Traceability brings the entire supply chain into focus. It brings visibility for goods as they travel from A to B, through the tiers of the supply chain, through the factory floor, warehousing, and stores, to the final journey to the end customers. Everything is logged and recorded, purchase orders, shipping records, batching logs, courier routes. Even the last mile to the end customer can easily be made traceable.

This visibility brings business advantages. Inventory can be managed more effectively. Forecasting can be more accurate. Waste can be reduced. All saving costs.

Good customer service relies on accurate stock management and timely deliveries. With better supply chain management, not only are goods available when customers want them, they can track the goods in transit and deliveries hit promised dates. Then, when couriers hand goods over, a receipt confirms the time and location of delivery, in case of questions.

Traceability, and the transparency it brings, are key to managing these processes more efficiently. Tracking technologies speed things up, productivity improves, and queries are resolved more easily.

Higher quality products

Continuous improvement

Better compliance

Easier product callbacks or returns

BENEFITS OF TRACEABILITY

Cost savings and higher profits

Better customer retention

Streamlined inventory management

Improved company reputation

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Traceability data

Traceability depends upon detailed data about the status and movement of goods. This means that goods must be "serialized", i.e., marked with unique codes and identifiers. Many goods, from consumer to industrial and medical devices, are marked with unique identifiers to comply with safety legislation and enable quality assurance.

The data can contain details such as place of manufacture, place of origin, or best before date. It can denote the type of item, the owner, the lot number, and the expiry date.

Besides the data needed to meet regulations, there are new factors to consider, for example whether the item is sustainable? The data to be captured continues to grow, and there is more data to store – hence the greater use of 2D barcodes, or QR codes, which can store more data.

The data can be printed or embedded on the items, or it may be held in a visual code, such as 1D or 2D barcodes, RFID tags, or a laser marked DPM code. All these codes can be read to identify items, capture their details, and add them to an automatic system.

Four pillars of traceability

Four important parts make up a traceability system, and the data is logged and recorded at certain stages: purchase orders, shipping records, batching logs, courier routes, and delivery receipts.

Tracking – This concerns knowing where goods are and where they are going. Goods are tracked as they are received, counted, sorted, dispatched, and loaded. They are scanned at the point of picking, order fulfilment, and shipping. When goods are tracked correctly, the business knows the location of every item at any time from its origin to the end customer, and there is documentation to audit every movement. This is known as "traceability downwards".

Tracing – This is where the origins of items or components are known as they pass through manufacturing and onwards to distribution. Having the data associated with the goods means that their ingredients or components can be traced after delivery. This tracing enables manufacturers to action product recalls. It is called "upwards traceability".

Control – Where data flows with the goods it can be linked to an ERP system or a warehouse management system to show what is happening on the factory floor. This enables visibility throughout production and distribution and the processes can be managed to make them more efficient.

Chain of custody – As the goods pass from one owner to another – the farmer, the wholesaler, the shipping company, the brand manager, and the store manager – the individual or company responsible for them can be found at any time.

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Manufacturers are moving towards a vision of Industry 4.0 where the data from different sites is visible to others as goods move from one process to the next.

Crucial to being able to implement traceability is the ability to capture product data at every stage of the journey, and to do this quickly. The data must be accurate, and in real time.

If the details are held on paper, they are difficult and expensive to share, but if the data is automated, it can be captured faster, and the goods can be processed more easily.

The International Organization for Standardization (ISO) has defined traceability as follows in ISO 9000: Meaning. Traceability is the ability to trace the history, application, use and location of an item or its characteristics through recorded identification data.

Datalogic traceability solutions

Datalogic offers the most comprehensive portfolio of products and solutions to deploy traceability systems. There is a device for every need in the supply chain, from simple handheld barcode scanners to powerful mobile computers.

Datalogic's innovative wireless charging in the latest products is an important step forward. There are no contacts to clean, less maintenance needed, and the cost of owning these products is lower.
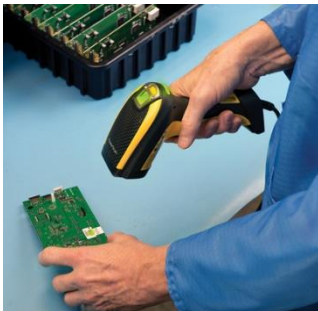
HANDHELD READERS

Whether your organization is looking to automate the data collection activity, to properly manage the warehouse inventory, to assure the correct traceability among the entire supply chain, to enhance check-out speed in retail environment as well as improve transaction accuracy and efficiency in the store, handheld scanners give a solution for a wide range of applications.

Demanding applications require ruggedized, cordless, handheld scanners that are versatile, easy to use and feature outstanding radio range for forklift picking, bin picking, order fulfillment, and shipping and receiving.

MOBILE COMPUTERS

Mobile computers help enterprises to improve efficiency and reliability on all their tracking activities in every area of the company. Whether tracing all components used for assembly of finished goods, through to managing inventory, tracing goods in delivery up to stock rotation and assisted sales on the shop floor, mobile computers are fast becoming the trusted work companion of all operators.

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STATIONARY READERS

Stationary industrial scanning allows innovative companies to increase their throughput, improve their accuracy, and add a high level of traceability to their manufacturing, warehousing, logistic, and distribution processes. Integrating stationary industrial scanners in these types of applications provides a cost-effective way to increase and improve internal processes without the hassle of adding additional personnel and overhead.

Your traceability solution should include stationary readers to confirm that labels have been applied and are readable. It's ideal to deploy one reader that can read all materials including paper, packaging, plastics, and metals, so there's no need to carry multiple readers for different processes. Latest area imagers, like the Datalogic Matrix™ family, can provide pictures as automatic POD (Proof of Delivery).

VISION SYSTEMS

Machine vision is an image-based technology that is used for inspection and analysis, vital when you want to make sure the correct components are in the correct place in the correct order. The smart camera can inspect the "human readable" code next to the barcode and aids in pattern identification, flexible packaging – such as pallets with different products – and image archiving.

The benefits of adding industrial machine vision technologies to your processes provide high-level return on investment. With cost effective solutions, Datalogic vision systems and smart vision sensors provide a range of options that allow you to select only the options that you need, without having to pay for features that will never be utilized.

LASER MARKING

Selecting a proven laser marking solution is vital for applications requiring reliable Direct Part Marking (DPM) in manufacturing, including automotive, precision mechanics, industrial electronics, healthcare manufacturing and other industries.

For traceability, laser marking solutions mark serial numbers, and lot and batch numbers with 1D and 2D barcodes and human readable codes. Laser marking solutions should be able to mark in-line with markings that are permanent, durable, and counterfeit proof. They should also be fast and easy to integrate with vision systems.

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