Best Practices for Traceability in Manufacturing

Why You Need Real-time Track and Trace Solutions Now

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Barcoding, Inc. is a national systems integrator, specializing in the development, deployment, and management of supply chain and mobility systems based on automated data capture and wireless technology. www.barcoding.com.

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CHAPTER 1:
What is Traceability?

Traceability: Defined

For discrete manufacturers, **track and trace each component** that comprises your product – from suppliers and manufacturers through assembly and final delivery to customers.

For food and other process manufacturers, it's the ability to trace each ingredient of a product from "**farm to fork**" through the creation of a batch genealogy.

> According to ISO 8402, traceability is "the ability to trace the history, application or location of an entity by means of recorded identifications."

"Manufacturers can't think of themselves as separate entities – they must acknowledge the greater supply chain."

Basics of Traceability:

- Use technologies such as **direct part marking for discrete manufacturers**, where parts and components receive a permanent mark either as they enter assembly or by suppliers.
- 1D and 2D **bar codes**
- Radio frequency identification (**RFID**)

Chose a traceability method, then determine if Global Trade Item Number (GTIN), lot or serial level identification is needed based on your operations

CHAPTER 2:
Recalls Drive the Need

Protect Your Reputation

With competitive pressures on the rise and consumer confidence becoming harder to earn and maintain, companies are finding that now, more than ever, there is a need to protect their brands and reputations.

Completely negating or being able to minimize the impact of recalls is critical to **maintaining customer and distribution channel loyalty and minimizing costs**.

Recalls are Costly…

Track-and-trace solutions not only aid in managing food recalls, they also help stop unnecessary recalls.

Salmonella Outbreak

In 2008, a salmonella outbreak sparked the recall of tomatoes across much of North America over a three-month period. Unfortunately, the outbreak was later attributed to jalapeno and Serrano peppers, not tomatoes.

Total estimated loss to the tomato industry as a result of the initial recall – over $200 million.[1]

"General Motors paid a $1 million civil penalty for failing to conduct a timely recall of failed windshield wiper components on more than a half-million vehicles."[2]

2009 Peanut Recall

In 2009, a salmonella outbreak tied to peanuts prompted a widespread recall:
- Approximate cost to peanut industry alone = $1 Billion
- Over 200 companies recalled approximately 2,100 products
- The recall impacted everything from cakes, ice cream, candy bars and peanut butter to crackers and pet food

Source: Motorola Solutions

From Recalls to Compliance

- Compliance mandates are increasing as are the associated fines for non-compliance.
- The Federal Transportation, Recall Enhancement, Accountability and Documentation (TREAD) Act requires vehicle and equipment manufacturers to report to the National Highway Traffic Safety Administration (NHTSA)
- U.S. Department of Defense requires suppliers to complete Universal Identification (UID) marking of all legacy items.
- Aerospace Spec 2000 and SEMI standards and regulations must be met

Manufacturers are turning to traceability solutions to help close some of the information gaps that exist in disparate supply chains, track warranty data and meet customer safety and demand requirements.

The Costs of Inaction are Too High ...

Recall Costs[4]

Direct Costs Include:
The cost to remove product from market
Media costs associated with contacting customers
Costs associated with recovering or destroying product
Cost to recover product replacement or customer credit
Legal costs
Regulatory compliance costs (fees, additional testing and inspection costs)

Indirect Costs Include:
Damage to reputation and brand
Long-term losses to a product category
Added marketing and advertisement costs to recover market and market share
Increased regulatory and testing costs
Increased product liability insurance costs
Costs for adding employees (in technical and sales divisions)
Permanent increases in testing or sampling costs

Source: Motorola Solutions

CHAPTER 3:
Components of a Solution

Track and trace of critical components within the manufacturing process begins with both process and technological changes.

In order for traceability to be effective, companies must **shift from error-prone manual processes to automated ones** – capturing, storing and managing information automatically.

Connecting Data

In traceability solutions, system capabilities may include **serialized container and individual part tracking**; built-in **bar code printing and scanning**, RFID, and direct part marking; and detailed traceability from any point in the manufacturing process.

Component	In addition to MES, ERP, and Professional Services:
Data Capture & Mobility Hardware	• Mobile computers, bar code scanners, RFID tags and readers, and industrial wireless local area network (WLAN) • Devices to capture all traceability methods, including: o 1D and 2D bar codes o RFID o Direct part marking: laser etch, dot peen, chemical edge, stamped
Additional Software Systems	• Applications that create mobile and fixed reader front-end interfaces to MES and ERP systems, quality and lab systems. • Management software to: o Manage, maintain and monitor mobile devices o Manage, monitor, and ensure security and compliance within wireless networks

Source: Motorola Solutions

Achieve REAL-TIME

Real-time transparency limits the scope and impact of any potential recalls

Real-time systems (RTLS)

When combined with a robust data management system, RFID and bar code scanning solutions can create a versatile RTLS.

RFID and bar code scanning

- Global trade identification numbers (GTINs)
- Ranch, feedlot, auction house, and processor locations
- Condition, quantity and historical data within the supply chain
- Handling instructions
- Lot/batch numbers
- Authentication codes
- Inspector IDs
- Transportation information

Real-time transparency

Implementing a wireless local area network (LAN) within a production or staging facility enables a business to collect and correlate the various data **in real time** as it moves to, from and throughout a facility. **Respond instantly** with mobile computers equipped with voice, RFID and/or bar code scanning.

CHAPTER 4:
Benefits of Change

You Can't Afford Not To...

Be able to identify the origin of a particular unit located within the supply chain.

Traceability technologies and processes **ensure product quality standards are met and give real-time information about production and equipment**. Track production information back to the exact date, time, supplier components, operator and machines used.

"Real-time information puts **customer satisfaction & safety** first."

Increase customer satisfaction and safety

- In the event a recall does take place, manufacturers are able to minimize the impact by only recalling those items with the specific serial numbers that were built with the faulty component, material or process – thus significantly reducing expenses and customer impact.

Meet government and compliance mandates

- Ease the burden and lessen the chances for fines and penalties associated with noncompliance. Meet the challenges of stricter government regulations and manage detailed product histories to meet discrete and process manufacturing standards and regulations.

Operational Benefits

Improve data accuracy

- Reduce human error. Components or ingredients are handled within the manufacturing plant with the use of mobile computers, bar code scanners, RFID and wireless data technology. Automatically capture product, ingredient, part, employee number, quantity and supplier information

Increase operational productivity

- Save millions in lost revenue, recall costs, damage control campaigns, litigation and fines. From an operations perspective, automated KanBan for just-in-time (JIT) line side replenishment of component parts can also significantly increase productivity.

Protect your brand and bottom line

- Mobile track-and-trace solutions can prevent quality issues before they occur or, in the event of a product recall, allow manufacturers to act swiftly as well as narrow the scope of the recall to reduce exposure to negative brand impressions and damage to revenues.

Focus on Revenue

"Warranty costs in the automotive industry exceed $9 billion per year."[7]

Reduce warranty claim costs

- Traceability enables manufacturers to accurately analyze the root cause of a product or part failure to recover warranty costs from liable suppliers.

Focus on generating revenue

- With automation and traceability solutions for discrete manufacturers you can track warranty and part information to up-sell and cross sell complementary products and services.

  In addition, labor hours can be reallocated to focus on revenue-generating activities versus the double reporting that occurs when data is collected manually and then later transferred into a computer system.

Good News!
We can help…

If you need help on putting together **your own traceability solution**, or more – [contact Barcoding, Inc.](#) We are a trusted advisor to more than 2,500 companies across the country.

Sources and Additional Reading

REFERENCES

1. State Surveillance of Foodborne Illness; Produce Safety Project; www.producesafetyproject.org

2. *"Parts tracing drives automotive supply chain: government regulations and rising recall costs force suppliers to get a better handle on parts data," Frontline Solutions, Brian Albright, April 2005*

3. National Highway Transportation Safety Administration http://www.nhtsa.gov

4. *"From Peanuts to Pet Food: Coverage Available for Rising Recall Exposures", Patricia Roth, Aug. 2009. Originally published in the August 2009 issue of National Underwriter's e-newsletter*

5. National Center for Zoonotic, Vector-Borne, and Enteric Diseases

6. *"Creating a Genealogy," Automation World, Rob Spiegel, Contributing Editor, September 2006*

7. *"The Traceability Advantage," Quality Magazine, Mark Symonds, September 2007*

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