

Transparency and Trust – the Need for Traceability

White Paper

Table of Contents

Introduction	3
The Market Today	3
Health.....	3
Certifications and Legislation.....	4
Consumer Demands.....	4
Market Access	5
What is Traceability?.....	5
More so, what does traceability really entail?.....	5
What does food traceability mean to an organization?	6
Benefits of a Traceability Solution	6
Product Safety	6
Brand Differentiation.....	6
Inhibitors and Risks of Ignoring Traceability	7
Key Considerations for Food Traceability Solutions	8
Lawson M3 Trace Engine	8
Trace Engine Benefits:.....	9
Conclusion.....	10
About Lawson.....	11

Introduction

Escalating health fears, new global policies, and a highly competitive market means that traceability is an issue food and beverage companies cannot afford to ignore. Visibility of food safety and quality control incidents has been increasing, creating hot topics for news in the public eye. In recent years, the emergence of stricter legislation around traceability has also intensified the focus on product lifecycle transparency in order to safeguard the food chain.

In a global world where food travels longer the risks become more prevalent and complex. Supply chains are increasing in complexity while the market demands more information to differentiate products. Legislation, standards, guidelines and requirements are shifting and diverse.

All of this has led to an increasingly demanding need for information on quality and food safety that food companies must live up to.

This white paper explores the key issues surrounding traceability in the food and beverage industry and makes a case for companies considering a new traceability system. The white paper also aims to act as a guide for choosing traceability technology and presents a new traceability solution and its potential value.

The Market Today

The food and beverage market is complex and changing. Many challenges exist around the issue of traceability including factors such as health concerns, government regulations, consumer demands, and market access. This section takes a closer look at these challenges.

Health

Food safety has always been one of the top concerns for food producing companies. EU-RAIN¹ states that **annually** between 10–30 percent of the population in industrialized countries suffers from food borne illnesses. These are unacceptable social and economic costs.

The US Food and Drug Administration (FDA) classify recall incidents into three levels with Class I being the most serious. A Class I recall is one in which there is a reasonable probability that the use of, or exposure to, a product will cause serious adverse health consequences or death. Over 100 Class I recall events involving food products took place in fiscal year 2006. During the past five fiscal years, there has been an average of 188 Class I food recall events each year.

The FDA has no legal authority to enforce a recall unless it determines there is a Class I threat. State and local agencies and the US Department of Agriculture also report recalls to the FDA site: <http://www.fda.gov/oc/po/firmrecalls>.

The Economic Research Service (ERS) of the US Department of Agriculture calculates the human illness costs of food borne disease to help policymakers identify the magnitude of the societal impact. In 2000, ERS estimated the cost for five bacterial food borne pathogens as USD 6.9 billion².

¹ EU-RAIN (European Union Risk Analysis Information Network) is represented by 20 research institutions and consumer organizations from Europe and North America

² <http://www.ers.usda.gov/Emphases/SafeFood/>

Recent food scares also cost companies more than their reputation. Cadbury recalled millions of chocolate products in 2007 after the UK Food Standards Agency revealed that 37 people fell sick due to a food borne disease and tracked it back to Cadbury. The recall cost the company about USD 39.2 million as well as landed them in court for the incident, alleging that the company knew about the contamination but still put the products on the market.

Another well known name, the Hershey Company, lowered its earnings estimates for 2006 following a massive product recall and Canadian plant closure after the detection of salmonella in a variety of Hershey products.

The increasing number of food safety scandals is reducing trust in the food and beverage industry. Not only does the affected enterprise get hurt, but often the whole industry suffers from food events. A food company needs to have a living, well-functioning traceability system to be able to do effective recalls. A traceability system becomes the center of the overall recall process since it speeds up and simplifies the entire process and thus reduces the effect, impact, and cost of such events. Working with risk analysis as a new, proactive approach to food safety is becoming the new cornerstone in producing safe and acceptable food.

Certifications and Legislation

Do regulations provide companies with a false sense of security? Both EU food law and the Anti Bioterrorism Act in the US consider traceability as being able to trace a product one step backwards and one step forwards. This means you must know from where you bought your raw material and who you sold your finished goods to. But what about internal traceability? In the last few years, food events have put the focus on legislative work needed for internal traceability. EU directive 178/2002 came into effect in the beginning of 2007 and is moving in this direction, addressing the importance of internal traceability.

Government agencies are focusing on the establishment of an external traceability network in a region or nation. An external/global traceability system can only be functioning if:

- All agree on the same data exchange standard (and in the EU it looks that it will be TraceCore XML);
- The internal traceability is in place within each enterprise with enabled connections to the global traceability network.

Consumer Demands

Society is becoming more and more internet based and demand for information about the food they buy is rising. Food crises make for good news headlines and there are more people than ever becoming concerned. How the food industry decides to communicate the safety and quality of their food is crucial and of strategic importance for the wellbeing of the industry and individual companies.

Customers are increasing order frequency to keep a lower stock. They demand shorter delivery time, give penalties for not meeting the delivery time requirement, and demand consistent quality. This is especially challenging for the livestock industry.

Consumers are requiring more and more information about the products they buy. High price is no longer perceived as the only indicator of high quality. Consumers want to have information about origin, animal welfare, hygienic standards in food processing plants, and environmental impact issues.

The Food Marketing Institute's recent survey, "U.S. Grocery Shopper Trends 2007," published in May 2007, showed that consumer confidence in the safety of the food supply has dropped dramatically. It had consistently hovered in the 80th percentile for several years, but dropped to 66 percent, the lowest point since 1989. Consumer confidence in the safety of restaurant food was even lower; at 43 percent. In an interview with the publication MEAT&POULTRY the president of FMI, Tim Hammonds, described the decline as a "dramatic fall." He said there was no indication that public confidence in the safety of food and meat had been at a tipping point. The fall in confidence was sudden and sharp.

Ten or more years ago, what was in a product, how good it was for you, its packaging process, and where it came from barely registered with consumers. In fact, products considered healthy and natural were often poorly marketed and expensive. However, in the US, this has now become an approximate 16 billion dollar industry. In the UK, customer research has shown that consumers are 60 percent more likely to buy organic food if it can be shown to be produced in the UK. Traceability can also act as a powerful and defining marketing communication tool in order to create product differentiation and strengthen brand loyalty.

Market Access

Emerging market entries such as China highlight new challenges and risks for food safety for exports and imports. The Chinese food industry and industry regulators are not yet able to keep up with the requirements and standards of other countries.

Lack of proven traceability in the value chain can be used to put up trade barriers and deny market access. The banning of Norwegian salmon in Russia, Indian grapes in the EU market, and American beef to Japan are just a few such examples. GrapeNet, a governmental initiative in India, was set up in response to assure access to the EU market.

A few years ago, the American beef industry – a two billion dollar industry – was shut down practically overnight for two years because of Japan's refusal to accept imported beef products from the US due to health fears. Arguably, with no mechanism for proving to the Japanese that its product was safe – and with no solution to do so – the trade route was shut off. Other countries like New Zealand benefited from the situation when the price of beef rocketed. Not only did they deliver the right information to the market, they also took advantage of the opportunity and increased their market share.

What is Traceability?

When a final packaged product arrives on the table of a consumer, multiple companies will have been involved in the entire process, from raw material producers to wholesalers, transport companies, and manufacturers. So who really is responsible for the traceability information?

More so, what does traceability really entail?

Traceability is essentially the ability to delve into information on a product's movement that has been collected and stored in various systems by data capture tools, such as RFID tags. Moreover, where tracking mechanisms can only determine the status of a product's progress as it moves downstream, more advanced traceability tools supply a holistic view of product movement, both backwards and forwards, and across any step of the supply chain.

What does food traceability mean to an organization?

Employees at different levels within organizations were asked about their relationship with traceability and what it means for their work. The answers varied depending on the level of an individual in the organization and are categorized by role and responsibility.

Quality Management, Food Safety Managers, Product Development

These positions will use traceability to produce safer food, to help manage quality consistency, know more about the raw material, and the origin of ingredients. They want all traceability information in one place for this overall view.

Management

They look to traceability to reduce recalls and costs by helping ensure better processes for work and item flow, increasing productivity. Reducing risk through overall control is key to the business' long term health.

Marketing, Sales, Public Relations

Traceability information will strengthen the company's reputation, increasing trust and building the brand. Having traceability information in a proactive fashion allows better and tighter cooperation with customers, regulators, and governments.

Benefits of a Traceability Solution

The benefits of value-added traceability can be significant. The most obvious, particularly for those engaged in exporting, is compliance with regulatory requirements both locally and abroad. This section explores some other benefits of a modern, comprehensive traceability solution and how it can be used to help reduce food safety risks, increase trust among consumers, and save money.

Product Safety

When contamination scares arise and product recalls are necessary, the ability to obtain immediate information – regarding the source of contamination, scope of products involved, suppliers involved, origin, end point of the products, and SKU numbers – is paramount. Traceability systems help address these issues with precision, helping to reduce the risk of unnecessary recall costs and lost sales, as well as preserving brand integrity and consumer confidence. While no traceability system can ensure product safety it can help you get contaminated foods off the shelf as quickly as possible. Many major corporations have recently been involved in large-scale, expensive marketing campaigns to rescue their image following contamination scares.

Brand Differentiation

Growing consumer demand for information makes traceability a golden opportunity to build business differentiators. If a company can utilize value-added traceability capabilities to demonstrate its role in the product lifecycle and back up performance claims, it will be in a position to offer value-added information about the product and enhance brand equity, reputation and margins.

Moreover, if a food incident does occur, those companies involved who are in possession of a traceability system can quickly take responsibility or prove their innocence, saving money and saving face.

Some forward thinking companies use some sort of traceability system to create evidence or require their suppliers to prove that certain things happened in the production process. An example could be a farmer able to document that no hormones or antibiotics were used in their product. The ability to prove these attributes builds trust and consumer confidence in the brand.

Inhibitors and Risks of Ignoring Traceability

We have all heard about the “field-to-fork” traceability ideal and we know it is possible, so why isn't it happening sooner rather than later?

Some visionary food and beverage companies have had the foresight to steer their companies towards supply chain traceability. Some food industry sectors are more advanced – particularly aquaculture and meat – as are some major retailers.

Others, however, are not so well developed. They may have standalone systems to capture information, but not the ability to recall products instantly across an organization. Worse still are those using paper-based systems or manual spreadsheets.

One inhibitor is lack of awareness. The GSI organization has suggested that many producers in several countries are still unaware that the regulatory environment is changing and have little understanding of whether their traceability systems would pass if put to the test. Most of them would not.

Current food legislation is also not very clear. For example, EU food law contains general provisions for traceability that apply to all food and feed business operators. The EU defines traceability as the ability to trace food, feed, and ingredients through all stages of production, processing and distribution. However, the EU requirement for traceability is limited to ensuring that businesses are at least able to identify the immediate supplier of the product in question and the immediate subsequent recipient, with the exemption of retailers to final consumers. There are no requirements as to how this should be conducted.

Since the Bioterrorism Act of 2002, the establishment and maintenance of records has become a requirement. All US facilities that manufacture food, handle raw or processed agricultural commodities, transport, distribute, receive, hold, or import food are required to keep records containing “reasonably available” traceability information of product shipments. These records must be available for inspection within 24 hours from the time of the official request.

Some believe that the market has a fixation on “productivity gains” rather than what should be a priority: “market demands.” Traceability is not seen to drive profits in quite the same way as productivity. There is a great deal of effort going into making processes faster while many businesses neglect to look at the end game – access to markets and loyal customers – for which traceability support is key.

Another inhibitor beginning to emerge is the question around who owns the problem and who will pay for the solution in a value chain? The biggest hurdle here is the inability to fence off part of the solution and say, “this part is my responsibility, I will pay for it and you can pay for your part.”

In Europe and New Zealand there is discussion of the accountability issue and the suggestion of a consortium approach to traceability – a whole government/whole industry solution. The supply chain is linked together by an umbrella application through which users can dynamically interrogate the data sources on demand.

The advantage of this type of distributed data model is that the data sources often already exist, so there is no need to develop a “super data warehouse” and replicate supply chain information for each company. The rationale is that if each party is responsible for maintaining its own databases with a single method for trace retrieval, then the ownership problem is reduced to a manageable level for each organization. This is a good option for smaller, more resource-constrained organizations. Still, the brand owners suffer more in terms of reputation and brand loyalty during a food crisis than the transporter and the retailer. The approach should be to first gain control over what is inside your own four walls – internal traceability – then

move on to supply chain traceability. However, despite a proposal for a traceability task force and an agreement on the need to address the issue, it appears there is insufficient support or commitment to take it forward.

Key Considerations for Food Traceability Solutions

For businesses that are considering a traceability solution there are several steps, important to success, in choosing the right trace system:

- Step one:** Identify your trace line based on your processes – where do products go to and where do they come from? Then identify your critical traceability points in the trace line.
- Step two:** Assess data aspects and identify whether the business actually has the data available to do the trace adequately. Once the trace line is mapped from end to end, identify the parties involved and their ability to supply you with access to data. This is how a business can achieve a distributed data model.
- Step three:** Following identification of the trace and sources of data, it is then necessary to fill the gaps in that trace line. The ability to capture missing data (such as delivery time, providers of transportation, storage information, etc) is crucial.
- Step four:** Move towards installing the “front-end” process – this is where a trace engine interface is pivotal in enabling immediate access to information through a user-friendly portal. Without a trace engine, a business can start down the traceability path, but will find it difficult to complete.

At this stage there are few options for “true” user-interface trace engine solutions, with most products being custom solutions or middleware applications that integrate disparate databases. Much energy has been invested in technology for “capturing” data (RFID, bar coding, and lab inspection systems, for example) rather than a method for “sharing” information. However, a new generation of web browser-based traceability applications are being developed that enable this detailed interrogation of the data supplied by “capture” systems.

Lawson M3 Trace Engine

The use of a solution such as Lawson M3 Trace Engine can help display the big picture to all parties in the supply chain. It enables the harnessing of segmented information and delivery of results all the way to end users or any party in the chain.

Lawson developed its preconfigured web-based solution in conjunction with one of the world's largest aquaculture feed production companies, Nutreco. Trace Engine is a standalone, web-based, configurable repository that can receive, filter and interpret any trace line information from any system within your company, your suppliers, your transporters, your customers or any other third party. Trace Engine enables the generation of an information database containing all the information required in tracking your products. It allows for tracing of raw material/batches, semi-finished product, or finished product anywhere along the supply chain, in any direction, starting at any point. It traces the process along the supply chain through all steps, occurrences and activities.

Today Trace Engine is a proven product serving customers all around the world within different areas such as fish, feed, pork, poultry, fruit and vegetables.

Trace Engine Benefits:**Management and Enterprise**

- Improves customer trust providing a higher level of customer service and satisfaction by providing more consistent quality products;
- Lowers risk by providing proactive alerts;
- Traces quality data such as routines and processes so you get a visual overview of areas that need more focus or have to change;
- Provides transparency to business processes, increasing employee and management confidence;
- Potential reduction in insurance fees.

Food Safety and Quality Management

- Provides a flexible system to track forwards and backwards in the value chain as far as you wish. Some customers even include the farming step;
- A central location for your recall process as all the information you need is in one place;
- Provides a structured way to keep the company's food safety and quality data for day-to-day operations;
- Satisfies current traceability legislation and is flexible to allow for continuing changes for legislation and regulation;
- Provides a focus on your critical points by measuring them and visualizing them. The combination between tracking and tracing data with quality data is quite unique;
- Enables you to work with limited trace data to analyze cause and effect, helping to improve quality efforts;
- Provides a visual picture of how your processes are functioning, so you can easily see if the routines and procedures in place were followed or not for a specific batch or product;
- Heavily reduces preparation time for audits, from days to minutes. Auditing can happen without involving staff time, improving customer service.

Marketing and Communications

- Provides your enterprise with the ability to offer customers, suppliers, end consumers and governments access to real time traceability information on the products they buy. For example, a customer could get secure access to Trace Engine and see the trace line for their particular orders;
- Provides competitive advantages in contract negotiations and new market entry requirements;
- Part of a company's corporate social responsibility initiatives for food and beverage companies. You can create transparency and trust with your markets.

Conclusion

Ultimately, traceability should not become a back-burner issue or a “nice-to-have” function. It should be core to a food and beverage company’s enterprise system and treated like any other research and development investment. Locally, the big squeeze will come from retailers and the consumers who will insist on more transparency along the entire supply chain. On a larger, global scale, tougher regulations and shifting market dynamics will create a greater demand for fast access to accurate and relevant trace data. Companies willing to provide this level of transparency will reap the benefits of trust and consumer loyalty.

About Lawson

For more than a quarter of a century, Lawson (NASDAQ: LWSN) has delivered industry-specific enterprise applications focused on enhancing the business performance of our customers.

We are a market-leading, financially strong supplier of software and services to more than 4,000 customers in the manufacturing, distribution, and services industries across 40 countries. We also provide the underlying technology necessary to run these solutions flexibly and efficiently.

Our history has been guided by two goals: to provide scalable, flexible, and ready-to-use systems for a variety of users; and to simplify the deployment, maintenance, and use of our applications.

**Headquarters:****USA**

380 St. Peter Street
St. Paul, MN 55102-1302
Tel +1 651 767 7000
info@lawson.com

Regional Offices:**Americas**

Brazil, Chile, Canada,
Mexico, Honduras,
United States, Venezuela

United States

Tel +1 651 767 7000
infous@lawson.com

Asia

China, Hong Kong,
India, Indonesia, Japan,
Korea, Malaysia,
Philippines, Singapore,
Taiwan, Thailand, Vietnam

Singapore

Tel +65 6788 8769
Fax +65 6788 8757
infoasia@lawson.com

Australia & Oceania

Australia, New Zealand

Australia

Tel +61 2 9468 8900
Fax +61 2 9468 9199
infoanz@lawson.com

Northern Europe

Denmark, Estonia, Finland,
Norway, Sweden

Sweden

Tel +46 8 5552 5000
Fax +46 8 5552 5999
infonordic@lawson.com

Northwestern Europe

Belgium, The Netherlands,
Ireland, South Africa,
United Kingdom

United Kingdom

Tel +44 1344 360273
Fax +44 1344 868351
infonw@lawson.com

Central Europe

Austria, Czech Republic,
Germany, Hungary,
Poland, Slovakia,
Switzerland

Germany

Tel +49 2103 89060
Fax +49 2103 8906 199
infoce@lawson.com

Southern Europe

France, Israel, Italy,
Portugal, Spain

France

Tel +33 1 34 20 80 00
Fax +33 1 40 39 25 07
infoso@lawson.com

www.lawson.com