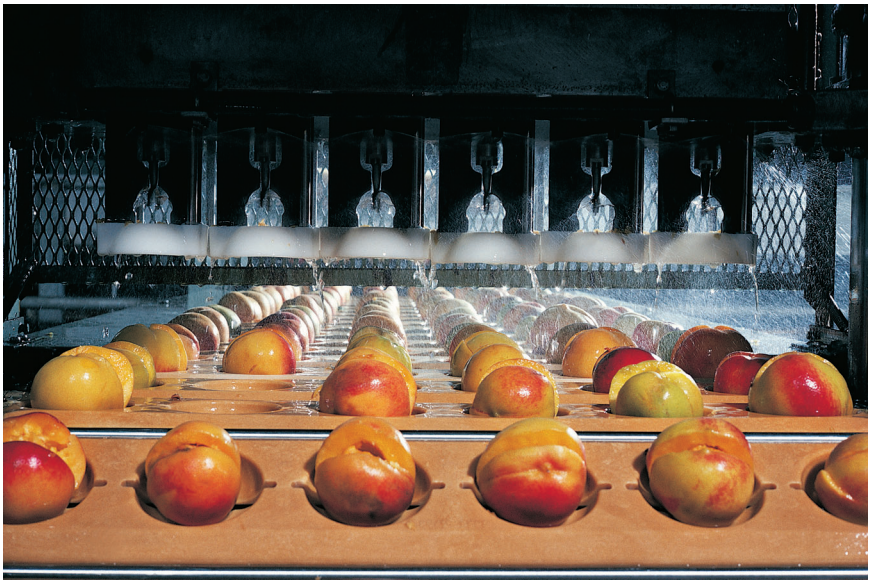
Matiq relies on RFID to make the Norwegian food supply chain safer and more efficient.

Overview

- ***Business Challenge***
  With food safety becoming increasingly important to consumers and government regulation on the horizon, Matiq sought to leverage its deep knowledge of the foods manufacturing industry by offering food traceability as a shared service.
- ***Solution***
  Matiq engaged IBM to design and build the RFID infrastructure for the Nordics' first track-and-trace service, which—by enabling manufacturers and grocery retailers to view the complete history of a food product—speeds their response to potential food contamination events.



Based in Trondheim, Matiq is a fully owned IT subsidiary of Nortura, the largest food manufacturer in Norway. Focused primarily on the food manufacturing industry, Matiq develops and delivers solutions across the entire value chain, with food safety and traceability expected to emerge as a key strategic area over the next few years.

- ***Key Benefits***
  - *Ability to pinpoint potentially unsafe products by leveraging realtime track and trace capabilities at all stages of the food supply chain*
  - *Improved food safety through faster responsiveness to food contamination events*
  - *Lower recall costs due to more precise targeting enabled by track and trace capability*
  - *Increased supply chain efficiency through streamlined shipping logistics*

> *"Matiq is uniquely suited to be a catalyst in the adoption of track and trace in the Norwegian food market. We see IBM's combination of experience, thought leadership, and technology as essential to helping us reach this vision."*
>
> – *Are Bergquist, CEO, Matiq*

Increasing the safety of the food supply chain through "farm to fork" transparency

Business Benefits

- Improved safety in the food supply chain through faster responsiveness to food contamination events
- Lower recall costs due to more precise targeting enabled by track and trace capability
- Increased supply chain efficiency through streamlined shipping logistics
- Ability to do automated replenishment, real-time inventory tracking and alerting, resulting in fewer stock-outs and lower inventory costs
- Faster and lower cost compliance with pending track and trace regulations
- Ability to differentiate food products based on the consumer's ability to view the product's key background information such as farm of origin

Whatever category of food products one talks about—whether it's fruit, produce, meat, fish, dairy or processed food—the safety and purity of the food supply faces constant threats from risks that are present at nearly every stage of the supply chain. For cattle, poultry and farm-raised fish, the risk of contamination is seen not only in their processing and subsequent transportation to market, but as far back in the chain as the feed they were given or the animals they came in close contact with. The risk permutations of processed foods are magnified and complicated by the fact that any of multiple ingredients has the potential to be contaminated, either through manufacturing errors, spoilage due to temperature variation or any number of other factors. Moreover, while the globalization of the food supply chain has led to lower prices and more selection for consumers, the fact that more food comes from far away sources likewise increases the risk of unsafe food getting onto the supermarket shelves.

While the potential sources for food supply contamination events are many, the options that retailers and their suppliers have for effectively addressing them are relatively few. Under a typical scenario, the supermarket or hypermarket retailer—upon becoming aware of an event—notifies the suspect product's manufacturer, whose in-house crisis team uses all the information at their disposal to track the extent and source of the problem. But the lack of a seamless trail from the store shelves back to the point of origin means that such a search requires a great deal of time—and with the risk that more tainted products may remain on the shelves, threatening the health of consumers—time is a luxury manufacturers don't have. So they exercise the only practical option they have, which is to remove all items from the shelves.

Although this approach lessens the risk to the public, it is far from efficient and extremely costly. The reality is that in the vast majority of cases, food safety events can be traced to highly localized causes, such as a single manufacturing plant or a single contaminated batch. In effect, the inability to track a product's origin with precision and speed forces the key players in the food supply chain to apply a "dull blade" approach to product recall instead of a more "surgical" removal. While costs and disruption are key reasons to improve the traceability of products in the food supply chain, the opportunity to increase public safety through smarter food tracking is by far the paramount driver.

> *"When food manufacturers recall defective products from the shelves, they are using a blunt–rather than a surgical–approach. There are huge costs to this that they'd like to avoid."*
>
> – *Are Bergquist*

Safety through visibility

That's why many countries are moving aggressively to put such a system in place; Norway is among the leaders. In the wake of a high-profile food contamination event, Norway's Ministry of Agriculture and Food led a multi-agency food traceability initiative designed to make Norway "the safest country in the world to eat."

Known as eTraceability, the project aims to establish a nationwide infrastructure for exchanging information across the food supply chain by 2010. To lay the foundation for this system, the Norwegian government enlisted IBM to lead an effort to define the technological framework for putting the system into place.

In addition to demonstrating top-down leadership at the governmental level, Norway's initiative also provided an important impetus to action on the part of major players in the Norwegian food industry. As the country's largest food supplier, Oslo-based Nortura was the most significant—and the first—food industry player to take action, which it did through the company's IT subsidiary, Matiq (www.matiq.no). Matiq's experience as the longtime provider of IT services to Nortura made it ideally suited to play a leading role introducing track and trace technology to the industry as a whole through a groundbreaking shared-services offering that Matiq would host and manage from its own facilities. Matiq saw its core value proposition as making food traceability simpler and more cost effective for industry's many small and medium-size companies by saving them the need to invest in the necessary skills and infrastructure to enable track and trace capability.

When it came to selecting a partner to provide the RFID technology and expertise needed to set up the service delivery infrastructure, Matiq saw IBM as the clear choice based on its thought leadership, product portfolio and—perhaps most importantly—its leadership role in shaping the government's eTraceability initiative. The design of Matiq's track and trace service infrastructure was led by IBM Global Business Services and relied heavily on specialists from the IBM RFID Solution Centers in Dublin and La Gaude (France) and implemented by IBM Global Technology Services.

The core of Matiq's first-of-a-kind solution is IBM InfoSphere™ Traceability Server, which functions as a central processor of RFID information gathered from remote locations throughout the food supply chain. The solution employs IBM Tivoli® Directory Integrator to integrate sensing devices located at the customer premises with Matiq's core infrastructure. The reliability of Matiq's service is backed up by its extensive experience providing IT services to food suppliers.

A smarter path to market

The best way to describe the solution is to go through the flow of products at each stage of their journey to the retailers' shelves. It begins at the farm, when the animals are born and get an individual ear tag that follows the animal throughout its entire life. In the processing plant, where animals are divided into portions of meat and placed in plastic transport containers (called totes) that have been tagged with unique Electronic Product Code (EPC) numbers that are associated with the animal's farm of origin, age and health records. Each time the product moves through subsequent stages—such as slicing the meat into smaller pieces or grinding it into sausage and hamburger—adjacent RFID readers record the time, date and location

Solution Components

Software

- IBM InfoSphere™ Traceability Server
- IBM Tivoli® Directory Integrator

Servers

- IBM Power Systems™

Services

- IBM Global Business Services
- IBM Global Technology Services
- IBM RFID Services
- IBM RFID Solution Centers

Smarter food systems

Matiq developed a first-of-a-kind service to track and trace food products as they move through the food supply chain. The solution's realtime visibility into the food supply chain from "farm to fork" enables food suppliers to pinpoint potentially unsafe products at the batch level and remove them "surgically" from the shelves, thus avoiding the need for costly and wasteful wholesale food recalls. The fast response it enables lays the groundwork for a safer and more efficient food supply in Norway.

of each procedure and send it to Matiq's data center where it is stored within IBM InfoSphere Traceability Server, running on IBM Power Systems™ servers. The same scan-and-record process occurs when the meat is 1.) packaged and delivered from the plant 2.) received at the distribution center 3.) sent from the distribution center to the stores and 4.) received at the back of the supermarket. The result is a seamless, transparent view of the product's movements and history all the way back to its origins. By virtue of the realtime supply chain visibility Matiq's first-of-a-kind service enables, customers gain the ability to respond with more speed and precision to food safety threats. In the time it would take to issue a general recall, response teams now have the means to identify specific batches and/or supermarkets at risk and target them for removal accordingly, thus reducing cost and efficiency while vastly improving consumer safety.

On track to higher efficiency

To Matiq, safety through visibility is far and away the service's most important benefit—one that is squarely in line with the Norwegian government's vision of world-leading consumer food safety. But Matiq has also demonstrated how advanced track and trace capabilities can drive process improvement in areas like replenishment, logistics and strategic market planning. For instance, by leveraging the real-time view of inventory at both the retail and distributor level the service provides, Matiq is working toward creating a smart replenishment capability that can automatically detect inventory shortages and signal to suppliers when to send more product to market. Both retailers and manufacturers also stand to benefit from the more efficient management of reusable shipping containers and the optimization of related logistics, thus reducing costs and decreasing the number of containers required. And with consumers more conscious of food safety than ever, the ability to provide a profile of the product—where it came from, what it was fed and the conditions under which it was raised—provide an important source of differentiation for both the retailer that is selling the product and the manufacturer that provides it.

CEO Are Bergquist sees Matiq's track and trace solution as a strong fit with the new regulatory protocols coming online in 2010, and believes that Matiq is well positioned to capitalize on the burgeoning market opportunity. "Matiq is uniquely suited to be a catalyst in the adoption of track and trace in the Norwegian food market," says Bergquist. "We see IBM's combination of experience, thought leadership, and technology as essential to helping us reach this vision."

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IBM Corporation
1 New Orchard Rd.
Armonk, NY 10504
U.S.A.

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