EPCIS: Enabling visibility from source to shelves

As products transform from raw materials to finished goods and move from source to retailers' shelves, trading partners must gain visibility into each of the steps along the way. They must get answers to "what, where, when and why" questions to meet consumer and regulatory demands for accurate and detailed product information. Add to this the ever-present need to continuously improve operational efficiencies. In short, visibility is a critical requirement to effectively compete in today's business environment.

EPCIS provides the critical foundation for the visibility needed to improve business processes, comply with regulations, and increase consumer and patient safety. At the same time, its flexibility and extensibility are geared to support both current and future needs of trading partners across multiple industries, regardless of data carrier.

Here are some top reasons why EPCIS is gaining ground as a visibility-enabling standard throughout the supply chain.

Interoperable and flexible framework: EPCIS was developed and continues to be enhanced to meet the needs of multiple industries like consumer goods, fresh foods, apparel, fish, transport & logistics and healthcare. With the recent release of EPCIS 1.1, lot/batch-based product identification is now supported, catering for industries where serialisation at item level is not always feasible. What's more, EPCIS allows for industry-specific enhancements and, although "EPC" is part of its name, EPCIS works well with GS1 Identification Keys, regardless of whether they are encoded in GS1 barcodes or on EPC/RFID tags.

Defined vocabulary and interfaces: EPCIS defines interfaces for sharing supply chain event data between applications that capture event information and applications that need access to such information. EPCIS is complemented by its companion standard Core Business Vocabulary (CBV), which defines data values for a broad set of business processes and scenarios. This vocabulary is used to populate EPCIS events, ensuring that all trading partners exchanging supply chain visibility data have a common and consistent understanding of the business meaning of that information.

Data shared on a "need-to-know" basis: With EPCIS, all trading partners control their own data and may share it with only those they choose by leveraging established security mechanisms.

Real business impact: EPCIS-enabled visibility provides trading partners with tangible business benefits. Companies can improve their inventory management with real-time visibility of stocks, in turn improving the continuity of product flow through supply chains for fewer out-of-stock situations. By establishing product provenance, supply chain stakeholders can more effectively combat counterfeiting, reinforce sustainability measures and ensure regulatory compliance.

Creating supply chain visibility

Steve Ells founded Chipotle Mexican Grill in 1993 with his first restaurant in Denver, Colorado. As a classically trained chef, Ells has always focused on delicious food made from the best ingredients and transforming a "fast food" experience into one more akin to fine dining. More than two decades and 1,400 restaurants later, Ells' singular purpose has proven to be a winning recipe.

Chipotle's *Food with Integrity* vision defines the company's mission to continually strive for better sources of food that meet its requirements for animal welfare, sustainability and social accountability. The underpinning of the mission is a traceability program launched with Chipotle growers and suppliers, using GS1 standards for end-to-end supply chain traceability.

"*Food With Integrity* is the foundation for all our business practices, and traceability supports it by creating a more transparent supply chain," says Jason Von Rohr, Executive Director of Chipotle's supply chain.

"We carefully select our food suppliers based on their practices," adds Heidi Wederquist, Director of Quality Assurance and Food Safety. "With traceability, it's easier to work with existing suppliers and on-board new ones. Greater visibility assures us that we are using the very best food sources we can find."

To mount the ambitious project for whole supply chain traceability, Chipotle partners with a GS1 US Solution Partner, FoodLogiQ, offering web-based, on-demand solutions for traceability and food safety. FoodLogiQ maintains the traceability site where suppliers go to aggregate and store information critical to compliance with Chipotle's traceability guidelines.

"Thanks to the interoperability of GS1 standards, we have a uniform way of identifying food as it moves through the supply chain," says Wederquist. She contrasts this with the past when the Chipotle team had to manually track food through each point in the supply chain, establishing a paper trail for inventory and incoming orders, should a food quality issue arise.

"With our new traceability system enabled by GS1 standards, we can input an item's Global Trade Item Number and lot number, for example, and view its path from the field to our restaurant," says Wederquist. "It takes a matter of minutes to uncover information that once could take much longer."

Additional types of information are automatically captured and shared such as a supplier's own safety audit documents, product specifications and recipe suggestions.

Sustainability metrics such as "food miles" allows Chipotle to source its restaurants locally, when practical. When food safety documentation expires, the system prompts the supplier to send Chipotle a current copy.

Suppliers of ingredients can use the traceability system to verify raw materials and dates of shipments and arrivals at a manufacturer; the manufacturer shipping to Chipotle verifies its shipments arrived promptly and the information facilitates invoicing and inventory.

Feedback from Chipotle restaurants helps growers track quality, and restaurants are provided use-by dates or temperature control information for products requiring refrigeration. And checkpoints in the supply chain stop products that don't meet quality benchmarks.

Visibility from catch to customer

METRO GROUP
MADE TO TRADE. METRO GROUP is a leading global retailing company with approximately 250,000 employees working in over 2,200 outlets in 31 countries throughout Europe and Asia.

METRO GROUP's largest business is METRO Cash & Carry, a leading cash-and-carry wholesaler that offers approximately 50,000 food and non-food products to meet the specific demands of its professional customers.

"High quality products, food safety, and sustainable practices are all top priorities for METRO," says Britta Gallus, Director of Group Regulatory Affairs for METRO GROUP. "Our goal for sustainable practices is quality of life. And traceability is the means for ensuring sustainability."

Gallus and her organisation monitor all European Union regulations and directives and national and international commitments for compliance by METRO GROUP. "At METRO, for many years we have used GS1 standards in our supply chain for traceability in B2B commerce," advises Gallus. "In 2012, we decided to extend those traceability capabilities and product data directly to consumers."

Gallus and Project Manager Lena vom Stein brought together a team of diverse supply chain partners to chart a plan for whole chain traceability. To support the needed changes across the company, they called on multiple METRO departments, including METRO Systems, the company's own information technology solution provider.

Jens Kungl, Traceability Project Lead from METRO Systems, is the architect of the company's own traceability solution that is built upon a real-time event repository the company first utilised in its RFID programme. It is strictly based on open global standards such GS1's EPCIS. The solution is extremely scalable and can easily be extended to other product groups beyond ultra-fresh all the way to non-food items such as consumer electronics and pharmaceuticals.

Chipotle Step-by-Step Visibility

Using a simple registration process, suppliers create and maintain their profiles in the system, including GS1 standards-based data such as the GS1 Company Prefix that uniquely identifies them. Global Location Numbers (GLNs) identify entity and location for each of their fields, pack houses and distribution centres. Global Trade Item Numbers (GTINs) identify every product destined for Chipotle kitchens – food ingredients, beverages and even paper products.

Incoming raw ingredients and outbound products are labeled with the product name, along with the Global Trade Item Number® or GTIN®, batch/lot number, and pack and/or use-by date encoded in a GS1-128 barcode on each case of product. Cases are palletised and linked to a GS1 Serial Shipping Container Code (SSCC). On a hybrid pallet label, the SSCC is encoded in a GS1-128 barcode along with each case configuration containing GTINs, batch/lot numbers and pallet quantity.
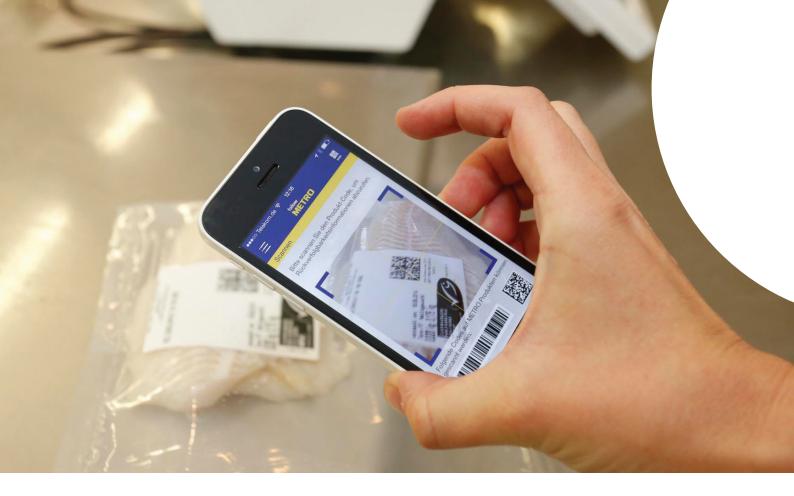
Chipotle links together all product tracking information provided by growers, distributors and processors in FoodLogiQ's whole chain traceability solution.

"EPCIS opens an important door for the food industry, enabling supply chain visibility information with precision and confidence," says Andy Kennedy, President of FoodLogiQ and co-chair of the GS1 standards working group that developed EPCIS 1.1.

In order to connect raw ingredients to source locations, ingredients to finished products, and finished products to manufacturer and distributor, Chipotle asks that suppliers track and share Critical Tracking Events or CTEs. Six CTEs are prescribed, starting with growers that pack cases with produce and assign them to pallets, to the event where distributors ship cases of processed food packs to Chipotle restaurants.

"The solution is not just able to trace batches or lots, but is inherently ready to also trace individual objects identified by a serial number such as in a GS1 Serialised Global Trade Item Number," says Kungl.

As the largest fresh fish marketer in Europe, METRO Cash & Carry felt a significant responsibility and opportunity to make a big impact by selecting "fish" as the category to initially target for whole chain traceability.

"One of our goals in implementing whole chain traceability was supporting our customers like foodservice operators that, in turn, would be able to provide useful data to their consumers to help them make informed buying decisions," adds Gallus.

Gallus contacted GS1 Germany as a neutral advisor on global standards. GS1 Germany recommended fTRACE, an open platform based on GS1 standards that could easily scale for METRO Cash & Carry's vast array of products and also offered decentralised data management for ease of integrating diverse databases and interfaces.

GS1 Germany decided to launch an fTRACE traceability pilot in December 2012 with 20 participating trading partners. METRO had its first traceable fish products on shelves one year later.

METRO's suppliers and other trading partners enter their product and location data in fTRACE or in their own connected databases using GS1 identifiers like GTINs and GLNs. Together with the batch numbers, the unique identification numbers (GTINs + batch numbers) are encoded in barcodes like the GS1 DataBar®.

As fish products travel through the supply chain from fishermen to processors to distribution centres and on to METRO Cash & Carry locations, the identification data is scanned at various points along the way. The GS1 EPCIS and CBV standards together provide the foundation for all trading partners to share real-time information about the movement, history and status of the fish products as they travel through the business-to-business-to-consumer (B2B2C) supply chain.

"Professional customers shopping at our METRO Cash & Carry locations can now scan fish barcodes to understand where the fish was caught, how it was caught, the best-by-date, and other important data – all information provided directly by our fish suppliers," advises Gallus. "Consumers can also scan bar codes or use the fTRACE website to access this same information."

Gallus concludes, "As a global company, we intend to have a truly global B2B2C traceability network. It's a commitment we have made for the benefit of our customers and the well-being of our consumers and planet."

For more information

Read the Chipotle case study at
www.gs1us.org/industries/foodservice/tools-and-resources/case-studies.

View the METRO Cash & Carry video at
www.metrogroup.de/internet/site/metrogroup/node/447710/Len/index.html.

To learn more about fTRACE, visit www.ftrace.com

Interested in learning more about GS1 standards and traceability?

Contact your local GS1 Member Organisation at
www.gs1.org/contact or the
GS1 Global Office at contactus@gs1.org.