

Data Streams of International Product Chains Need Advanced and Open IT Technology to Provide Information for Traceability and Quality Management Issues

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Traceability of single batches through the chain of custody is a challenging and increasingly relevant issue. Its importance becomes immediately evident in highly critical cases or in sensitive situations, such as in positive residue tests, false (or even fraudulent) declarations, or where there are discrepancies in quantities traded.

Time pressure is the worst enemy when trying to trace a single batch through a chain of custody. Countless paper documents may have to be sifted through and checked in order to isolate the batch as it goes through all steps of the chain of custody, from producers to traders, processors, transportation, and maybe even more. Such a “crisis” situation needs a reliable, tested, and fast cooperative process between the players with responsibility in the chain of custody (traders and involved Certification Bodies (CBs)). International product sourcing is even more challenging due to language and other challenges.

Due to greatly rising market demand, traders and processors are increasingly forced to import products from international sources – often without knowing any details of production and certification of the product. To assure that also these imported products follow the internal, private, and legal quality schemes, a lot of information has to flow through the chain of custody. Even if some basic information is available on paper, it means little or nothing if it is not available in electronic form, because it is not possible to analyze big amounts of data in case of suspicion of fraud or other problems. An electronic database has to be in place to manage the huge amount of data through the chain of custody. As a base functionality, the database has to be able to identify and trace a single lot back to its origin.

Intact – a software company specialized on food security located in Austria – developed a web based traceability system that runs in the background of several chains of custody (organic and conventional). One example is www.bio-mit-gesicht.de (in English: (“organic with a face”), which integrates production, processing, trading, and certification, and is, at least in Germany, a quite well known public traceability platform. In the case of www.bio-mit-gesicht.de, not only data of products like potatoes, carrots, eggs, and beer are covered, but also data of internationally traded products, such as coffee and chocolate. To integrate international data streams, a secure and open system has to be in place that provides automated open interfaces to third party systems.

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Naturland's marketing organisation provides a full traceability system which provides data across all production levels

Table 1: entrance page of www.bio-mit-gesicht.de (in English: "organic-with-a-face")



The list of suppliers is shown

Table 2: Screenshot of www.bio-mit-gesicht.de which shows the list of suppliers for a single batch of beer

Relevant data are provided by different participants within the chain of custody. Each participant in the chain of custody provides data either through direct entry on a website (not public) or through an automated interface between their respective IT system and the platform. Interfaces are built as an open so called “web service,” allowing automated data exchange with other systems. Information of ERP systems (information about product, quality, volume, and size/weight) as well as data from certification management systems (certification status, plausibility check) can be automatically integrated in the platform through this interface.

A convenient visual tool facilitates surfing back and forth in the chain of custody (tracing and tracking), and getting additional details wherever needed. The solution is a so-called ‘batch tree’ that provides a visual overview of the product flow with accessible details in the background. With just a double click in the right place, detailed information of every single transfer can be obtained.

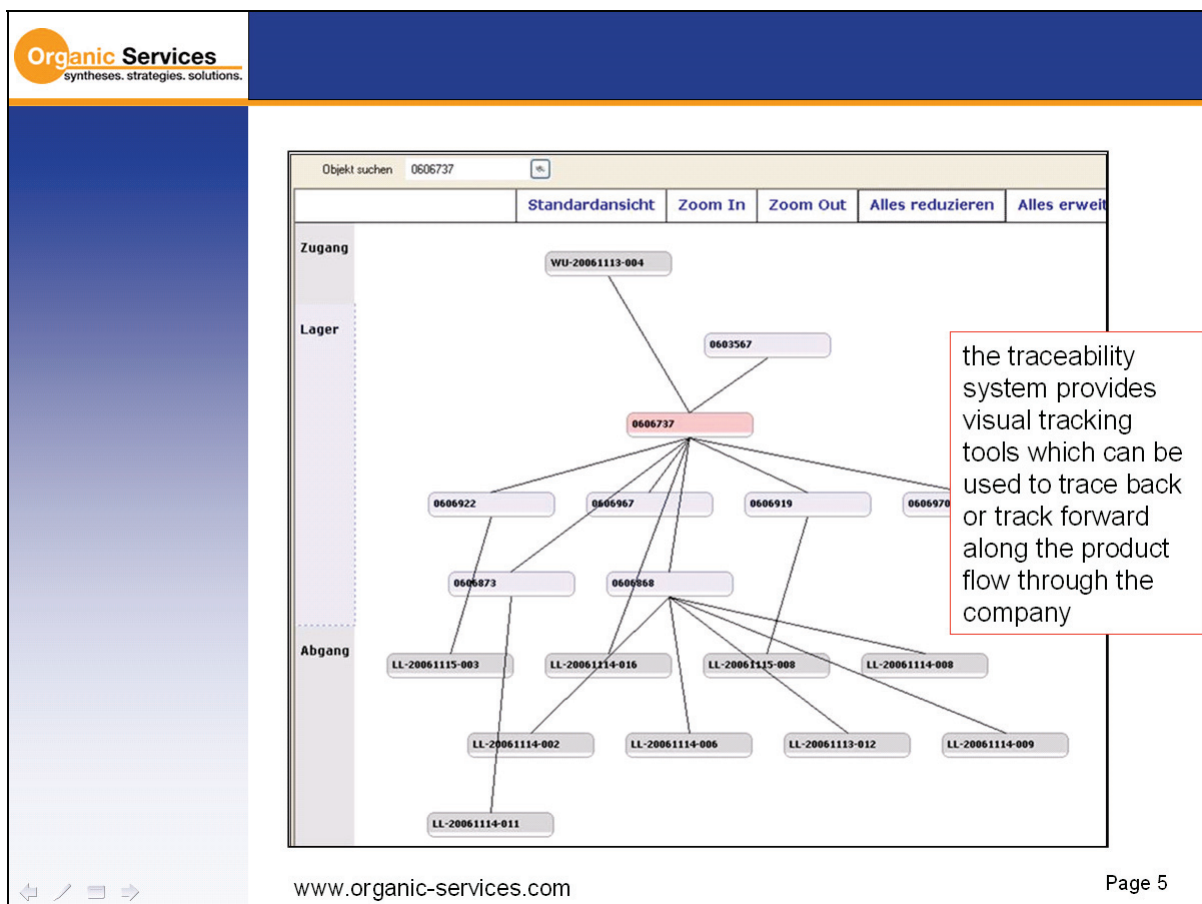


Table 3: Screenshot of the so called “lot tree,” which facilitates tracing and tracking a single lot upstream to the farm(s) and downstream to the final place of selling to the consumer

The main advantages for all participants are to see:

- verification and release of products by the certification body prevents uncertified goods entering the supply chain;
- constant feedback from the system back to the certification body about every movement of a batch of goods facilitates planning;
- automatic plausibility checks increase the quality of monitoring and disburden staff;
- automatically generated alerts make it easy to react quickly;
- as a marketing tool, the system also provides data for the point of sale or at least as background information for the consumer; and
- retail chains can use the system to document their efforts regarding product quality and product origin.

As an obvious urgent need, the issue of traceability needs to be taken more seriously by the entire organic market, as it is the case of today. Serious cases of fraud took and will take place all over the world. Independently of who is responsible for fraud, or who is the victim in a specific case, the whole sector suffers from bad headlines in the news.

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