

The Whole Is Much More Important Than the Parts

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No agri-food company in today's litigious environment will publicly admit that their traceability system is either non-existent or inadequate. And, despite near-daily food safety scare headlines, the public continues to place their faith in the world's food production system. Experience teaches us that many traceability systems fall short of corporate expectations.

An effective traceability system provides more than simple, basic traceability functions; it also provides the "value traceability" functions we've discussed many times in this column. "Value traceability" systems leverage data from the basic traceability system and other existing applications to allow managers and executives to understand their company's operations at a much deeper granularity level than ever before.

Most ERP systems report at the SKU and pallet level. "Value traceability" systems go deeper and report at the SKU-instance and the carton or box levels. "Value traceability" systems give managers insight about what's really occurring in their operation, often radically challenging the generally accepted wisdom with facts. They also provide the real-time or near real-time information needed to help them achieve some strategic corporate objective that often appears totally unconnected with traceability (i.e., reducing account receivable aging). Very few companies have implemented "value traceability", and those that have don't want to talk about it because they see it as one of their competitive edges.

There are many in the agri-food industry that would take issue with us in our assertion that even the simple, basic traceability system (trace-back and trace-forward) in most companies is inadequate. All one needs to do to prove this assertion, though, is to review the recently released final investigation reports from state and federal agencies for recent food safety incidents. For example, let's look at the investigation of the e. coli outbreak associated with pre-packaged salads that occurred from 10/1/2005 through 11/21/2005. The recently released, final report from the California Department of Health Services and the FDA concludes after extensive investigation that "no source of contamination was found". They further note that "...results of the investigation indicated that several areas such as traceability, documentation, and record keeping were lacking." This finding is a sad commentary on current agri-food operational practices.

Why are today's traceability systems falling short of expectations? One cause is that many of these systems focus too much attention on one part of the system, ignoring both other critical parts and the performance of the system as a whole. A preoccupation with the specific pieces is understandable given the marketing efforts of companies that only provide a piece of the puzzle. Each of these companies would like company managers and executives to believe that they are providing the entire solution. They usually aren't.

To be a complete system that meets both the company's basic traceability needs and allows it to reap the "value traceability" ROI benefits, a traceability system must include at least the following components:

Unique Identifier for Automatic Identification: Way too much attention is placed upon the type of identifier that is used to uniquely identify specific items of each SKU being tracked. It is very true that selecting the right technology (RFID, barcode, memory button, or other), and then selecting the appropriate flavor of that technology (active RFID, passive RFID, UHF, VHF, LF, etc.) is a very important consideration. The identifier, though, is not the system. It's only one part, and a relatively small part.

Automated Data Collection System: Humans are poor data entry devices. Systems that require manual entry onto logbooks or require keyboard data entry usually have high error rates. The purpose of selecting an appropriate automatic identification technology is to remove human data recording fallibility

from the equation. While the selection of the appropriate automatic ID identification device goes hand-in-hand with the selection of the automated data collection system, we often see these decisions made separately. These decisions must also be made to harmonize with all other system components.

Review of Relevant Business Processes: The business rules and processes related to the system's design objective must be mapped to determine where product transformations occur (the "dots"), what processes are relevant to the desired system objective, and how these "dots" can be connected. Because company processes evolve over time, they tend to become siloed. Establishing a traceability system can revisit and re-engineer processes, an outcome which partially enhances profitability.

Interconnection with Existing Information Systems: To effectively preserve a company's technology investment, an effective traceability system must "bolt-on" to the company's existing software application(s). This connection eliminates data double-entry, and ensures everyone is "singing off the same page". Too many systems being marketed today either require a company scrap its existing investment, or re-enter data, potentially introducing error.

Secure Data Backbone: Data collected by various sources must be validated and possibly transformed before being shared, consolidated, and used to build one or more task-focused data marts. To achieve this goal, the traceability system must have a robust data backbone that can receive data from a variety of sources using a data on-ramp, perform the necessary data functions, and securely route it to the appropriate destination, a decision support data mart or another existing company software application system, via a data off-ramp. The secure data backbone allows the traceability system to "bolt-on" to existing technology infrastructure.

Appropriate User Interface: Unless data are properly visualized, they are just pretty pictures and are basically useless. Attention must always be paid to the system's operational objective, and an appropriate user interface (UI) must be built to help meet that objective. Access to this UI may be via a web page (if there's Internet connectivity), via a local application on a PC, PDA or cell phone (if there's no connectivity) or some hybrid.

Connections to Other Traceability Systems: No company is an island, and this statement is especially true with traceability. The traceability system installed within a single company is designed to "connect-the-dots" within the company's four walls by collecting data at critical process points and critical transformations and store these data in the company's traceability data mart. Most of these data will be proprietary to the company and the last thing most companies want to do is to transparently share all data with everyone in their supply chain. To avoid exposing confidential or sensitive information on their company's operations, the company must have an automated system that connects their company's traceability data mart with their upstream and downstream suppliers and meters out only the data that has been agreed to be shared among members of the chain on a company-by-company and case-by-case basis. For example, if company A and B have an agreement to share two and only two pieces of information about each production unit passed between them at a cost of 0.2 cents per unit, then this software inter-connection component would make sure that is supposed to be shared is shared.

Experienced General Contractor: As we mentioned a few months ago, designing and implementing an effective traceability system is not a do-it-yourself project. No matter how deep a company's information technology (IT) staff might be, unless those staffers have a multi-year background designing and implementing traceability systems, the company is asking for trouble. Luckily, a number of companies now have deep experience designing, implementing and operating these types of systems.

Committed and Trained Managers: No matter how good a traceability system is in providing the raw information and the recommendations for action, absolutely nothing happens if the managers to whom that information and those recommendations are made are not properly committed or trained. A well-designed traceability system providing both basic and "value traceability" is a decision-**support** tool with the emphasis being on "support". A key shortfall in many systems we've seen is that the key managers are not properly trained in the use of the traceability systems and are not gaining the maximum benefit from these systems.

These are the components each and every company in the supply chain needs to have in place to have a traceability system that is truly adequate. This requirement extends to the transportation and logistic suppliers as well as the growers, packers, processors and manufacturers. Transportation and logistic suppliers as well as each other member of the supply chain must ensure that nothing happened in transit and they must begin to provide visibility into the supply chain to potentially identify weak links that may be ways contamination or adulteration could be introduced. Human touch points are likely to be the weakest links and human interaction with the product during the chain needs to be monitored by automatic systems to identify possible errors. GPS and RFID will play a part, but please remember that these are only a very small part of the overall solution. Just as with a single company, when examining the supply chain as a whole, focus needs to be kept on the whole system and not diverted to one or more of the parts, no matter how technologically exciting that part might be.

It is incumbent that agri-food companies closely examine their existing traceability systems to determine how well they are providing both simple, basic traceability and “value traceability”. Given that each new food safety headline scare chinks away at the consumer’s confidence in the overall food system, the true way that agri-food companies can protect that trust is by ensuring that the systems they have in place will actually work and allow any food safety issue to be chased to ground in a matter of hours, a day or two at the most. By quickly quenching the media’s headline desire with a solid basic traceability system, and by using the traceability infrastructure to fuel one or more “value traceability” systems to boost profitability, an agri-food company can be assured of continued success.

Further information can be found at www.qlmconsulting.com, www.sjhandco.com, and www.aginfolink.com.