

TRACEABILITY SYSTEM

REAL-TIME TRACKING OF SUPPLY CHAIN OPERATIONS

With the advent of a new generation of corporate instrumentation that has become a necessity in every industry, one of the systems gaining prominence are the tracking and tracing systems, which is proving its worth especially in the logistics sector. These systems generate real-time alerts when supply chain activities are disrupted. And, these systems enable operators to keep track of each product coming to the warehouse, and manage the complex data systems. Besides, managers can also generate real-time views of the plant operation to make better decisions, thereby enhancing the efficiency of operations throughout the supply chain.

When part of a commercial airliner's instrument panel fails and goes black, it is usually considered a major emergency and the airplane is directed to land at the nearest available airport for rectifying the faults. However, in the case of manufacturing companies, many of them operate everyday with only

partial instrumentation to guide them, and they think everything is fine, when in fact it is not. According to William R Pape, executive vice-president, TraceGains, "The instrumentation required to operate a company could be better, significantly so, and the cost of adding enhanced instrumentation can also be managed. As an added

bonus, the company can improve its traceability capability, a need that many manufacturers are finding increasingly urgent."

TRACEABILITY SYSTEM

Tracing and tracking to meet government or commercial compliance requirements, delivered by the right traceability system

provider, can be leveraged to give executives, responsible for automation, a more complete, decision-support instrument panel for operational decision-making that goes well beyond traceability. This new generation of corporate instrumentation can provide executives, managers, and supervisors, specific information needed to make a wide range of operational decisions, not just traceability decisions. Generating alerts from the in-line supervisor to the CEO will enable companies to take necessary corrective actions to protect or gain value from their supply chain.

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According to Pape, "If a company has a traceability system, it does not mean that it can be necessarily leveraged. Having it means that real-time alerts can be generated when something is wrong in the supply chain; managers can generate near real-time views of the plant operation to make better operational decisions. Most in-house traceability systems cannot accomplish these tasks." To accomplish these tasks, manufacturers must collect the relevant information from each process step (ideally by using automatic data collection technology such as barcode or RFID), maintain identity across product transformations, and reroute this data into an event-oriented data mart, possibly adding some electronically collected new data. This event-oriented data mart would then contain the

pedigree of each carton leaving the plant, a repository of product attributes, and key events during the life cycle of each production unit.

DATA MART

This pedigree data mart can be used to uncover hidden relationships between upstream events or product attributes and desired downstream outcomes such as the relationship between incoming raw product characteristics and the raw product conversion percentage in the plant. It can be also used to find out the relationship between key packing and processing steps and the percentage of product, which grade premium. The data mart can also fuel a new generation of instrumentation to provide focused, decision-support systems that increase operational effectiveness and efficiency, boosting profitability. It can issue alerts when business rules are violated. These attributes far exceed the initial concept

of a system that was thought to only answer regulatory and commercial compliance questions about each shipped carton.

A major myth is the belief that a company needs to scrap its existing software systems or mount a huge IT project to achieve these goals. Most companies already have most of the information needed to create a powerful set of instruments and to build an alert system, but the data is assembled in different databases and cannot be easily combined. Some companies try to use tools like Excel to create these integrated data views, but creating this type of dashboard is labor-intensive and is usually available only to a handful of individuals. Building a secure, focused event data mart requires tying together these different databases within a

company's operation, providing identity preservation across transformations, and adding a few new bits of data about each production unit.

ERP SYSTEM

Many manufacturing plants erroneously believe that a decision-support system is their current enterprise resource planning (ERP) system and that it can provide this functionality. It usually cannot. Typical ERP systems obscure key associations. A typical ERP system will be able to record the amount of various materials/products arrived at a plant. It will also be able to note the number of bags and boxes of components coming to the plant. The ERP system will also probably report the number of bags and cartons of a specific SKU and manufacturing lot that were produced and palletized.

THE MISSING DATA

Most ERP systems do not track the individual production units, and they do not usually maintain product identity across transformations. Regardless of the commodity, there are usually ten to twenty or more transformational points in any manufacturing operation where the product is sorted and stored for later processes. At these transformations, a plant manager must maintain identity across the transformations and provide the key associations and the alerts.

This does not mean that companies need to scrap their existing ERP system. These systems have been fine-tuned to handle a range of management tasks, such as generating settlement statements. What is required is to add a 'bolt-on' trace and track module to an existing ERP system. Adding such a module builds the event-oriented product pedigree data marts, stores the key associations, and provides alerts leading to value in productivity.

A solution-focused decision support system ideally has three major components:

- The company's existing databases and major operating applications that are tied together.
- Third party data systems, that are then combined with the company's data; and
- The consolidated data dashboards that are directed to solving specific,

operational problems along with issuing the operational alerts.

With all the three elements, the supply chain is properly linked, sources are known, and decision-making is improved.

DECISION-SUPPORT SYSTEMS

This aforementioned three-component approach provides a basis for decision-support systems, which focus on solving a wide range of managerial problems. These problems range from understanding the aging incoming product across an array of different farm operations, each with its own data systems, to more complex problems such as helping to predict product yields at various points in the process. Each of these understandings has led to finding real money, cost-savings. This approach can ensure that the system cost and complexity will be reduced. Too many systems attempt to collect every possible data from a company's databases and third party systems and store them in a very

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complex data warehouse.

Data designers can easily lose sight of specific corporate problems that need to be solved in today's world. Pape affirms, "Focusing on a well-defined set of operational issues, and only storing the data needed to populate a working dashboard, which sends out operational alerts, the systems can be typically delivered in a few months, not the years that the general, all-inclusive data warehouse project takes."

FACILITATING SMOOTH OPERATIONS

Summing up, it can be said that incorporating track and trace modules

in the existing systems will facilitate smooth operations and alert the users if something goes amiss. It will help in reducing the complexities in managing data through out the supply chain and enable to create an ideal data warehouse for every company. [LMI](#)

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