Get with the Process

Transform Your Cold Chain into a Business Critical Advantage

Process as a re-engineering tool

The idea of using a process approach to streamline costs while improving quality and customer satisfaction across a large commercial enterprise is not new. Enterprise Resource Planning (ERP) has successfully brought law and order to vast, disparate and seemingly untamable customer-ordering systems by galvanizing siloed units and disciplines around a single software program. Sales, HR and Finance can all simultaneously see the same customer history, order and payment information. This shared visibility translates into better inventory management against real-time orders, more efficient order fulfillment and lower incidence of delinquent receivables. Although ERP is considered a back-office, under-the-hood solution, customers quickly feel its impact in the form of better product availability, faster order delivery and for the good payers, favorable terms.

Similar software solutions integrated with highly-reliable RF-enabled tracking and temperature/condition monitoring technology now promise the same mold-breaking transformation to the cold chain that ERP makes to the general enterprise. The technological evolution has led to a new hybrid solution (along with a hybrid term) that applies the fundamentals of Supply Chain Visibility to cold chain management. *Cold Chain Visibility* is the ability to "see" what is happening to perishables as they travel throughout the supply chain. However, leveraging Cold Chain Visibility and maximizing its power to streamline costs while improving product availability and freshness depends as much on changing the mindsets of those responsible for the cold chain as it does on installing a new technology solution.

Start with new goals

Perishable supply managers need to elevate the status of the cold chain to that of a critical business unit capable of shouldering the same responsibilities as traditional core disciplines. Marketing, Buying & Inventory, Operations and Training are expected to directly impact the bottom line. Each in its own way is tasked with streamlining costs while improving customer satisfaction and growing revenues. By assigning the same goals to the Cold Chain retailers and manufacturers can raise it from a reactive task to a proactive business driver capable of producing cost savings while improving product quality and gaining competitive market share.

Once new goals are in place, it's time to implement the process to support and deliver on them. Just as ERP wraps certain departments around a single resource, stakeholders can organize around an end-to-end, plant-to-shelf Cold Chain Visibility solution that delivers data at both the per-shipment/per-supplier level as well as aggregate views of shipments over a period of time. The first enables managers to accurately evaluate and assess shipper/vendor performance and to make key adjustments that can reduce shrink while ensuring perishable availability and reliability. The higher level, aggregate views reveal patterns and process inefficiencies across a vast shipping and logistics cold chain network. By constantly assessing, measuring, taking remedial action, and then measuring again at both levels, those responsible for the cold chain can finally do something that has not been possible until now: treat the cold chain as the critical revenue driver that it is. Cold Chain Visibility can gradually eliminate waste and inefficiencies so companies can retain more of their

current revenues. Equally important, it can increase product quality and reliability and in doing so, attract fresh crops of customers and grow profits.

This all sounds good but specific examples of how process-managed end-to-end Cold Chain Visibility can significantly improve the bottom line bring it into the realm of reality. Three tangible, ground-level situations reveal how current monitoring and information gathering practices don't tell the whole story. Worse, they can mislead managers into making decisions that are meant to decrease shrink but actually result in increasing it. The first example deals with the overuse of traditional temperature averaging — the use of mean temperature statistics instead of specific per shipment/per supplier temperature data — to determine product quality and freshness. The second is misuse of exception reporting to determine supplier performance and the third is misuse of specifications when setting up acceptable product.

The hidden costs of relying too heavily on average temperatures

The problem with averages is that they're averages. Case in point: Banana Supplier A and Banana Supplier B are undergoing an evaluation according to shipment reports based on temperature averaging. While both maintain average temperatures well within the acceptable range, the average temperature of Supplier A's shipments is a little higher than those of Supplier B's. *(See chart A.)*
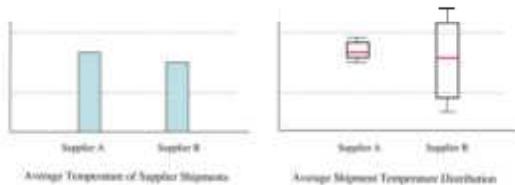
Chart A

But Supplier A has had no significant events outside of acceptable standards. On the other hand, Supplier B has experienced several unacceptably high temperature spikes that compromised product integrity. But they have also had significantly lower lows that help suppress the overall trip averages, making Supplier B look like the better performer. You can hear the phone call now. The manager shifts more business to Supplier B, thinking he or she is making a well-informed decision when, instead, the call should go to Supplier A.

An end-to-end process approach enables managers to accurately evaluate a shipper/vendor's performance. A central data repository gathers granular information – including every spike and dip in temperature – from RF-enabled tag and reader systems. Active tags (self-powered tags that offer higher reliability and a longer read range) are placed inside the carton of each shipper's transport. Readers are placed up on the walls within the distribution centers. The readers automatically transmit data from the tags via a software agent to the repository as the product passes through the DC. In the repository, analytic software slices and dices the data into information – producing graphical reports that can be called up and viewed by the manager who is monitoring the cold chain with the touch of a few keys. Instead of averages, the reports contain 'box and whisker' diagrams *(chart B)* that aggregate the temperature data collected during transport, from beginning to end, and provide snapshots of what is really happening.

These reports arm the manager with accurate, highly actionable information. First, he has irrefutable time, location and temperature event evidence that shows that Supplier A is the better vendor. However, in addition to vendor assessment and management, he can also turn the information into a key process building block. Instead
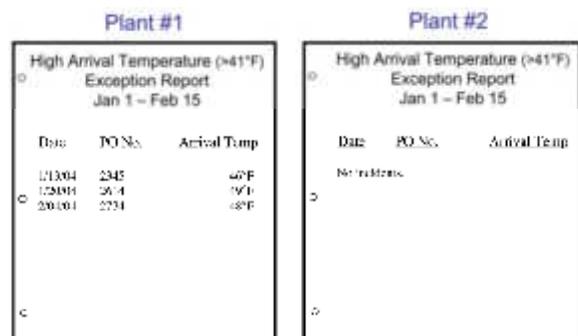
Chart B

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of just evaluating performance on a shipment-by-shipment basis, the manager has the knowledge necessary to implement specific temperature targets across the shipping enterprise, set automatic alerts to sound the alarm when a temperature event occurs and prioritize investments in remedial actions.

Information-driven process implementation is a well-accepted practice in other areas of business logistics. However, it's new to cold chain management because, for the first time, RF-enabled solutions deliver consistently reliable and accurate data — the value of which cannot be overestimated.

Processes must be built on accurate and reliable information or else they'll end up doing more harm than good. Until the advent of RF-enabled tag and reader networks, cold chain monitoring depended on human beings to download data. Meanwhile, studies show over 80% of cold chain problems are due to human error. RF-enabled systems are entirely automated. As a result, the data and resulting information is trustworthy, as are the processes built on that data. When managers examine patterns in reports of vendor and distribution center performance, they can trust them. They can be sure they're looking at the truth.
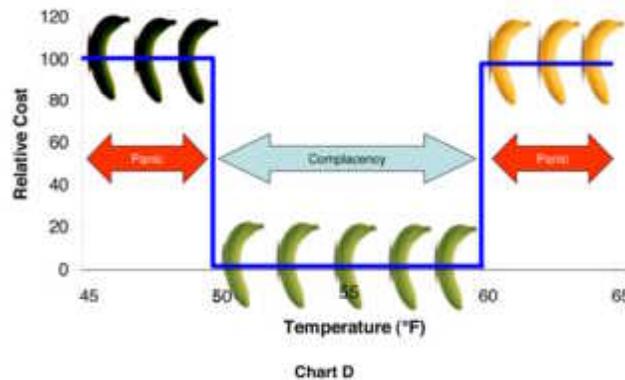
The value of accurate data in cold chain management is brought home by the current use, or rather misuse, of exception reporting. Again, an example: Two plants set their shipment exception reporting trigger at >41 degrees Fahrenheit. Plant #1 holds temperatures steady except for three incidents recorded about 3 weeks apart. Plant #2 reports no incidents over the same time period. *(See chart C.)*


Problems With Exception Reporting
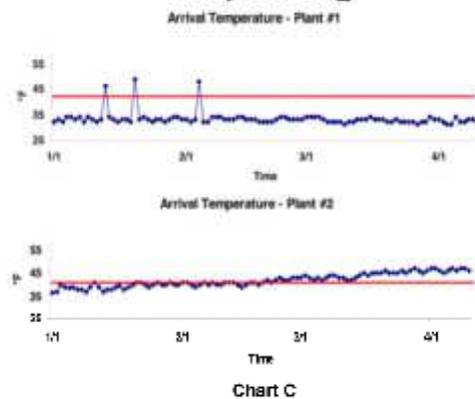
Chart C

What you can't see that an RF-enabled process does reveal, is a steady trending upwards in Plant #2's mean temperatures. *(See chart D.)* The manager monitoring the cold chain can now confidently take action to stop the gradual rise in temperature before it becomes a bigger, more expensive problem. Thanks to the continuous stream of reliable information, he or she can also establish exception reporting practices that turn quality control into a proactive and preemptive process versus a reactive series of accept/reject decisions.

Misuse of Specifications

Chart D

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The third common mistake made by managers that a process-oriented approach can solve concerns the misuse of acceptability specifications and the attendant risk of stock outs. Managers are trained to hit the panic button when the shipment has been subjected to temperatures either above or below a specified acceptability range. *(See chart E.)* An RF-enabled process provides such detailed time and temperature information that managers can make acceptability decisions based on a sliding descending and ascending temperature bell curve. This narrows the accept/reject range. Fewer amounts of saleable produce end up back on the truck (or in the dumpster); more ends up on the shelves.

Chart E
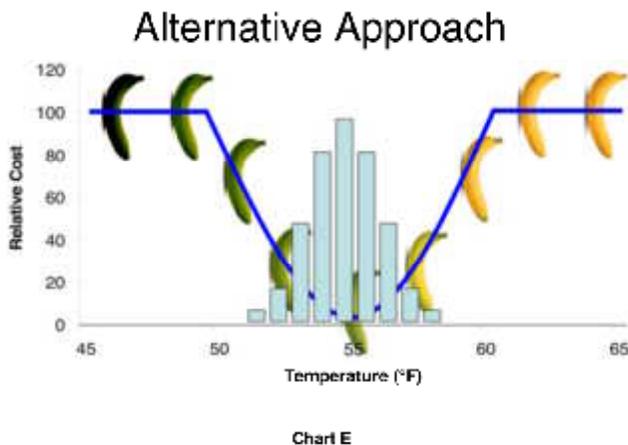
Put another way, Cold Chain Visibility allows managers to apply just-in-time practices. If a shipment of bananas comes in and the data shows they have three days of salability left instead of six or seven, the manager can expedite it to the retail level. Without Cold Chain Visibility, the same shipment would make it through to retail but because it was not put on "rush" it may be unsalable by the time it arrived.

When managers have granular data that definitively shows where those bananas are in their lifecycle, they can make more qualitative decisions regarding what is salable and what is not. This helps improve product availability. And the higher product availability, the higher the number of satisfied customers.

Aligning Vision to Results

There is no question that adopting the concept of Cold Chain Visibility and shifting perishables management to a process versus event-driven discipline requires a significant degree of change. How can managers know in advance if it's going to be worth it? That depends on how high expectations are set and whether or not the change is viewed as an upgrade of technology and systems or as a more fundamental re-orienting of a company's vision and goals for its cold chain. If the expectation is that of a technology upgrade, then the results will be an upgrade, too. Shrink will shrink, dispute resolution will become streamlined and even vendor evaluation will be more accurate. But the payoff will be iterative unless Cold Chain Visibility is seen as a business-level change, not merely a technological one. Setting that bar to begin with will drive up bottom-line expectations and ensure that results will be well worth the investment in time and money. In essence, this approach transforms your cold chain into a business critical advantage that should not be ignored.

RF-based processes are already being implemented by forward-thinking retailers. Managers who are still skeptical need only go to the produce aisle and watch how today's customers choose their items to understand just how important process-driven cold chain visibility is about to become.