

UNLOCKING THE POTENTIAL OF PRODUCT LIFECYCLE MANAGEMENT

Building Capabilities that can be Cross-Leveraged for Food Safety



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Introduction

Food recalls due to contamination are growing by the number, and food aggregators and processors are making all efforts to stem this sharp rise. Research indicates that approximately \$20 billion is lost every year in the U.S. due to recalls. This not only includes the cost of product recalls, but also the ripple effect of a single recall on multiple stakeholders (including competing products in the same category).

The US Government's Food Safety Modernization Act (FSMA) 2011, which has granted execution powers to the United States Department of Agriculture (USDA) for food recalls, has made food safety a business-critical metric for food manufacturing companies. The purpose of FSMA is focused around prevention of food-borne illness, improving research on contaminants causing these illnesses, ensuring safety of food, and improving security to avert intentional contamination. The emphasis has been on – Prevent, Research, Secure and Safe. The onus for food safety is clearly with the manufacturers and it has become a primary driver for business continuity. Therefore, companies are seeking ways of maximizing their efforts with optimum investments.

"57% of customers, after a category recall, stop buying the product for at least a year"

(Source: AMR Research, March 2007 and April 2009)

The complexity of supply chains (e.g. produced and processed in LATAM and consumed in the US), aggravated by varying local regulations and guidelines, complicates the task of ensuring food safety and requires significant capital investments. While traditionally, food safety has been a metric for quality organizations, it is fast proving to be a key competitive

differentiator in the market as well. With changing regulatory regimes and increasing consumer awareness (e.g. GM labeling and country of origin labeling), tracking the journey of food's raw materials and ingredients along the supply chain has become an important business prerequisite. The challenge organizations face is to cross-leverage the investments in food safety to other operational processes of their business. This thought paper focuses on the collaborative aspects of food safety initiatives that can be leveraged using Product Lifecycle Management (PLM) capabilities.



PLM Metrics and Food Safety

Food companies face continuous pressure from their stakeholder ecosystem. Consumers demand a larger range of products at similar or lesser costs. Retailers are continually asking for more at a lesser price and better margins. Suppliers demand higher demand visibility without guaranteeing price consistency. Additionally, the regulatory environment is becoming stringent by the day due to health and environmental concerns globally. The cumulative impact of the stakeholder ecosystem demands that food manufacturing companies are agile and proactive to changes in

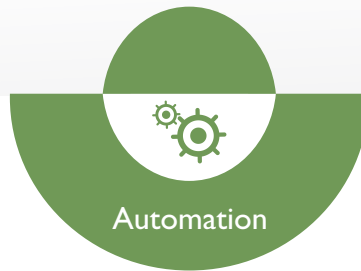
their supply chain, which can impact their Cost of Goods Sold (COGS). Business metrics like least cost of formulation and maximizing yields around tight ingredient ecosystem continue to drive the business focus of food manufacturers as they look to drive higher margins from the current supply chain.

The ability of a manufacturer to manage operational constraints, yet continuously deliver safe food at optimal costs, becomes a competitive edge. The inbuilt capability of a robust PLM system to manage food safety aspects through a combination of process and technology interventions provides the ideal way to drive further operational efficiencies.

The key capabilities of a PLM system that makes food safety management an integrated outcome are:



The old adage of 'the more the merrier' cannot be more true than in this scenario. Information traceability to raw material origin, quality, cost and composition guides the extent of end product safety and profitability. It also means that one has the flexibility to change the product composition to adhere to food nutrition requirements while ensuring that the product remains within the price threshold to drive down formulation cost.



It is humanly impossible to collect and analyze data that goes as an input to determine whether the food manufactured is safe for consumption and whether it is also being manufactured cost-effectively. Automation of data collection from processes and standard critical hazard points provides executives with the right set of information to take timely decisions across the supply chain.



Be it product recalls or batch failures, food manufacturers need to minimize the financial losses that can be caused due to such incidents. The collaborative aspects of PLM (workflow based approval cycles) are key to minimize losses in the event of recalls and to respond quickly with corrective steps. Collaboration ensures that the time to recall is minimized and manufacturers have documented mechanisms to deal with such scenarios.

Building Common Capabilities – Investing in PLM

As mentioned at the beginning of this paper, food manufacturers often hesitate to invest in technology solutions that can deliver food safety

Management to reach the desired goals. Product formulations are typically managed within a company's PLM system. The core recipe (reference data) is constantly managed through closed loop integration between R&D and the product management teams. Any changes in the primary recipe (which results in changes to the BoM) flows into enterprise processes such as sourcing, production, material management, etc. This ensures that the right sets of ingredients are sourced and processed



*“Capturing Recall Costs – Measuring and Recovering Losses”: Survey conducted by GMA, Covington and Burling LLP and E&Y, 2011

capabilities. Manual means are preferred over a more efficient system driven approach. This is not because food safety is of any less importance to the business, but more so as it is hard to drive a strong internal financial business case for food safety. Experts equate investments in food safety initiatives to investments in life cover—high premium with low returns. This makes it difficult for plant managers to obtain necessary budget approvals from senior management.

It is, therefore, important to cross-leverage technology embedded in processes across Food Safety Management and Product Lifecycle

resulting in lower costs, while delivering the best product yields. We recommend adding an additional control metric on compliance to trace and track the food safety requirements across the product's journey from source to shelf to the existing PLM capability. We strongly believe that an integrated PLM/enterprise apps framework built with a focus on capturing critical compliance data points will help food manufacturers satisfy key provisions of FSMA:

1. Auditability of records that are secure
2. Traceability of product information to an ingredient level
3. Quicker time to recall and response preparedness

It is important for food manufacturers to assess if their current processes are oriented towards leveraging the capability of their PLM technology to capture their transaction level compliance data, which typically reside in isolation within the enterprise database. An integrated PLM/ERP/CRM

- Ability to manage product changes in line with quality standards at least cost and within the least time

The assessment helps identify specific initiatives, both process and

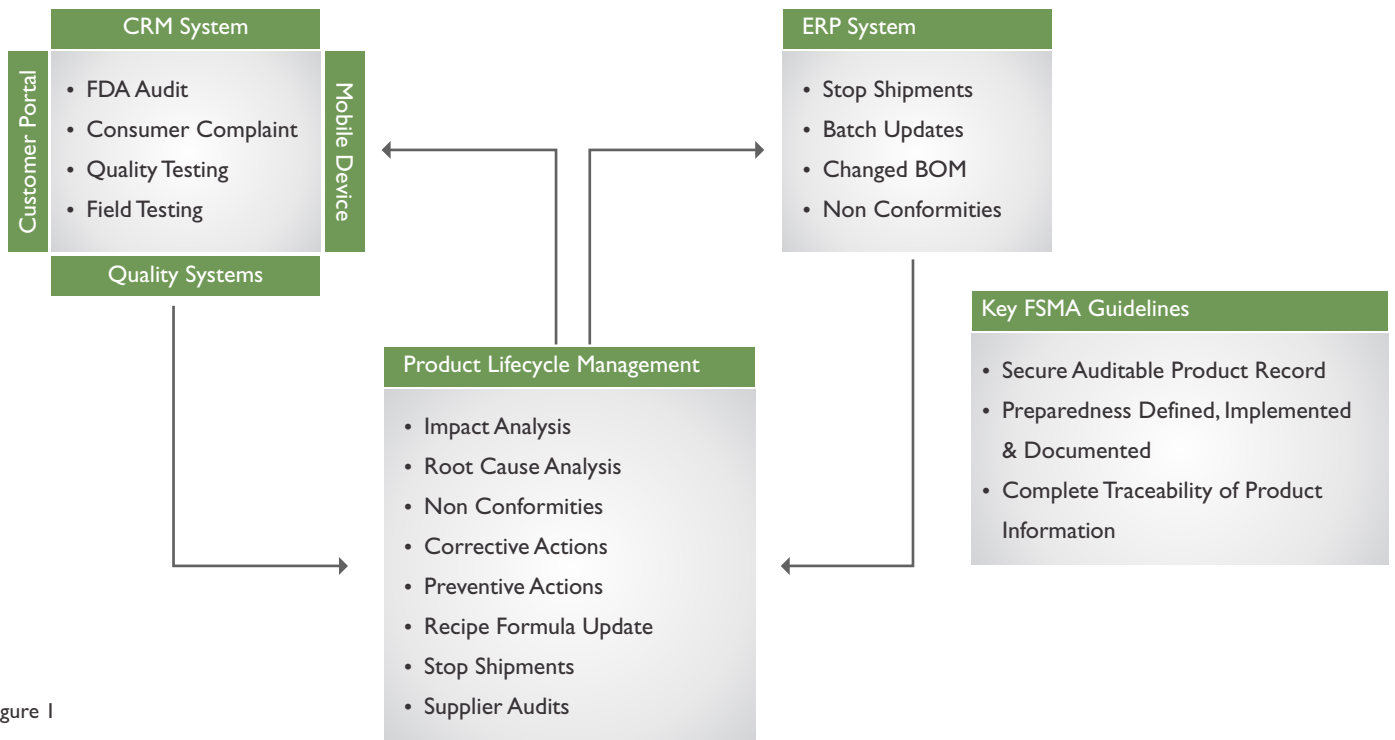


Figure 1

architecture, as illustrated in Figure 1, can help food manufacturers be agile in identifying incidents (both from consumers and auditors) that trigger recalls. This will also help to proactively minimize the extent of loss that can possibly be caused due to such incidents.

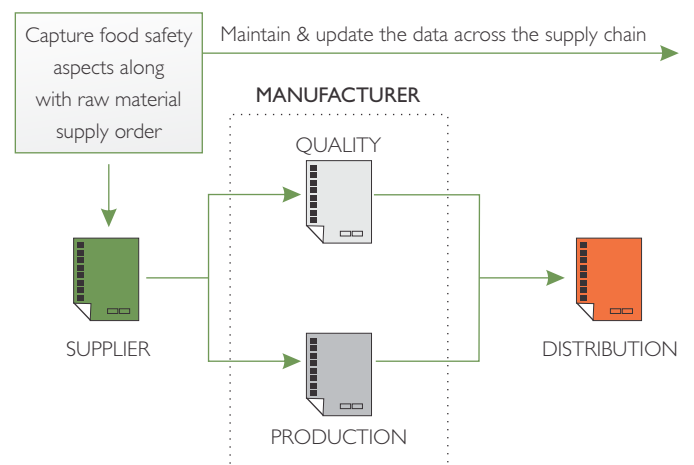
The question is - are the systems and processes of food companies tuned to accommodate these changes? A food safety readiness assessment helps diagnose this preparedness of companies to track and deliver safe food in line with the applicable standards. Taking a product agnostic view, the assessment focuses on the elements that are critical to drive food safety initiatives:

- Ability to capture and compare compliance data with the reference data that resides within the PLM landscape
- Agility of processes to trigger a recipe modification process to reduce time lost in corrective action
- Capability to provide on-demand visibility of compliance data to auditors
- Visibility of compliance performance across operations and organization roles to increase collaboration on preventive actions against food contamination

technology, that can help deliver the desired ROI from food safety programs. Such initiatives include:

Customization

The existing enterprise-wide business systems handle a huge number of transactions on a daily basis. These perform as critical data capture points for the organization. It is important to ensure that these transactions also become the source for enhanced levels of information capture (e.g. MSDS inserted along with supplier invoices).



ENTERPRISE RECORDS MANAGEMENT SYSTEM

Figure 2



Analytics

This aspect is about leveraging technology to build predictive models across the food processing journey to trigger early warnings on any deviations from the desired standards. The role of analytics comes in the form of consolidation and processing of data gathered from multiple sources (production records, supplier records, consumer feedback, etc.) to generate reports and insights that give a common food safety view across the organization. Creating role-based user interfaces and dashboards, with drill down capabilities and collaborative features, ensures that information is seen and shared in a secure manner.

Standardization

The basis for any technology-based intervention resides in the maturity of the process it supports. It is, therefore, important to benchmark the process with industry best practices and ensure that there is a common organization buy-in into the 'new way of working'. Ensuring standardization of common business processes across various business and product lines improves information governance and enhances decision making capabilities.

Cross-Leveraging Technology Investments to Tackle Food Safety

Growing awareness on food safety amongst consumers has started to drive important business decisions around product and supply chain design for food manufacturing companies. In their continuing effort to provide best quality products to their consumers at a competitive price, these companies will need to cross-leverage and maximize returns from their existing investments. The current product design and manufacturing landscape provides a number of opportunities for the food manufacturing companies to optimize the potential of existing technologies, especially in the context of Product Development and Management. Food companies need to assess if their existing product development technology provides them:

1. Visibility across their product journey – from supplier to store
2. Process efficiency by minimizing manual interventions
3. Ability to collaborate across the stakeholder ecosystem that includes suppliers, retailers, distributors and auditors

Such initiatives can help make these companies responsive to the varying consumer and regulatory demands and mitigate the risk of product recalls.

Reference:

"Capturing Recall Costs – Measuring and Recovering Losses": Survey conducted by GMA, Covington and Burling LLP and E&Y, 2011

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