The Key To Unlocking Traceability: PLM

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In my last column, we looked at why having a system of traceability is so important for enabling Food and Beverage (F&B) companies to mitigate the risks of contamination and recalls. It didn't take long to find more examples that reinforce this need. In the first few weeks of May alone, we've seen recalls of romaine lettuce and sprouts due to bacterial contamination, as well as beef containing the Invermectin anti-parasitic drug.

In this column, we'll look at how F&B companies can enable traceability and guarantee compliance by implementing a product lifecycle management (PLM) system to manage the product data record.

PLM Improves F&B Compliance, Cuts Costs and Recalls

PLM manages the processes, information, and specifications that define a product over its lifetime. For F&B companies, this means managing the complex relationships between formulas, recipes, product design, and packaging artwork and labeling. By implementing PLM, F&B manufacturers can help condense time-to-market by 30 percent, reduce product development costs by 10 to 40 percent, increase innovation capabilities, and drive efficiencies during the design and development stage.

Central to this discussion, PLM also offers the ability to identify and meet regulatory

compliance requirements earlier in the product design process, and it allows traceability backward and forward from any lifecycle state of a product. As a result, F&B companies can reduce product recalls by 27 percent and improve the number of products in compliance by 31 percent. [1]

The Heart of PLM: The Product Data Record

At the heart of PLM is the product data record: a logical data model that defines all data elements necessary to fully describe a product, from idea to realization. It enables a single version of the truth for all product data, and becoming the foundation upon which PLM systems integrate and manage product data in real time (See Figure 1).

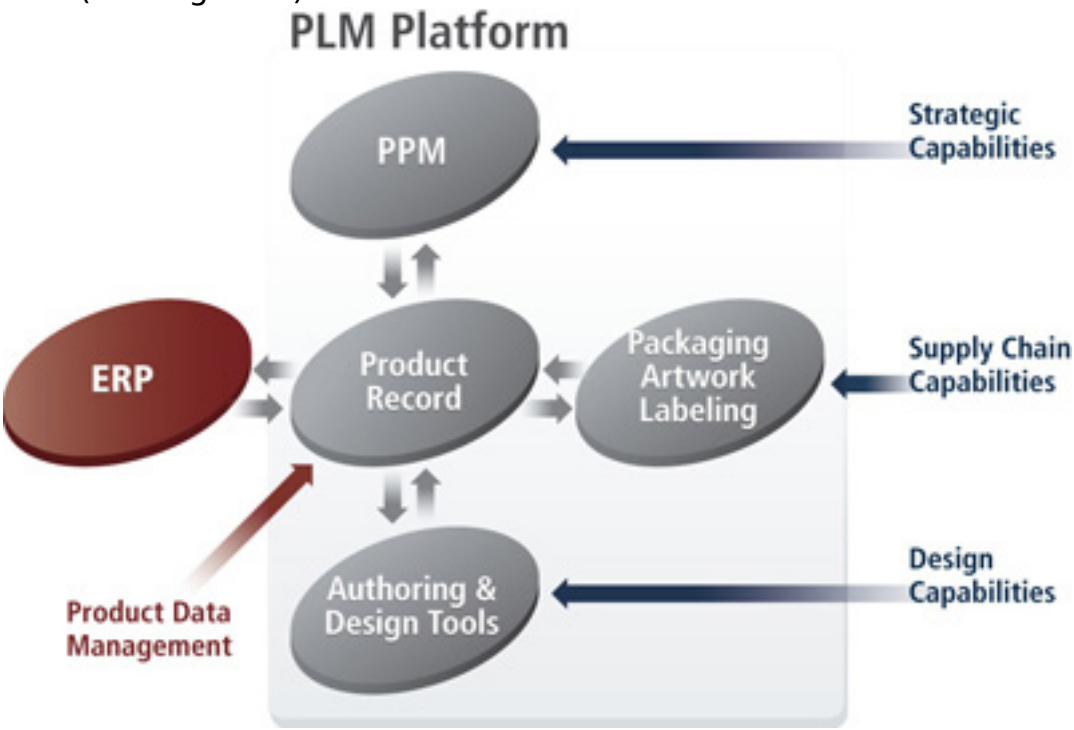

Figure 1

The 360-degree view offered by the product data record provides the foundation for traceability and compliance. While traceability can't prevent problems caused by contamination, it can reduce risk by enabling F&B manufacturers to react quickly during product recalls. Through a PLM system, companies gain automatic visibility to product data that makes it possible to identify, isolate, and remedy the issue quickly—or provide proof that their products are safe, overall minimizing financial and consumer impact.

This full traceability is only possible if a true integration of 1) development data residing in PLM systems, and 2) manufacturing data residing in both Enterprise Resource Planning (ERP) and Manufacturing Execution Systems (MES), exists at the stock-keeping unit (SKU) code level—providing a unique identifying code for distinct product. When conducted at the most granular level, traceability allows companies to track unique items from shelves back to plant lines and even further to the supply chains of food and beverage companies' ingredient suppliers.

What Does the Process Look Like?

Let's take these concepts and put them into practice. (See Figure 2 below.) Our example here is a company receiving a consumer complaint signaling the potential presence of an allergen in a candy bar, despite the label claim that the product is "allergen free." With help of the product data record, the company can quickly identify all of the product's components and identify all of the parties involved in the supply chain, whether they are involved in the manufacturing of the product (i.e. to understand which plant was involved) or in the supply of raw materials.

The product data record maps all data generated during product development from the product formula, packaging, art and label, and manufacturing processes and plants. Because the final formula, intermediate formulas and ingredients in the PLM system are linked to the manufacturing and distribution data in the ERP system, local plants can trace back to suppliers in a matter of minutes. The company can then require all involved suppliers to confirm that none of their products contains the allergen.

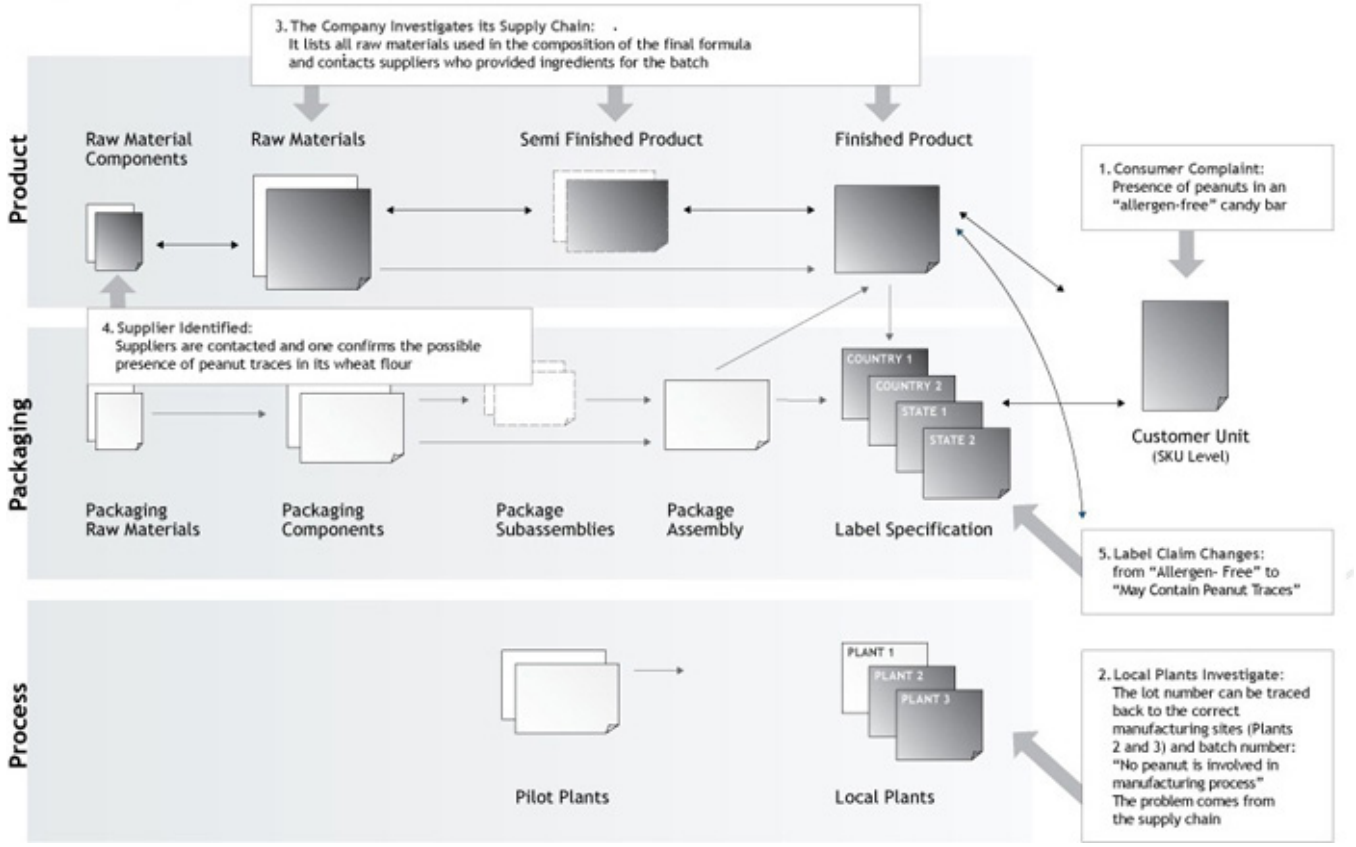

Figure 2

PLM Delivers in the Real World

Of course, while theoretical examples are nice, what really counts is what happens in the real world. So consider this. A recent Aberdeen report indicated that when an F&B company is notified of a recalled product, the average response time for finding and holding the affected product in the supply chain ranges from seven to nine hours. By contrast, when one multi-billion dollar F&B manufacturer faced a recall, the company knew in less than 15 minutes if it had a problem, the amount that was

affected, and where it was in the supply chain—all due an integrated PLM solution that tied the product data record into the ERP system.

By implementing PLM, F&B companies can meet both the demands of government agencies and consumers to improve traceability and take responsibility in the face of a crisis—as well as identify business improvement opportunities to simplify and accelerate the product development process to drive products to market faster.

In my next column, we'll look at the functionality to consider in evaluating PLM software for the F&B industry.

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[1] Aberdeen Report "The Product Compliance Benchmark Report: Protecting the Environment, Protecting Profits", September 2006.

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