

Product Lifecycle Management in the Food and Beverage Industry

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EXECUTIVE OVERVIEW

Companies in the food and beverage industry face many challenges in managing their products and competing in the industry—including retail consolidation, ineffective innovation, increasing regulatory requirements, empowered consumers, and complex supply chains. An integrated product lifecycle management (PLM) solution can streamline and improve the fundamental processes that influence the development, launch, and ongoing management of products. Best-in-class PLM solutions integrate product data and processes into a single, unified product record. Such solutions make it possible for food and beverage companies to accelerate innovation, increase profits from product introductions, reduce risks, and ultimately drive competitive advantage.

INTRODUCTION

In the competitive and highly regulated food and beverage industry, an integrated PLM solution can offer a distinct advantage to help ensure success. Companies in this industry face ongoing challenges that make it difficult to rise above the competition. Government agencies continue to impose complex and ever-changing regulations on the industry. Retailers and food service operators are demanding improved productivity and lower prices from the industry. Consumers have renewed concerns about food safety and are expecting new health and wellness products. And finally, the lack of visibility into product data and supply chains contribute to ever increasing proliferation and complexity. These challenges, along with aggressive competition, can slow company growth and reduce profit margins.

It is only by better managing their product lifecycles holistically that food and beverage companies can react quickly enough to market changes to preserve or increase revenues and profit margins. An integrated PLM solution enables companies to accelerate innovation, leverage product introductions, drive down product cost, and enhance product performance. And it allows them to build a best-in-class supply network, ensure product and supplier compliance, and satisfy customers. By optimizing the fundamental processes of product management and streamlining the product lifecycle, an integrated PLM solution can drive company growth and maximize revenues.

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THE FUNDAMENTAL PROCESSES OF PRODUCT MANAGEMENT

The challenges facing food and beverage companies can leave those organizations ill-equipped to fight battles on multiple competitive fronts. There are seven key areas in which these companies must optimize their business:

PLM applications optimize all seven of the fundamental processes that impact product innovation and management.

- **Project and portfolio management.** Companies must implement a global project and portfolio management framework to improve the effectiveness of their innovation efforts, while also maintaining the flexibility to adapt to local requirements and regulations.
- **Specification management.** Companies must maintain full traceability of accurate and complete product data through the entire product structure—from finished products down to ingredients and packaging materials.
- **Supplier management.** Companies must maintain visibility of the supply chain entities and sourcing approvals as far upstream in the supply chain as needed to ensure traceability, food safety, and compliance.
- **Formulation and bill of materials management.** Companies must ensure product integrity by better managing product formulations and reformulations, with a real-time understanding of the impact on compliance, nutrition, and other product characteristics.
- **Packaging and labeling management.** Companies must develop and revise product packaging and labels more effectively, improving cross-functional tasks among technical, marketing, and design teams.
- **Compliance and quality management.** Companies must proactively ensure compliance throughout the product lifecycle and fully integrate product quality and food safety into the process of developing and managing products.
- **Data syndication.** Companies must be able to seamlessly harmonize product data across internal systems and synchronize standardized product data with their trading partners through external data pools.

An integrated PLM solution optimizes all seven of the fundamental processes that impact product innovation and management. In the competitive and highly regulated food and beverage industry, such a solution can provide the competitive edge that makes the difference between product success and failure.



The seven fundamental processes of product innovation and management

Successful new product development depends on a company's ability to capture innovative new ideas and convert them into successful new products.

PROJECT AND PORTFOLIO MANAGEMENT

Successful new product development depends on a company's ability to capture innovative new ideas and convert them into successful new products. Food and beverage companies generally coordinate product development activities across multiple functions using time-consuming manual processes and disconnected systems. In addition, these companies lack control over the product lifecycle because they do not have a streamlined process based on clear milestones to move projects forward to the launch phase. All project activities and deliverables may be stored in islands of information, and executives do not have solid criteria on which to make decisions. Finally, users cannot easily measure the health of entire portfolios based on user-defined criteria and metrics.

The result? Innovation stagnates, product development cycle times lengthen, product costs and risks increase, and product teams are less productive and find it difficult to reuse organizational knowledge. This means that such companies' investments are less profitable with a high percentage of their products destined to fail. Ultimately, these companies miss promising market opportunities and see a sub-optimal return on investment (ROI) for all product development efforts.

The Product Lifecycle Management Advantage

A PLM solution helps companies increase sales and profits from new product introductions. It enables companies to better manage product development and introduction across departmental functions, to better manage their portfolio and increase visibility enterprise-wide, and to optimize results across all projects.

“The benefit of product portfolio management in PLM is that users can look at all of a company’s product development opportunities, determining which are the greatest potential products in terms of revenue or margin.”

**—Mike Mahler,
Research Director, Consumer Goods
Gartner**

“The benefit of product portfolio management in PLM is that users can look at all of a company’s product development opportunities, determining which are the greatest potential products in terms of revenue or margin, and reprioritizing resources based on what consumers want,” explains Mike Mahler, research director of consumer goods at Gartner. “Recognizing a trend early gives food and beverage companies the opportunity to leverage what they have in the pipeline, get key new products out to market ahead of competitors, and elongate the window of opportunity for profitability.”

PLM solutions empower food and beverage companies to

- Develop and launch products more quickly to reach the market faster
- Manage projects across functions and geographic locations via a Web-enabled platform
- Track all project-related activities and decisions
- Access aggregated project metrics to make sound portfolio-level decisions
- Improve the success rate of new products
- Increase ROI for product development in general

SPECIFICATIONS MANAGEMENT

Food and beverage companies often maintain islands of product information in different departments and business units, with no enterprisewide visibility of product specifications. Specifications for finished products, manufacturing processes, ingredients, and packaging materials are kept in disconnected systems. Companies have manual and time-intensive change control processes, resulting in incomplete and inaccurate data. In addition, product specification data is often maintained separately in different languages for different countries, making it even more difficult to ensure that specifications are updated and reliable. Because of these inefficient processes, companies do not always manufacture products in accordance with standard specifications, leading to high product costs and inconsistent quality.

The Product Lifecycle Management Advantage

A PLM solution allows companies to manage product specifications through a single fully integrated specification system that is dynamically updated and available enterprisewide. Through the product record, it establishes one version of the truth for all product specifications, in one connected data model from ingredients to finished products— across all business functions, divisions, locations, countries, and languages. Product and packaging specifications include all required quality, compliance, and nutrition attributes. A PLM solution enables companies to reduce costs and improve product performance simultaneously, thus giving them a significant competitive edge.

PLM solutions empower food and beverage companies to

- Track specifications for different phases—from formulation to the finished product—through a connected data model
- Reduce product costs by reducing the number of specifications
- Reuse existing specifications and avoid unnecessary specification proliferation
- Automate workflows that simplify specification review and approval
- Ensure that specifications are aligned with ingredient and nutrition labeling requirements
- View and print all specifications in all required languages and countries
- Print factory floor documentation directly from the specifications

SUPPLIER MANAGEMENT

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Many food and beverage companies are unable to view and track information throughout their entire supply network and are therefore less capable of leveraging sourcing relationships to optimize product innovation and management. Documentation on suppliers is stored as islands of information, making it even more difficult to maintain supplier approval and compliance in a comprehensive manner. In addition, food and beverage companies often solicit and input manually the specification data from suppliers—a lengthy process that is prone to error.

The Product Lifecycle Management Advantage

A PLM solution can enable companies to build a best-in-class supply network. It provides the framework to manage suppliers and sourcing relationships as far upstream in the supply chain as necessary, according to a single set of approval criteria across all functions, thereby delivering one version of the truth of the entire supply network.

PLM solutions empower food and beverage companies to

- Maintain global visibility of all supply chain entities and sourcing relationships
- Improve supply chain performance by consolidating and reducing the number of vendors
- Use cross-functional workflows to automatically approve data from suppliers—even specification data
- Collaborate with suppliers electronically to maintain complete and accurate specification records
- Publish all required documentation for suppliers to ensure they comply with policies and procedures

FORMULATION AND BILL OF MATERIALS MANAGEMENT

Many food and beverage companies employ a slow, manual, trial-and-error product formulation process—an inefficient approach that can delay product launches. These companies are unable to properly assess the impact of formulation changes or respond to significant changes in the market—such as those caused by changing regulations, new customer demands, cost variations, and nutrient claims. Automated formulation management and access to the complete up-to-date product record would enable them to make proper assessments and to respond quickly to the market. Meanwhile, because these food and beverage companies rely on a manual process, it is extremely unlikely that they will reuse intellectual property locked in individual hard copy lab books. Companies miss promising market opportunities due to rising product development costs and time-consuming formulation activities.

The Product Lifecycle Management Advantage

Using a PLM solution is the secret to accelerating product innovation. It enables food and beverage companies to rapidly prototype, evaluate, and optimize formulas. Further, it allows these companies to measure the real-time impact of changes in formulations and manufacturing processes on product costing, compliance, nutrient data, ingredient labeling, and any other user-defined product attributes. A PLM solution allows companies to optimize product formulas and helps them work within complex parameters to meet evolving requirements.

PLM solutions empower food and beverage companies to

- Rapidly develop new formulas to minimize time to market
- Reduce trial-and-error iterations and associated costs
- Track and reuse raw material specifications and experimental formulas
- Determine the impact of processing parameters on formulation
- Leverage material substitution options
- Understand the real-time impact of formula changes on cost, compliance, nutrient data, and ingredient labeling
- Optimize formulas based on factors such as cost, nutrients, properties, and specification ratios

PACKAGING AND LABELING MANAGEMENT

Managing packaging and labeling processes is a critical part of the product lifecycle. Companies are increasingly reusing product formulas in multiple consumer presentations, and they are using packaging and labeling to differentiate these product offerings. Their efforts are hindered by the fact that the technical, marketing, and design teams follow time-consuming manual processes for revising packaging and labels, and cross-functional tasks are impeded by islands of

Using a PLM solution is the secret to accelerating product innovation. This essential tool enables companies to rapidly prototype, evaluate, and optimize formulas.

packaging and labeling data among these teams. Food and beverage companies must address these challenges to facilitate the on-time launch of new products.

The Product Lifecycle Management Advantage

A PLM solution streamlines and accelerates the packaging and labeling development process by providing one version of the truth for packaging and labeling data and by enabling cross-functional teams to annotate and approve formulas.

A PLM solution streamlines and accelerates the packaging and labeling development process by providing one version of the truth for all packaging and labeling data. It also enables cross-functional teams to review, annotate and approve packaging materials and labels based on user-defined workflows. The solution simplifies change control processes and streamlines design reuse. Once authorized, any packaging or labeling change is immediately available in digital form so they can be implemented.

“If alterations are needed in terms of packaging, PLM users can take the original package and easily change the label,” notes Gartner’s Mike Mahler. “PLM systems are great for reusing designs without having to redesign the packaging—for example, if the language changes, or if formulation alterations are made to meet the requirements of a certain region.”

PLM solutions empower food and beverage companies to

- Streamline packaging and labeling processes to cut time to market
- Aggregate all packaging and labeling information, from technical data—such as the nutrition facts panel, the ingredients statement, or label claims—to marketing data
- Save time and cost by enabling companies to reuse designs
- Maintain the entire packaging bill of materials in one version of the truth

COMPLIANCE AND QUALITY MANAGEMENT

The food and beverage industry’s greatest challenges go hand in hand—the challenges to achieve compliance and to make high-quality, safe products. Most companies maintain product compliance data in disparate information silos. Because the systems for compliance management and for product development are not integrated, companies cannot proactively screen products against compliance rules during the product development cycle, thereby increasing the risk related to rework, recalls and withdrawals. Product quality can be inconsistent, and product rework and recalls add time, expense, and risk to the product lifecycle. Without an integrated quality and compliance management system, the ability to ensure high quality and food safety throughout the supply chain is at a significant risk.

Implementing a PLM solution enables companies to guarantee product and supplier compliance by managing compliance data through the entire product structure and supply network.

The Product Lifecycle Management Advantage

Implementing a PLM solution enables companies to guarantee product and supplier compliance by proactively managing compliance data through the entire product structure and supply network. The structure and discipline provided by a PLM solution ensures quality, safety, and compliance throughout the entire product development process.

Compliance screening is available at any time as the company and its suppliers develop products, formulas, and approve specifications. Potential compliance problems are flagged at the earliest stages of each process, eliminating costly recalls and redesign due to noncompliance.

Through a central repository, PLM solutions maintain an auditable, traceable record of the product's development and manufacturing history. By accessing the product record, the solution can automatically produce documentation of compliance with various regulatory requirements. Automated access to this documentation is critical to achieving compliance, and is an advantage in managing product quality as well.

A PLM solution helps companies comply with regulations pertaining to how a company does business, as well as with regulations about the product itself—such as package and product labeling, safety, and environmental requirements.

PLM solutions empower food and beverage companies to

- Ensure product quality, consumer safety, and regulatory compliance
- Employ testing protocols, including product cuttings and sensory evaluations, to make sure products conform to specifications
- Avoid rework and recalls by building compliance screening into new product development
- Validate nutrient claims during the new product development process
- Maintain the accuracy of nutrient data for ingredients and finished products
- Integrate nutrition surveillance with the nutrition labeling process

DATA SYNDICATION

Unfortunately, product data is rarely harmonized and cross-referenced across multiple disconnected internal systems, but rather is routinely input manually in each of these isolated systems separately.

It is critical for food and beverage companies to maintain consistent, complete, and accurate product information across all internal systems and with trading partners. Unfortunately, product data is rarely harmonized and cross-referenced across multiple disconnected internal systems, but rather is routinely input manually in each of these isolated systems separately. This lack of integrated systems means that change controls are insufficient and errors are frequent. Finished product data needs to be aggregated and cleansed in systems separate from those that created the data, leading to more errors, delays, and unnecessary additional operating costs. Syndicating finished product data to customers is a time-consuming and error-prone manual process that generates data inconsistencies with customers. As a result, companies invoice incorrectly, suffer higher trade costs, and lose revenue.

The Product Lifecycle Management Advantage

A PLM solution enables companies to harmonize product data across internal systems. All specification data is created right the first time as part of the product development process. The product data can then be harmonized and cross-referenced with internal systems. Finished product specifications can also be externally syndicated to customers and industry data pools based on Global Data Synchronization Network (GDSN) standards.

PLM solutions empower food and beverage companies to

- Ensure that product data is complete and accurate
- Harmonize and cross-reference product data with other enterprise systems, such as enterprise resource planning systems, by automating workflows
- Automatically generate GDSN-compliant data synchronization to customers through external data pools—all during the specification approval process
- Reduce time to market by leveraging a centralized repository for product data

CONCLUSION

Companies in the food and beverage industry face growing challenges to remain competitive. Government regulations are changing and becoming increasingly complex, consumers are more concerned about nutrition and safety, trading partners demand greater productivity and lower cost, and it is increasingly difficult to track and meet product specifications throughout the supply chain.

An integrated PLM solution that manages the seven fundamental processes that impact product innovation and management is the critical difference between winning and losing in the marketplace. Such a PLM solution has become a business imperative. By implementing an integrating PLM solution, food and beverage companies can accelerate innovation, track specifications, build a best-in-class supply chain, and optimize formulation. They can automate packaging and labeling, ensure compliance and high product quality, and maintain accurate and complete data across internal systems and with trading partners.

Ultimately, an integrated PLM solution will drive revenues, reduce product costs, contain risks, improve productivity, and maintain product integrity. According to Mike Mahler, Gartner's research director for consumer goods, "PLM is really catching on in the food and beverage industry because it addresses so many issues, such as time to market, efficiency, and doing more with less."

PLM is becoming the standard for managing the product record across food and beverage organizations and supply chains. Implementing an integrated PLM solution is a critical step toward long-term success in the marketplace.

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