WHITE PAPER

Accelerating successful product innovation in food and beverage

Food and beverage

Food and beverage manufacturers rely on their R&D and marketing departments to develop new product ideas that capture market share before the competition can catch up. These departments leverage information available in their business systems to help them analyze trends ranging from buying patterns to cost fluctuations. The trouble is, when R&D and marketing rely on business systems that exist in silos— as is often the case with today's food and beverage manufacturers—opportunities are missed, product development is too slow, and costs creep higher. But when a manufacturer understands that every part of the organization has a stake in the product innovation process, and ensures that all the parts are connected, the organization is better positioned to deliver successful, innovative products quickly.

This white paper discusses a number of considerations that food and beverage manufacturers should make when examining ways to accelerate product innovation. This paper also details how digital technology can be the enabler of this acceleration. Read on to learn more.

First to market

When a food and beverage manufacturer is first to market with a product, the manufacturer can benefit from "first-mover advantages." These rewards can include high market share, better margins, brand recognition, customer loyalty, distribution channel domination, and more.

Being first, however, also comes with risks. Fist movers often have to deal with high R&D costs with no guarantee of success. Perhaps the biggest risk to first movers is that "second movers" or "**fast followers**" can come along and capture significant market share. Second mover typically have lower R&D costs and a higher likelihood of success, as they're selling to an already established market. Second mover products might also have higher appeal to consumers, as these products can cost less and potentially be marketed to appeal to a specific segment, thus segmenting the market.

But without risk, there is no reward. To minimize risk, food and beverage manufacturers need to make informed decisions. Manufacturers need to consider many factors when considering developing and marketing a new product, beyond just consumer expectations. How will the product be received globally? Are modern formulation techniques and manufacturing processes up to the challenge? How can **social media** be leveraged to help increase the likelihood of success?

All these factors and more play roles in determining if, how, and when an innovative product should be developed. Which is why, in today's fast-changing, highly competitive, globally connected market, products are not developed in a vacuum. In this environment, collaboration—both internally and externally—is an essential ingredient for successful product innovation.

Internally, R&D needs to understand how product development impacts an organization's entire operations. For instance, by collaborating with the purchasing group, R&D can help optimize the purchasing department's ability to negotiate a better price from existing suppliers. This collaboration can help create a better understanding of which ingredients of a new formula have the potential to lower costs, and help to avoid buying very similar and therefore redundant raw materials that are already being utilized in existing products.

What is product innovation?

Product development and product innovation are not the same thing. Food and beverage manufacturers develop successful, new and improved products all the time. But these are often just iterations of existing products—perhaps with new flavors, ingredients, or packaging to satisfy new consumer trends. There's not much innovation in that.

The manufacturer that strives to **disrupt the market** with never-before-seen, unique, or superior products, however, is practicing true product innovation. Not that there's anything wrong with being second to market—many manufacturers successfully follow that very business model. But the risk-takers who are willing to gamble on something that's not tried-and-true and get to market before the competition, are the ones uniquely positioned to see margin advantages, grow business, and build brand loyalty.

Even before a new product formula is finalized, R&D needs to define how the product will be manufactured. Having visibility into capacity, bottlenecks, and scheduling constraints help ensure that production is as efficient as possible.

Manufacturers, especially those in the ingredient business or focused more on B2B channels, can also align R&D with customers and prospects to help speed time to market. This doesn't mean customers have a supplier's R&D department on speed dial. But even better, the supplier has mechanisms in place—such as a centralized collaboration platform—for customers to seamlessly provide feedback to R&D. A connected R&D department is an informed and more valued R&D department.

Evolving consumer expectations

Whether it's **plant-based protein** or **CBD-infused foods**, food and beverage manufacturers need to keep up with ever-evolving consumer demand for new products to try, in greater varieties, along with healthier and better-tasting foods. But product innovation goes beyond just being a part of whatever the new trend is. Product innovation is also about satisfying consumer demand for detailed information about the products—such as where exactly the ingredients come from or how environmentally friendly the product might be.

While putting easy-to-understand and comprehensive information on product labels is important, there's only so much information that can fit. Food and beverage manufacturers need to use other means to share this information with consumers, such as mobile-friendly websites and **smart labels**. Of course, having a consumer-friendly means of information sharing is pointless without also being able to provide the specific information consumers are seeking.

Manufacturers need to be able to collect, curate, and disseminate detailed product information to consumers—often down to the lot level. If a consumer wants to know "what farm this chicken was raised on," the manufacturer should be able to answer that question. While traceability is traditionally in the purview of food safety, its mechanisms and data can also be a source of consumer-facing information. A market-savvy company will take advantage of this consumer demand for product information by using modern tools, such as digital marketing and social media, to keep both customers and consumers engaged and build brand loyalty.

Regulatory compliance

Food and beverage manufacturers must contend with label requirements that vary by both country of origin and where the products will be consumed. Regulations can not only vary from region to region, but these regulations are constantly evolving. For instance, despite becoming law in 2011, the US's Food Safety Modernization Act (FSMA) is still in the process of being implemented—with the FDA continuing to release **new FSMA guidelines even in 2020**. As a result, the full impact that FSMA will have on US-based food and beverage manufacturers, as well as companies outside the US that are selling in the US, has yet to be determined.

The fully connected supply chain

Completely integrating the supply chain allows manufacturers to make significantly more accurate cost projections based on suppliers, regions, seasonality, and availability. With this level of visibility into suppliers' status and forecasts, manufacturers can gain a full picture of material availability and constraints, so they can ensure that multiple, optimized formulas are available to meet this variability.

Compliance results in lots of documentation being generated as products make their way through every step of the value chain. This often includes lot-specific lab analysis, which helps manufacturers modify formulas, as well as document that ingredients were safe when they were acquired. Documentation can also include material related to hazard analysis and critical control points (HACCP) regulations, Safe Quality Food (SQF) certifications, or any number of other documents related to food safety. All of this documentation needs to be maintained in a readily accessible manner. In fact, food and beverage manufacturers who ship products into the US are actually mandated to meet **certain requirements for record retention and record availability by FSMA rules**.

Few industries deal with regulations as complex as those of the food and beverage industry. Requirements are rigorous and the risks associated with failure are high. Which is why manufacturers need to take a holistic approach to compliance that includes not just marketing, R&D, and procurement, but also suppliers and partners. A collaborative approach that ensures transparency throughout the entire value chain helps ensure that compliance is maintained from ideation to distribution, which can impact the bottom line.

Visibility into costs

Innovation doesn't end when the formula is finalized and production ramps up. R&D departments continue to optimize formulas and seek out viable alternative ingredients. When a food and beverage manufacturer builds a permanent, ongoing formula optimization process with the flexibility to adjust as needed, the manufacturer can rapidly create product variants in response to consumer demand or promotional opportunities, like seasonal flavorings, popular package sizes, or regional specialties.

This process can be boosted further when a manufacturer externally collaborates with partners and suppliers to help make sure that a product tastes great and is as cost effective as possible. For example, if a manufacturer maintains tight collaboration with its flavor suppliers, they can work together to identify alternative ingredients as they become available. This could help save costs for both the flavor house and the manufacturer.

This operating model also allows manufacturers to adjust to abrupt, **unexpected interruptions in ingredient supplies**. When a manufacturer can adjust quickly to a wide variety of unforeseen conditions, it can keep serving customers during an unanticipated disruption—while competitors waste time figuring out how to respond and may ultimately be temporarily out of stock. It's during moments of unexpected shortage that a manufacturer can gain market share from customers who need to switch to its product out of short-term necessity.

The key here is to be able to improve or adjust products without sacrificing quality, cost, or labeling claims. In fact, when a manufacturer is contracted to create a product for another company (such as for private labeling or a custom product), there are typically cost constraints placed on the product (among other constraints, such as quality and time frame).

It's time to un-silo PLM

When a PLM system is integrated with other enterprise business systems, the manufacturer is able to give R&D access to the data and insights that can further enrich formulation efforts and optimize manufacturing decisions. Manufacturers can also leverage this information to minimize manufacturing costs across multiple plants by ensuring formula optimization based on where products are produced and sold.

This requires true visibility into actual costs. That's something that can't be done when a manufacturer's product lifecycle management (PLM) system operates in a silo. A PLM system that's integrated with other operational tools—especially an enterprise resource planning (ERP) system—gains access to key data that can help determine profitability. This level of integration can be the difference between producing a product with a negative profit margin and knowing when to walk away from a development project before it's too late.

Until recently, this level of integration has been slow to come to most manufacturing sectors—not just food and beverage. But the **explosive growth of cloud computing this last decade** has lowered barriers of entry to digital transformation with unprecedented levels of agility and flexibility. Integrating PLM and ERP is a prime example of how cloud computing architecture allows food and beverage manufacturers, especially those with multiple locations or divisions, to connect processes and systems to each other by acting as the conduit and infrastructure that brings them all together.

The "glue" to cloud computing is often considered cloud application programming interfaces (APIs), which have seen tremendous growth as an industry and **shows no sign of slowing down**.

What comes next?

What comes next for the food and beverage industry depends in large part on which trends come and go, how consumer preferences continue to evolve, and how food safety regulations continue to evolve across the globe. Manufacturers needs to be able to nimbly respond to these challenges if they want to continue to innovate.

As manufacturers continue to deepen their alignment with customers and consumers, they'll have greater access to information that can help drive innovation. By leveraging data from customer relationship management (CRM), collaboration, and e-commerce solutions, manufacturers can gain insight into consumer preferences for specific ingredients, packaging, preparation, label contents, and even **personalized food opportunities** that might be overlooked by marketing. When this data is enriched with information that's seamlessly provided from other sources, manufacturers can more effectively anticipate which products consumers will prefer and what they will be willing to pay.

This information can even help drive decisions that go beyond product innovation. With growing consumer preference for alternative points of purchase, such as **direct-to-consumer** and pop-up retail, manufacturers have the opportunity to also innovate how consumers buy their products. This information can even impact how manufacturers package products. For instance, strong consumer sentiment on environmental issues is already causing some manufacturers to **move away from plastic packaging**.

Even plant floor production processes are being innovated with **IIoT, IoT, manufacturing execution systems (MES), cloud solutions**, and **other emerging technologies**.

Of course, no discussion of modern digital technology is complete without including **machine learning, artificial intelligence (AI), and predictive analytics**. The analytic and predictive power behind these technologies has the ability to impact virtually every corner of food and beverage manufacturing. It can be used to help further refine formulas. It can help to continually improve the accuracy of cost projections and other forecasts. It can reduce time to market by helping to optimize the supply chain. It can drive better product development by helping to better understand consumer behavior. And as technology continues to evolve, the opportunities to contribute toward innovation will only get greater.

Collaboration and visibility

For food and beverage manufactures to be able to truly seize opportunities for product innovation, they need to make sure that all key players across the enterprise have visibility to the same data, business systems, and processes. Through collaboration and visibility into options and constraints tied to supply, demand, production, and regulations, manufacturers have the means to accelerate time to market and ensure their companies are making operational decisions that maximize profitability.

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