

Extended product lifecycle management for the consumer packaged goods and food and beverage industry

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white paper



- ▶ Consumer packaged goods, food and beverage companies must master the innovation process to create profitable brand growth. Extended PLM capabilities from Siemens delivers unprecedented speed, cost, and asset effectiveness by aligning marketing, development and production activities for an improved new product success rate.

PLM Software

Answers for industry.

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Innovation is the battle cry of consumer packaged goods (CPG), food and beverage (F&B) manufacturers today, "we must innovate". And yet so many new product launches, up to 75 percent, fail to meet revenue expectations¹. What is the gap between the platitudes of innovation to drive growth and the reality of failed launches?

In the CPG/F&B industry, profitable top line growth is an omnipresent challenge. The shelf is crowded with competitive products and consumer preferences are ever-changing. Retailers are becoming more draconian and input costs are escalating. In this environment, most new products fail to deliver a good business return.

CPG/F&B companies recognize innovation as the answer but most do not have a high-performing innovation process. Common innovation process challenges today include:

- *Lack of visibility to brand and product requirements throughout the innovation processes*
- *R&D inefficiencies driven by disparate data, applications and work process*
- *Mismatch between product design (the virtual world) and production capability (the physical world)*
- *Compartmentalized analysis and decision-making visibility*

While every major CPG/F&B manufacturer has an ERP system and an enterprise approach to desktop productivity, neither of these technology platforms is able to address the issues outlined above. Only the extended PLM approach^{} can answer these challenges sufficiently to enable CPG/F&B companies to achieve breakthrough improvement in new product success rate and consequent improvement in profitable top line growth.*

¹ *New Product Launch: 10 Proven Strategies*, Joan Schneider, Jeanne Yocum

^{*} *Note: We use the term "extended PLM" in this paper to recognize the fact that Siemens has extended the scope of PLM to something larger than traditional definitions that have been used in the CPG and F&B industries. This broader and more complete definition is explored throughout this white paper.*

► The need for profitable organic growth

A recent study by The Grocery Manufacturer's Association (GMA) has pointed out that total shareholder return is lagging among the largest consumer packaged goods and food and beverage (CPG/F&B) companies². What is behind this troubling issue?

Shareholders reward top line growth more so than bottom line growth. Profitable, organic, top line growth captures the interest of shareholders like little else does. This is because such growth points to the strength of unique assets (the company's brands) and a well-performing innovation process. Given the choice between organic and acquisitive growth, A.G. Lafley, chairman and CEO of Procter and Gamble, says, "Organic growth is more valuable because it comes from your core competencies.... Organic growth exercises your innovation muscle. It is a muscle. If you use it, it gets stronger."³

The lifeblood of any brand is innovation. It is the engine of organic growth. Yet years of relentless new product launches have left the CPG/F&B markets somewhat saturated, which means that the growth-oriented company "must steal market share from a competitor, acquire new lines of business or grow into new segments or geographies," says Jim Brown, VP, Global Product Innovation, Engineering and Manufacturing, Aberdeen Group⁴. Mr. Lafley sums it up simply by stating, "Sustaining growth...is hard work."

Referring back to the GMA finding above, it seems that large CPG/F&B companies have lately bumped up against this 'hard work' barrier.

It is clear from recent surveys that CPG/F&B executives are pointing to innovation as the barrier.^{1,2} Yet the very same surveys show a mismatch in information technology (IT) investment patterns among the affected companies. Since more innovation output is needed and yet little IT investment in innovation capability is taking place, these companies are funding the usual research, development, and marketing activity in the hope of finding more breakthroughs.

The issue is not a lack of investment in innovation but rather an inability to consistently convert innovations into new products that build existing brands or create successful new brands. After all, it is generally accepted that the new product success rate in the industry hovers near an appalling 25 percent.

There are many challenges that large CPG/F&B companies face when they set out to increase profitable growth through innovative products that outperform competitive offerings or create whole new categories of use. A platform-based approach to extended product lifecycle management technology is needed to effectively address these challenges.

This approach, extended across the product and production lifecycles, helps achieve:

- Better understanding of consumer, customer, government and business needs
- More efficient and cost-effective conversion of requirements into product specifications
- More efficient and cost-effective conversion of product specifications into products that perform as designed
- Better alignment between marketing communication and product design and performance
- Transformation of the overall innovation process so that it becomes more repeatable and more capable of continuous improvement.

² A.G. Lafley, Procter & Gamble in 2004: Managing Product Innovation, ICMR case study

³ *The CPG Innovation Agenda*, Aberdeen Group, December 2005

⁴ *Insights into the Food, Beverage and Consumer Products Industry*, 2006, GMA, FPA, PWC

Insufficient grasp of requirements

The business receives requirements from many sources. We might say that there are many voices competing for the business' attention: the voice of the consumer, the voice of the retailer, the voice of government, the voice of the shareholder, just to name a few. Furthermore, each brand in a company's portfolio has a unique voice – its equity and positioning – as does each function within the business (key performance indicators for the various functions are a good example of this). Part of the 'hard work' of innovation is to balance these myriad voices continuously as ideas are converted into new products. Very few companies have systems today that enable them to consolidate all of these inputs into a searchable requirements library. A related issue is that the voices themselves are often in conflict ("make it lighter...make it stronger"; "make it less expensive...keep the same look and feel", etc.). The lack of a common requirements repository leads to a fundamental inability to quickly identify which requirements are in conflict so that they can be exposed at the appropriate level for decision making.

Product design does not support requirements

Let's assume for a moment that there is a good understanding of all the requirements that must be balanced in moving an innovative idea to market. The next challenge is designing a product that delivers on these requirements and satisfies the relevant voices.

At this point there could be dozens or hundreds of participants in the process, crossing many time zones and company lines. With no method to digitally transfer and control the relevant requirements to each person or group in the innovation process, it is common today to find that the resulting product attributes vary from the desired requirements, sometimes by a wide enough margin that new product failure is virtually assured. Consider a situation in which a new multi-surface cleaning product leaves a residue. This may be because the formulators were addressing a need to remove grease in the absence of the overall product position of working on many surfaces. It may be a cost-effective way to clean grease, but it will not succeed as a multi-surface cleaner.

If fortunate enough to discover such a miss prior to launch, the company still faces a rework cycle that costs money, consumes precious time, and may in fact simply kill the once-promising opportunity.

In most companies today there exists, at best, a partial, text-based summary of the requirements that have been determined to be the drivers for the new product. Equipped with only this tool, designers and developers will fill in the gaps with trusted and familiar requirements from their own prior experience. The likelihood that these fill-ins will cover the missing requirements is naturally quite low.

Pressure on the innovation process

"CPG companies must provide impatient consumers with more innovative products that are increasingly tailored to their specific demographics, all while facing increased competition and cost pressure from both consumers and their retail partners," according to Aberdeen Group's recent CPG Innovation Agenda benchmark study.

The study reveals that the top challenges are:

- More demanding end customers (consumers)
- Cost pressure from retailers or channels
- Increased competition
- Faster product commoditization

Product as produced does not perform to design

But suppose that the product design is right. Suppose that it satisfies a critical mass of the requirements that would enable it to be a success in the market. The next challenge is to manufacture the product within a supply network that may involve multiple manufacturing facilities, each with different capital assets, and multiple material suppliers providing naturally based ingredients that vary from lot to lot. And on top of this, the product must be manufactured at enormous scale and at a carefully targeted cost.

Often it happens that the complexities of the manufacturing environment are not sufficiently accounted for during the product design and development process. There are many examples of outstanding products that could not be scaled quickly enough to meet market demand, allowing fast-following competitors an opportunity to level the playing field before the high-margin early market has been fully exploited. Such allocation situations have a chilling effect on critical retailer relationships and result in slowed or truncated distribution.

Another challenge faced at this level is difficulty in translating the master product design (or specification) into a local specification that can be repeatably executed under local manufacturing conditions. The peculiarities of site equipment configurations, manufacturing and supply conditions must be accurately modeled and continuously maintained in order to ensure that the new product will be consistently produced within quality and cost targets.

Marketing communication does not align with requirements

A great new innovation can sit on the retail shelf if the target consumer is not aware of the product and its unique benefits. We'll assume again that there is a good initial understanding of all the requirements that must be balanced in moving an innovative idea to market. The challenge now is designing and executing a marketing message that reaches the target audience and conveys the brand promise and the product benefits in a way that generates excitement and trial.

There will need to be alignment of the participants in the process, including marketing, senior management and various external agencies. Early in the process, the innovation, which ideally is driven by market need (see The Bayer Product Innovation Process) has been aligned with the right brand in the portfolio. Full visibility of brands and their characteristics, along with the full product portfolio is essential for proper brand assignment. The brand, what it means to a consumer, its personality and characteristics, is one of the foundational building blocks for developing effective market messaging.

Along with the brand, the product benefits and claims are the second building block for the message. Innovation, by definition, offers something unique to the market, a new way to solve a consumer problem, and as such, the unique selling proposition must be communicated clearly. Without a method to digitally transfer and control the relevant requirements to each person or group in the marketing communication development process, it is common today to find marketing messages that fail to inspire consumers to invest in the new product. An advertising campaign is built with the wrong claim, or tenor of the message is more appropriate to an audience that is not part of the core requirements base.

And faulty message foundations can further be degraded as the marketing message is spread across different media, across the globe. Ronnie Job, CEO of agency PeopleGroup, points out that integrated marketing – consistent messaging delivered across all channels of communication (TV, web, print, PR, etc.) across various global markets – is essential so that the consumer has a consistent brand experience. By employing a single repository for assets, the creative brief, brand statement, copy, imagery and the key brand codes can be used around the world consistently.

The Bayer product innovation philosophy

Jay Kolpon, VP of Marketing and New Business Development, at Bayer Corporation, believes that innovation should be market-driven with technology as an enabler. "The odds are longer (for success) if technology (R&D) is looking for a brand and forcing the idea. It is important that there is some effective way of understanding the consumer need and communicating to the organization in an actionable way."

"Ideally, consumer insights are found through joint partnership between the marketing side of the company and the R&D and manufacturing side. Then there is joint ownership which creates excitement that inspires innovation," says Kolpon. Unfortunately, there is most often a lack of partnership in the early part of the process. "The concurrency of a requirements repository is inspirational to development," he continues. "This way everyone shares the same beliefs and uses judgments in the formal and informal screens. It is building and making the brand stronger. The best thing you can do is get early traction to excite your team."

Informational inconsistency

A challenge that extends across the entire innovation process in most companies is a built-in fragmentation of product information. Specification data, consumer research, technical test, quality attributes, legal documents, regulatory opinions, claims summaries and more, exist today in multiple, disparate systems. It is difficult for any participant to know what the definitive information source is for their next task. This is a widely chronicled issue that generally is summarized as lack of a “single source of truth.” An executive for a very large CPG/F&B company has claimed that the biggest issue facing his organization is that “[We] don’t know what we know”.

This informational confusion leads directly to errors, rework and lost productivity, crippling speed and confidence throughout the innovation process.

Unclear business process

And what is the “innovation process” anyhow? Every company seems to have multiple ways to accomplish the same thing. The process used to accomplish a task may vary by business unit, by geography or even by person. Most companies will admit to an interest in attaining a greater level of best practice business process standardization across the enterprise. The lack of best practice institutionalization in the innovation process today results in a number of challenges.

For example, since the output of the innovation process today is a painful 25 percent new product launch success rate, there is good reason for companies to undertake a systemic improvement effort around the innovation process. But without a well-defined repeatable process in place, it is exceedingly difficult even to gather the appropriate data that will indicate how to improve the process.

Furthermore, without basic process definition and automation, time and productivity are lost throughout the innovation process as the organization struggles through every new product cycle almost as if it was the first time the process had been executed.

Lack of post-launch analysis

Wouldn’t it be valuable if a company was able to critically examine the success or failure of every new product launch to determine where things went wrong (or right)? When a product fails to meet its market objectives, companies have great difficulty today tracing back to find the root cause. Was it that the quality of the product was too variable from use to use? Was it because the product did not perform as promised? Was it because the product did not meet a pervasive consumer need? Was it because the benefits of the product were not communicated in a compelling way?

In today’s informationally disjointed, business process-variable, error-prone world, a company barely has time to realize that a product is failing before multiple subsequent project launch streams are screaming for attention from the over-stretched resources of the organization. Consequently there is a recurring cycle in place:

- 1) The innovation process produces poor results
- 2) There is need to get more out of innovation process
- 3) Rather than improve the innovation process, companies push more through the process
- 4) Companies cannot take the time to perform analysis of why the process is failing
- 5) Repeat

It is time for CPG/F&B companies to break this cycle.

AMR Research has identified the top reasons why new product launches fail (order of importance varies between USA and Europe):

- Higher than projected costs
- Product does not meet customer needs
- Product quality
- Late to market/missed demand
- Pricing
- Poor commercialization or promotion
- No clear product differentiation
- Regulatory issues
- Inventory shortage/product availability issues
- Inadequate distribution channel

[Jeffrey Hojo, Eric Klein, Michael Burkett, AMR Research. *The Product Lifecycle Management Spending Report, 2007-2008*]

► The missing platform

The IT architecture of most large CPG/F&B companies today consists of an ERP serving the needs of the transaction and financial processes of the company along with office productivity tools delivering document-centered tools to enable individual workers to communicate ideas and analysis in a flexible and ad hoc way.

With such a high failure rate of new product launches, what is missing? What would support the innovation process and how to move ideas into the market to generate profitable growth?

The unfortunate tendency is to take the existing tools from the ERP system and from the Office Productivity tools and somehow modify them to address the challenges of innovation. Perhaps an understandable approach, but not one that is destined for success.

We can see what is missing when we consider the activities of innovation like consumer research, product development and production capacity.

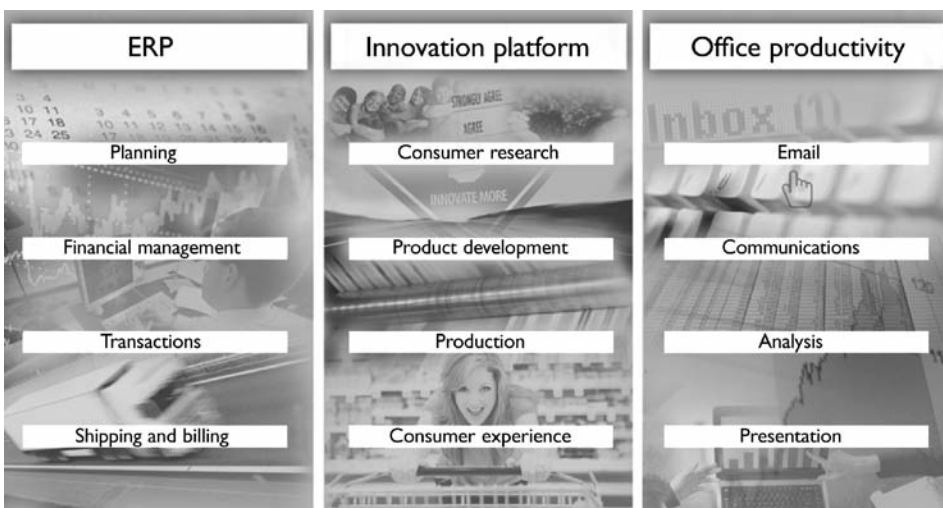


Chart 1 above reveals that the work of innovation looks nothing like the work of either ERP or office productivity. Innovation deals with soft concepts like consumer insight and consumer satisfaction. We also find here the highly collaborative realm of R&D and the technically complex world of manufacturing.

Given the obvious importance of the innovation process to the profitable growth of the company, why have CPG/F&B companies failed to give themselves these important capabilities?

Enterprise IT history

Two decades of ERP implementation have delayed large CPG/F&B companies from equipping themselves with modern information technology to support the innovation process. The lack of these systems means that critical innovation activities are supported with tools that are not suited to the task. Employees naturally find work-arounds and alternative tools. Customization is rampant. In the end, product and process information is spread across tens or hundreds of systems and the daily work of highly-skilled resources (such as marketers, scientists and engineers) is performed in tools that look very much like the tools they were using in the 1980s.

If innovation is so important to brands and to profitable top line growth, how could so many CPG/F&B companies have lagged in making a strategic investment in extended PLM technology?

As the new product development and launch (NPDL) process touches all aspects of the business (engineering, manufacturing, marketing, finance, and supply chain), companies are beginning to look at PLM as a foundational technology on which other enterprise applications – like CRM, human capital management (HCM), and supply chain management (SCM) – plug into. In conversations with end users, this is particularly true in some of the emerging industries, like apparel and footwear and consumer packaged goods (CPG), where rapid cycle times and changing trends necessitate easy collaboration across the globe. PLM can be the platform to enable this.

[AMR Research. PLM Vendors: Taking the Temperature of 2008 Forecasts. May 13, 2008]

While PLM seems relatively new in the CPG/F&B industries, it is a proven approach that extends back as far as ERP. In fact, PLM is viewed as a strategic platform in other industries.

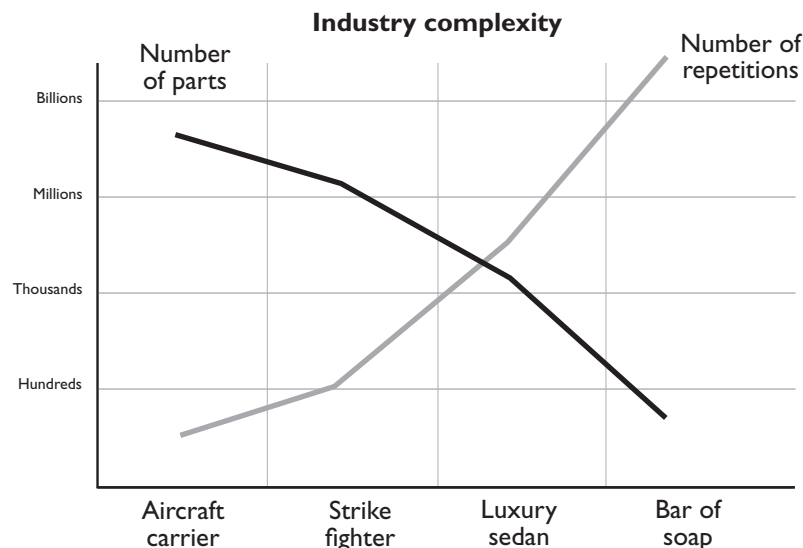


Chart 2 helps explain this divergence of IT strategy between CPG/F&B and some of these other industries. Various products/industries are listed along the X axis. Note the Y-axis on the chart represents the product complexity in each industry, as measured by the number of parts in a finished product. You see that an aircraft carrier may have 200 million parts, while a bar of soap may only have a few dozen. At the same time, the gray line shows the relative number of 'transactions' that must be managed to satisfy the market demand for the product per industry. Our aircraft carrier manufacturer may only produce and sell a small handful of 'finished products', while the soap company hopes to produce and sell billions of bars of soap.

The enormous part complexity seen by industries like aerospace, defense, machinery and automotive has driven them to adopt an IT investment approach over the past two decades that enables them to have great control over the product design and development environment. That strategy is PLM.

Meanwhile, the enormous transaction volume experienced by CPG/F&B companies has naturally led them down a different enterprise IT path. During the past 15-20 years, the largest companies in the industry have invested billions of dollars in ERP systems to gain control of their transactions and the general ledger. The intensity of this investment has left little discretionary resourcing for other strategic needs, even the needs of the innovation process.

Today, CPG/F&B companies should resist the compulsion to continue the annual cycle of ERP upgrades and customizations that are directed at achieving the originally projected returns on these investments. Because while some companies will choose to remain in ERP-invest mode, others have already seen the innovation opportunity and are re-focusing their IT spend towards a global extended PLM capability.

Enabling the innovation process to move more quickly, more creatively, more cost-efficiently and more globally, requires a technology strategy that is based upon certain PLM principles. Best in Class companies, according to the Aberdeen report, are four times more likely to be achieving those objectives with centralized data and product knowledge and have implemented "integrated automation solutions that provide integrated product data, processes and collaboration."

PLM

PLM has been available in various forms for roughly two decades. A traditional PLM foundation consists of knowledge management (aka PDM, product data management), BOM management, digital collaboration, configurable workflow, graphical visualization and some level of built-in integration services, to name some of the more common elements. But even though these capabilities may be considered common, it is not common to find all of these occurring together on a single data and process model. [see Prepare to scale-up]

Various applications are closely related to the foundation elements above and have essentially become part of the typical PLM sphere. These applications include portfolio management, project management, CAD management, MRO management and direct materials sourcing, to name a few.

These are powerful tools and they have been the IT mainstay of the high-part-count industries. As PLM has begun to penetrate parts of the CPG/F&B industry, certain other applications have evolved and become broadly recognized.

PLM with industry-specific capabilities

Probably the three most commonly discussed PLM applications that are specific to the CPG/F&B industry are specification management, formula and recipe management, and package and artwork management. Most companies have at least studied these areas and most PLM vendors that strive to serve CPG/F&B companies have developed some level of solution capability in these areas.

Unfortunately, if you look at PLM implementations in the industry the best you are likely to find is a rather loose confederation of some of the above capabilities. You will find that the challenges outlined earlier in this document persist in almost every case.

What is missing? What prevents the realization of a strategic PLM capability that provides an enhanced ability to drive profitable top line growth?

Extended PLM

Driven by requirements

All new products that become successful have something in common: they simultaneously meet multiple “requirements” that span areas such as consumer preference, retailer operating model, regulatory law, profit margin, etc. To the degree that a product does not meet such key requirements, it is destined for mediocrity or outright failure.

A typical PLM approach may include the ability to collect and store certain kinds of design requirements, typically associated with the mechanical tolerances of a discretely manufactured item. This is a helpful feature but it does not typically provide active propagation of those requirements throughout the lifecycle. Nor does such an approach seek to collect requirements covering the essential area (e.g., voice of consumer, voice of retailer, etc.). In order to provide greater value to the enterprise, PLM’s typical requirements capabilities must be extended in two ways: 1) the system must facilitate gathering of requirements across all the relevant voices, and 2) the system must propagate the gathered requirements throughout the product, production and marketing activities of the organization.

Broadening the scope of managed requirements powerfully enfranchises a very important group in the innovation process: Marketing, both brand management and marketing communications. While we have talked about the surpassing importance of the brand in the overall innovation process, it is primarily via this extended requirements model that marketing is able to exert their influence over the end-to-end innovation process in a repeatable and consistent way. Thus the extended PLM approach enables better ongoing alignment of brand and product throughout successive innovation cycles.

Prepare to scale-up

Because CPG/F&B companies are taking advantage of global collaboration, cross-functional teams around the world must share the “single source of truth”. As manufacturers see success in parallel and global product development, they quickly see the need to scale up the number of PLM users. In leading CPG companies it is not uncommon to have tens of thousands of users who must be supported on the PLM platform. Knowing that a platform can effectively scale to this degree, without losing speed or performance, is a critical factor in the decision process of choosing a PLM solution.

As an example, consider a situation where certain brand attributes have been determined to be mandatory for any product in that brand family. These brand 'codes' can be recognized as requirements and will flow through the innovation process with any projects associated with that brand. A package designer will have instant digital reference to not only mechanical tolerance information, but to more aesthetic requirements such as appearance on shelf or visual impact when compared to other existing products in the brand. Likewise, the same brand code requirements can flow through digitally to in-house graphic designers or an outside advertising agency that may be producing packaging labels, print advertising, web site and other marketing communications.

And this need not be a passive capability. In the extended PLM model requirements are aggregated and delivered to each participant in the innovation process as checklists that ensure that each functional activity in the process is actively provoked to address all requirements that have been determined to apply to this product.

Earlier in this document we talked about the various voices that come into play for CPG/F&B manufacturers. With an extended PLM approach to requirements management, these companies now have a way to consolidate and actively propagate all of these voices so that the enterprise has, for the first time, a requirements-driven innovation process.

Full scope initiative management

Requirements management acts as a driver for initiative management, which, in turn, acts as an a driver for both portfolio and project management. Initiative management draws upon the requirements management repository to ultimately create concepts, which need to be evaluated for risk and reward. Most executives agree one of the more important responsibilities of upper management is strategic portfolio management. Deciding which initiatives should be pursued, and just as importantly, which ideas should be rejected, drives ROI. Having full visibility of options and decision points not only leads to better initial decision, and effective employment of resources to execute projects, but also sheds light on the necessity to stop a project when it becomes evident it will not meet financial or consumer requirements.

Initiative management grants the ability to quickly recognize risks along the programs that are chosen. It is a strategic sensibility, based on requirements and knowledge library, that gives the CPG/F&B companies the capacity to take the risk out of the most important projects as soon as possible and drive true innovation within a highly structured environment. "Initiative management is where the industry needs to go," says Vasco Drecun of CPD Associates. "It helps to reduce fear," he says, which can free up the creative team to think more innovatively.

Unified foundation

While active propagation of requirements sounds logical, it only becomes possible when the entire innovation process is founded on a unified data model, a unified business process model and an integrated set of applications. And it is not just requirements management, but each of the core and domain capabilities that should be unified in this way.

When a single foundation is employed as the platform for the innovation process, data transcription is eliminated so that productivity is increased and errors are reduced, activity status is updated instantly so that overall visibility is increased, and every functional task employs the same requirements set so that the overall design of the product is more likely to win in the marketplace.

Even traditionally non-integrated functional activities such as sourcing deliver increased value when aligned with the extended PLM platform [see Supplier relationship management].

For years the CPG/F&B industry has been slow to adopt PLM because of its focus on implementing a unified transaction management platform. Now the extended PLM approach enables these same companies to adopt a unified approach to supporting their product innovation process.

Supplier relationship management

Sourced material and services can account for 60 to 80 percent of total product cost depending on the industry. With increasing inflationary pressures, strategic global sourcing tied into the design of a product in the early stages of development is critical. Unfortunately most procurement teams spend more than 70 percent* of their time on tactical activities such as processing quotes. Supplier Relationship Management based on an extended PLM platform supports advanced global sourcing, transitioning the procurement team to more value added activities. By enabling procurement to provide accurate and timely cost information to R&D from a global supply chain, key cost drivers can be identified and addressed early in the product design stage.

[*A.T. Kearney, *Assessment of Excellence in Procurement*, 2004]

Aligning product and production

Every company has a story about a time when they rushed a product through the development process only to discover, too late, that they could not properly manufacture the product. Perhaps it could not be run at sufficiently high rate to support market expansion plans. Or maybe the cost was 20 percent higher than the projected cost due to unforeseen supply chain inefficiencies. Or maybe it became clear only after launch that the manufacturing operations were unable to maintain, over time, the necessary control over key quality attributes or variables.

To avoid such issues, production capability must be aligned with product designs as far back as the idea development process. An extended PLM vision relates production capability information and product design information in a single model. This enables early visibility to physical constraints, providing time to explore cost effective means of breaking those constraint and an overall increased knowledge of the real business case for the proposed new product. This applies to equipment capacity as well as material supply capacity .

Another way in which the alignment of product and production in the extended PLM model delivers unique value is in closing the loop between product specifications, manufacturing set-up and quality control. This three-way alignment is absolutely critical to establishing the brand confidence that large CPG/F&B manufacturers must generate in order to leverage these brands as platforms for future growth. Consider the situation when a production specification must be manually set up on multiple production lines. Each line may have a different equipment configuration, resulting in unique manufacturing instructions. In the day to day crush of activity at the plant level, it is all too easy for operators to lose track and make simple set-up errors that result in important differences in the quality of the product. Analogous errors can occur in the QC labs when tests are run on product according to quality specs that are out of date, or intended for a different product.

By closing the loop between product design and production the extended PLM approach delivers increased speed and confidence at the last moment of control before consumer experience.

The complete platform

As more CPG/F&B companies begin to think strategically about PLM they will see the importance of a technology platform dedicated to profitable product innovation, just as they have seen the importance of platforms for transaction management and desktop productivity.

The underlying technology is necessarily quite different for reasons discussed earlier, but the strategic philosophy is the same: support a mission-critical business competency area with a technology platform that is designed to deliver the benefits of automation in a highly-scalable and long-term expandable way.

Closing the loop

A flavor systems company set the goals of accelerating time-to-market for new products and product varieties, as well as manufacturing products in line with customers' quality requirements. They needed a system to prepare production instructions in a structured way, allowing better quality prediction, and a clear insight in the tank inventory. In addition, they needed a system that would guarantee accurate and efficient load order execution and improve process control through usage of generic production recipes. The new system had to guarantee the use of correct ingredients and reduce production delays caused by inaccurate batch reservation. It also needed to improve efficiency by making production order status data available to other departments, further improvement of customer service. In addition to achieving these benefits, a senior manager points out,

"[We] will be able to shift the operational costs efficiently to the production of increasingly complex recipes. We will be able to do that in line with the quality that the customers demand from us, because their quality standards and requirements are increasing all the time."

Interview with IT Manager European Business Unit

What is the value of extended PLM to CPG/F&B companies?

Start by considering the well-established value statements about PLM. Analysts, PLM software providers and consultants all point to a similar list of benefits areas and similar benefits ranges backed up by case studies.

Table 1: Comparison of typical PLM value statement and extended PLM value statements

Benefit area	Range	Typical PLM	Extended PLM
<i>Speed improvement</i>	60 percent	through R&D	to market volume
<i>Productivity improvement</i>	40 percent	R&D	marketing, R&D, engineering
<i>Error reduction</i>	35 percent	R&D	marketing, R&D, engineering
<i>Cost reduction</i>	30 percent	Product	product and production
<i>Increased re-use</i>	50 percent	Ingredients/ materials	requirements, ideas, brand success factors, ingredients, materials, capital equipment
<i>IT system simplification</i>	n/a	R&D	marketing, R&D, engineering, manufacturing
<i>Improved alignment</i>	n/a	Requirements, specifications	branding, requirements, specifications and production
<i>Improved new product success rate</i>	incremental	n/a	Breakthrough

We can see from the table that some very attractive business opportunities exist with PLM, and this is why it is becoming a hot topic in CPG/F&B industries. We can also see that most of the benefits focus on the R&D process. But the innovation process is more complex than that. Focusing on the benefits in an isolated functional area opens up the risk that overall business benefit will be compromised.

In fact this is the case. Consider again the example cited earlier having to do with rushing a product through the R&D process only to discover that it cannot be properly manufactured. In this case we might certainly observe the 60 percent speed improvement in R&D, but if you cannot produce and sell the product, no amount of speed improvement matters.

The benefits of the extended PLM approach are different from the traditional benefits in two ways: 1) more functions of the organization are involved in the benefits scope, and 2) the inter-dependence of the various functions in attaining the overall business benefit is explicitly considered. The last column reflects projected benefits from a platform-based extended PLM approach.

Extended PLM portends a wave of strategic PLM adoption in the CPG/F&B industry. Leading Consumer Goods companies are on a path to take advantage of the breakthrough benefits available from an extended PLM approach. These leaders will be building a wall that their competitors will find difficult to scale whether they stick with their existing methods or even follow a traditional approach to PLM.

Profitable, organic, top line growth captures the interest of shareholders. Such growth points to the strength of unique brand assets and a well-performing innovation process. Yet, the industry, as a whole, has a very weak performance record, with less than 25 percent of new products meeting market expectations.

The obstacles in developing innovative products that actually meet market (and shareholder) expectations are numerous and difficult to overcome. The requirements that need to be addressed to “stretch the innovation muscle” are complex, difficult to access and lack the visibility necessary to answer the “voices” (consumer, retailer, government, shareholder and more) clamoring for input in the process. Additionally, these voices need to be continuously balanced with the company’s equity and positioning as ideas are converted into new products.

Obstacles that play into the innovation process are:

- Product that may not perform to design
- Misalignment of marketing communications
- Informational inconsistency
- Unclear business processes
- Lack of post-launch analysis

The IT architecture of most large CPG/F&B companies consists of an ERP serving the needs of the transaction and financial processes along with office productivity tools. The high product failure rate indicates there is a missing part of the IT puzzle. That missing piece is PLM (product lifecycle management) platform.

Enabling the innovation process to move more quickly, more creatively, more cost-efficiently and more globally, requires a technology strategy that is based upon certain PLM principals.

Two decades of ERP implementation have delayed large CPG/F&B companies from equipping themselves with modern systems to support growth. Consequently, critical information is spread across tens or hundreds of systems and the overall innovation process is riddled with errors and wasted resources.

PLM, having evolved in the discrete industries, is beginning to be used by the CPG/F&B manufacturers. But adaptations to meet the needs of the industry (specification management, formula and recipe management and package and artwork management) have been heretofore unavailable on a proven, scalable, PLM platform.

An extended PLM, driven by requirements management, leads to better decision making, better execution and improved speed to market. It also provides substantially improved business outcomes in the cost, and asset-use areas. This unified foundation of data model, industry process model and integrated suite of applications, enables global collaboration on an unmatched scale, and ultimately, more successful innovation.



About Siemens PLM Software

Siemens PLM Software, a business unit of the Siemens Industry Automation Division, is a leading global provider of product lifecycle management (PLM) software and services with 5.5 million licensed seats and 51,000 customers worldwide. Headquartered in Plano, Texas, Siemens PLM Software's open enterprise solutions enable a world where organizations and their partners collaborate through Global Innovation Networks to deliver world-class products and services. For more information on Siemens PLM Software products and services, visit www.siemens.com/plm/consumerproducts.

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