



## A N A L Y S T C O N N E C T I O N



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### Enhancing Collaboration in PLM Process Manufacturing

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*Whether you are a manufacturer producing cars, machines, pharmaceuticals, nutraceuticals, or consumer goods, your primary product development challenges are the same: provide compelling, quality products to a global market quickly and efficiently. But where discrete manufacturers are primarily challenged with developing increasingly complex products that contain a greater amount of software, process manufacturers are challenged with demand and collaboration complexity: sensing changing customer demand, rapidly collaborating across a diverse team, and delivering products on time to different locations around the world. Simultaneously, these products need to be presented in compelling packaging with labeling that meets stringent regulations. To achieve these objectives, manufacturers need to link specifications, formulas, intellectual property, packaging specifications, raw materials, and other information in a single, global system that enables product development, marketing, R&D, and manufacturing to easily collaborate on new and improved products. The leading system to manage this process is product life-cycle management (PLM). The system must be open and must easily integrate product and packaging specifications as well as R&D process and regulatory data, and it must provide a digital environment for internal and external communication and collaboration.*

The following questions were posed by Infor to Jeff Hojlo, program director of IDC Manufacturing Insights' Product Innovation program, on behalf of Infor's customers.

**Q. What are some of the recent trends and business priorities in the process manufacturing industry, and what's the impact of these trends on innovation?**

A. Process manufacturers are concerned with maximizing productivity to meet dynamic, cost-sensitive customer demand while improving operations and managing their own costs so they can optimize margins. Margins are particularly low in industries such as food and beverage (F&B) and home and personal care (HPC) due to global competition. Pharmaceutical producers need to rapidly discover new drugs, and they face expiring patents as well as competition from generics. Nutraceutical manufacturers face short development timelines and sustainability concerns. All of these trends drive process manufacturers to innovate and deliver new products to market rapidly. And while speed to market is key, quality issues prevalent in recent years, especially in F&B sectors, have forced manufacturers to embed closed-loop quality management throughout product development.

Compliance and sustainability are critically important for process manufacturers. This includes ensuring that regulations such as REACH\* are met, that products contain natural ingredients, and that the packaging around those products is minimized. How companies manufacture products is also a sustainability selling point that could potentially be promoted on product labels: for example, using energy-efficient machines and production lines and minimizing water use during manufacturing. The implication for product innovation is that it

can't be done anymore with paper, office tools, email, and maybe a laboratory information management system that is disconnected from manufacturing. The process of developing new products is simply too dynamic, and too much is at stake, from customer safety, to regulations, to meeting the demand for products in established and emerging markets. A system must be in place that provides the entire product development team with visibility into ideation, formulation, packaging design, compliance, procurement, and manufacturing.

**Q. What are some of the fundamental new product development capabilities that leading companies in process manufacturing have implemented to address their challenges?**

A. Leading companies are breaking down the walls between historical silos in process manufacturing and sharing product and process information with the entire organization. The first step toward achieving this transparency is instituting a PLM system, which not only enables global management of product information, creation of a bill of materials, and collaboration across the development team but also includes ideation and project management capabilities. Ideation, also known as customer needs management, allows marketing and R&D to work together collaboratively with customers, partners, and others to discover, vet, and trace new and old product ideas — essentially establishing a pipeline of products and product updates that can meet customer demand more quickly. To enhance this process, some companies are beginning to leverage social media — both public social media that is close to a broad mix of customers and private social media for employees and specific partners and customers.

Process manufacturers are also implementing product portfolio management (PPM) systems. PPM allows the process manufacturer to manage the large mix of products that are brought to market; have visibility into product cost, margins, and performance; and differentiate strong product performers from weak product performers. Leading manufacturers are also incorporating manufacturing process planning concurrently with R&D and product development so they can look at how a product will be made while it is designed, instead of figuring out manufacturing processes after formulation and packaging are complete. Packaging design is very important for process manufacturers so that the amount of material used can be minimized, sustainability goals can be met, and costs can be reduced. Leveraging CAD tools with dynamic shaping functionality and sharing designs with the development team to get feedback are important capabilities that pharmaceutical, F&B, and HPC manufacturers need.

The next evolution of product innovation is to leverage information from other data sources (e.g., manufacturing execution, customer relationship management, supply chain management, quality, or enterprise resource planning system) to enhance decision support during product development. We call this establishing an "innovation platform," which provides access to all intellectual property, product, manufacturing execution, customer, supply chain, and costing information the development team could need to launch quality products quickly.

**Q. What are the benefits of increasing collaboration during the product development process?**

A. When the global team, whether in Boston, New Delhi, or Sao Paulo, can access and act on the same set of information about a new or existing product simultaneously, that's very powerful. Because there are no disconnects, the result is a better product and much faster time to market. This collaboration platform also enables the team to more quickly rectify any quality issues that may arise. Additionally, when you have a global team collaborating, local customer and regulatory needs are communicated clearly so you can adjust various processes, such as formulation, packaging, and manufacturing, as required. Manufacturers

that adopt a platform for global collaboration like PLM realize benefits such as easier, faster management of design and formulation changes; material sourcing savings; less paper documentation; and a decrease in R&D spending because previously used ingredients and raw materials are accessible and more successful products are brought to market faster.

**Q. How can process manufacturers improve their innovation processes and develop products that address local customer requirements and preferences?**

A. Start with getting all product data cleansed and unified on a single system for the global team. As one PLM user said to me, when you have a PLM platform that the global team has access to, you can take the time to ensure you are meeting all unique customer needs; without a system, you don't have this luxury because you're constantly trying to manually find information, manage approvals, and facilitate changes. Social media enhances the innovation process and the ability to meet the needs of local customers. This process could involve either creating an open innovation forum to engage with customers on new product ideas or supplementing a PLM system by building in social media tools that greatly enhance the speed at which an R&D team, for example, can review a new formulation or packaging design. Or the process could be a combination of the two approaches.

**Q. What are some key trends in the development of PLM technology today that process manufacturers should keep in mind to help address their business challenges?**

A. PLM has evolved from a tool to manage product data and specifications to a system that manages the spectrum of development processes inherent in the development and launch of new products. PLM continues to rapidly migrate toward supporting IT trends such as cloud computing, social media technologies, and mobility. As PLM platforms are available in the cloud, it becomes possible for manufacturers to keep infrastructure and implementation costs low and use PLM functionality when they need to during a new product launch cycle or when they are addressing quality issues with an existing product.

Leveraging a social business approach within a product development environment extends and improves communication and collaboration with the global team. Increasingly, manufacturers are looking to make PLM more mobile — not necessarily to support the entire process but to complement collaboration between the different members of the global development team. By establishing a digital environment where the global product development and manufacturing teams have unified, secure access to the information they need, global collaboration occurs easily, quality issues are detected earlier, and products that meet customer demand are launched faster.

*\*Note: REACH is a regulation of the European Union (EU), adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals while enhancing the competitiveness of the EU chemicals industry. It also promotes alternative methods for the hazard assessment of substances to reduce the number of tests on animals.*

## ABOUT THIS ANALYST

As program director, Product Innovation, Jeff Hojlo leads IDC Manufacturing Insights research and analysis of the PLM market, including topics such as the development of an innovation platform and the intersection of product design, development, and digital manufacturing. Mr. Hojlo is also responsible for research on business and IT issues related to the engineering-oriented value chain.

#### A B O U T T H I S P U B L I C A T I O N

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