

# STREAMLINING PRODUCT DEVELOPMENT IN PROCESS MANUFACTURING

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## Report Highlights

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Fifty percent of process manufacturers cited market demand for higher quality and higher performance products as their top pressure to improve product development.

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Best-in-Class were 47% more likely to meet their launch dates than All Others.

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Use a PLM solution that streamlines and speeds up product development by facilitating communication and cross-functional collaboration throughout the organization.

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What distinguishes the Best-in-Class from their peers? They pair designing process manufacturing methods with product development.

Using an integrated PLM solution allows companies to leverage data across the entire enterprise to make better decisions about product development, management, design, and production. This report discusses the benefits of an integrated PLM solution for process manufacturers.

## 2

**Companies can significantly reduce their production costs, decrease delays to market, and minimize compromised quality by taking the right steps to effective implementation of PLM**

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**Definition: Process Manufacturing (PM)**

A section of manufacturing involved with the development and production of formulas and recipes. It can be directly contrasted with discrete manufacturing, which is associated with discrete units that require bill of materials and component assembly.

Typically, process manufacturers are in food and beverage, chemical, O&G, pharmaceutical, nutraceutical, and home and personal care industries.

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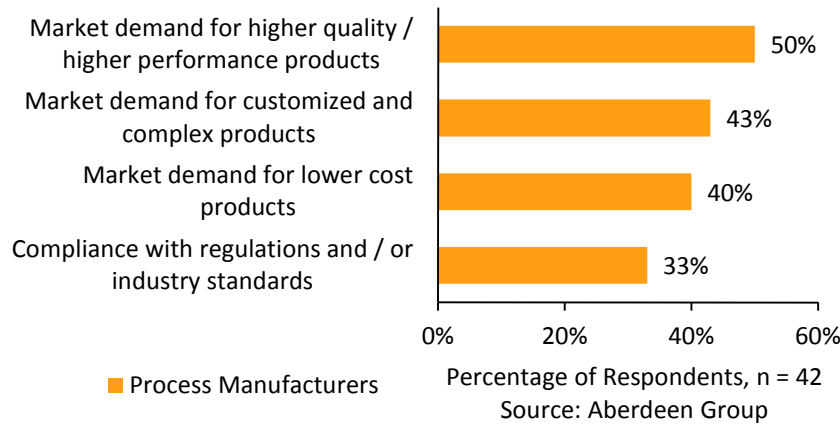
For process manufacturers in today's markets, gaining a competitive edge means successful new product introduction in an ever growing global market. What fuels this rise is the market demand for higher functionality and customization, while minimizing cost and upholding quality. Rightly so, a strategy that strives for product differentiation can pay huge dividends for companies that have the right product lifecycle management (PLM) in place. Using a system that seamlessly integrates an existing enterprise resource planning (ERP) system with a PLM solution, gets products designed quicker and at a lower cost.

**The Need for A Product Lifecycle Management Solution**

Process manufacturing challenges exist in many forms. Demands for shorter product lifecycles, need for continuous product innovation, combined with expanding market opportunities leave companies no choice but to stay on the cutting edge of the product development process. In a recent survey conducted by The Aberdeen Group, 50% of process manufacturers cited market demand for higher quality and higher performance products as their top pressure to improve product development. Closely following demand for higher quality and performance, 43% of process manufacturers said market demand for higher customization drove their desire to implement improvements in product development.

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**Figure 1: The Top Pressures Driving Product Development Improvement**



Notably, 33% of process manufacturers cited compliance with regulations and/or industry standards as a top pressure. An issue largely unique to process manufacturing, compliance consists of the technical, legal, and internal requirements process manufacturers must follow in order to release a product to market. In order to meet these requirements, regulatory compliance must involve the establishment of a top-down strategy that ensures proper regulation across the entire enterprise.

To meet these demands for higher quality, increased complexity, and calls for lower cost, process manufacturers must take serious measures to affect the product development processes. A popular strategy among process manufacturers is streamlining the development process. Process Manufacturers are 16% more likely to streamline product development than all respondents (Figure 2). Since manufacturers are sustained and driven by product development, they must look for ways to increase the efficiency, and thereby decrease the time-to-deliver and costs, of their development process.

## We Need Insight

Companies were asked what their major challenges were in getting insight into product development. Here's what they said:

- Too many manual processes (spreadsheets): 39%
- No method for visibility to data to support decisions: 31%
- Lack of expertise/resources to make proper decisions: 19%
- Inability to assess should-be cost of a proposed part or product: 16%

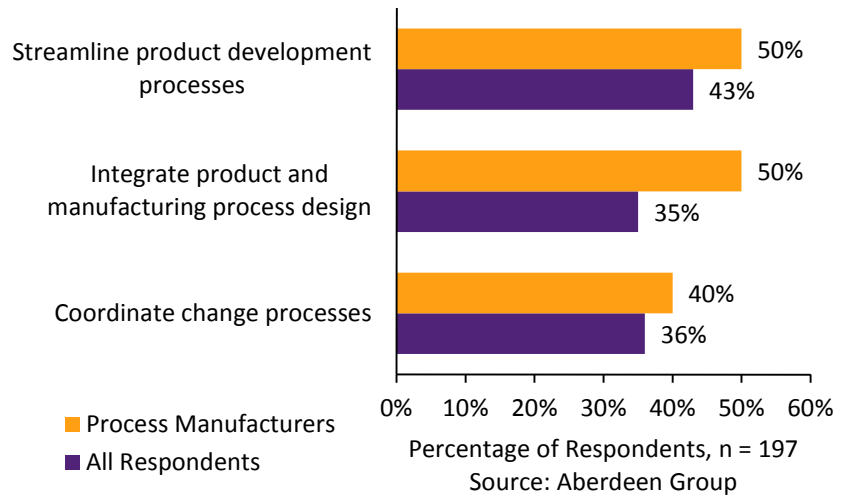
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## What Capabilities Should A PLM Solution Have?

Companies were asked what features a PLM solution should have. Here's what they said:

- Reporting/Analytics  
Process Manufacturers: 69%  
Non PM: 55%
- Compliance/Regulatory Management  
Process Manufacturers: 64%  
Non PM: 52%
- Portfolio Management  
Process Manufacturers: 60%  
Non PM: 46%
- Formula/Recipe Management  
Process Manufacturers: 55%  
Non PM: 37%

**Figure 2: Top Actions Impacting Product Development Process**



Along the same line of increasing efficiency and reducing development time, process manufacturers are 43% more likely than all respondents to integrate their product and manufacturing process design. To be clear, integrated product development is based on the integration, and therefore, parallel execution of product design, manufacturing, and support processes development. It is not a post-design practice of assessing the manufacturability of a product. Steps taken in this serial manner can only extend the design cycle times and increase product development cost.

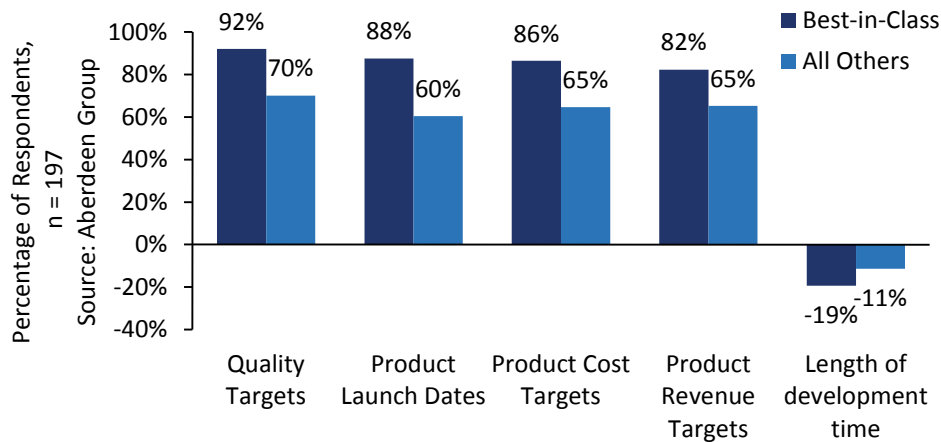
### Defining the Best-in-Class

To establish top performing companies, Aberdeen used five organizational performance metrics: product quality, product launch dates met, product cost targets met, product revenue met, and change in length of development time (increase or decrease). Respondents were asked to identify the frequency at which products in the past two years met these targets. Two maturity classes were formed based on the responses, Best-in-

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Class (top 20%) and All Others (bottom 80%). Figure 3 highlights each group's performance.

**Figure 3: Metrics Used to Define Best-in-Class**



Best-in-Class companies consistently outperformed their peers in all four target metrics. The percentage of products that met these target were consistently over 80%. The biggest difference between Best-in-Class and All Others was in the percentage of products meeting their product launch dates. Best-in-Class were 47% more likely to meet their launch dates than All Others. A large part of new product introduction success is the on-time release of a product to market. Late delivery to market could be disastrous for a product's success as the delays are costly and the key selling season may be missed.

### Guidelines for Effective Product Lifecycle Management

The strategic goal of any manufacturer is to develop a competitive product and operate profitably, while growing their business in an increasingly competitive global market. Still, many fall short of meeting these goals due to faulty execution of their PLM process.

## The Best-in-Class Distinguish Themselves

Other performance metrics that separate the Best-in-Class from All Others.

- Met Product Development Budgets  
Best-in-Class: 86%  
All Others: 59%
- Met Lifecycle Cost Targets  
Best-in-Class: 83%  
All Others: 62%
- Decrease in Overall Product Cost  
Best-in-Class: 17%  
All Others: 8%

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Throughout a company, all levels and functions impact product development, be it directly or indirectly. Effective implementation of PLM requires a systematic approach by the entire enterprise. Specific guidelines companies should follow for product success are:

## PLM as the Primary Application

Companies were asked which processes were managed primarily in a PLM application.

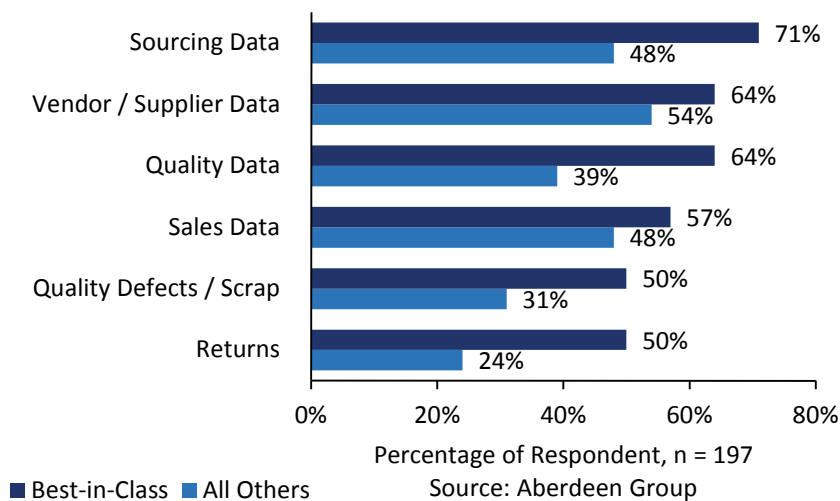
- Release Management  
Best-in-Class: 40%  
All Others: 21%
- Change Management  
Best-in-Class: 33%  
All Others: 25%
- Configuration Management  
Best-in-Class: 27%  
All Others: 18%
- Defect Tracking  
Best-in-Class: 19%  
All Others: 5%

- ➔ Eliminate time-wasting factors by providing relevant stakeholders with timely access to key decision making information. Use a PLM solution that streamlines and speeds up product development by facilitating communication and cross-functional collaboration throughout the organization. Forty-five percent of all respondents say that cross-departmental collaboration has the most impact on their company's products.
- ➔ Generate a detailed "should-be" costing for key and pricey components to validate sourcing quotes and ensure the lowest pricing possible. The Best-in-Class are 51% more likely to check the accuracy of estimates to actual costs than All Others.
- ➔ Implement a stage-gate methodology to better control the product development cycle. Look for PLM solution capabilities that help ensure internal requirements are met and all business policies are followed. Sixty-five percent of all respondents are looking for requirements management capabilities in their PLM solution.
- ➔ Use formula optimization techniques to increase profit margins through cost reduction. Process manufacturers are 49% more likely than non-PMs to look for formula/recipe management in a PLM system. Find a PLM solution that has the ability to set parameters for formula creation and optimize reformulation in order to find the most cost-effective mix of ingredients.

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- ➔ Integrate your enterprise resource planning (ERP) system with your PLM solution to create a single product record for unified data and methods. Best-in-Class are 48% more likely than All Others to integrate their sourcing data from ERP to PLM. They are 64% more likely than All Others to integrate their quality data to PLM (see Figure 4).

**Figure 4: The Best-in-Class Integrate Their ERP Data to PLM**



PMs who streamline their most complex processes enable themselves to develop, launch, and manage products more effectively. Streamlining processes while decreasing timecycles is not an easy task, but with the right tools, these steps can be accomplished.

### Key Takeaways

For Best-in-Class companies, product lifecycle management is a well-defined process that ties early phase development decisions with integration of enterprise systems together. What distinguishes the Best-in-Class from their peers? They pair designing process manufacturing methods with product development. The manner in which companies execute this plan:

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- **Incorporate cost management early in the design phase.** A direct link between the designers and costing information is often non-existent. Best-in-Class companies distinguish themselves by providing visibility to all functions across the entire value chain.
- **Create a top-down strategy that ensures proper regulation across the entire enterprise.** Risk of non-compliance has become an ever-growing concern among PMs in recent years, especially among PMs with global sites. Thirty-three percent of PMs cited compliance with regulations and industry standards as a top pressure to improve product development.
- **Streamline processes for product development, material selection, formulation, and new product introduction.** Doing so will provide a shorter time to market, cost reduction, and improve quality and certification.
- **Use software enablers that integrate with existing enterprise software.** Effective product lifecycle management occurs by giving tools to the right people. This allows the entire process to move quickly and efficiently without expensive re-works or over target costs.

Companies can significantly reduce their production costs, decrease delays to market, and minimize compromised quality by taking the right steps to effective implementation of PLM. This requires a systematic approach across the entire enterprise by deploying a proven set of PLM solution capabilities to equip employees to remove costs at any stage.



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For more information on this or other research topics, please visit [www.aberdeen.com](http://www.aberdeen.com).

### Related Research

[\*The Importance of Configuration Management in Industrial Equipment Manufacturing\*](#) (October 2015)

[\*Optimizing Product Lifecycle Management Using Big Data Analytics\*](#); (January 2016)

[\*NPI Velocity in Discrete Manufacturing: The Hidden Cost of Late Products\*](#); (November 2014)

[\*Innovation Management: It's More Than Generating Ideas\*](#); (December 2015)

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### About Aberdeen Group

Since 1988, Aberdeen Group has published research that helps businesses worldwide improve their performance. Our analysts derive fact-based, vendor-agnostic insights from a proprietary analytical framework, which identifies Best-in-Class organizations from primary research conducted with industry practitioners. The resulting research content is used by hundreds of thousands of business professionals to drive smarter decision-making and improve business strategy. Aberdeen Group is headquartered in Boston, MA.

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