The Fundamentals of Successful New Product Development

Leveraging Cloud-Based PLM to Exceed Corporate Goals

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Executive Summary

Manufacturing companies are trying to increase revenue and expand market share while simultaneously improving product development metrics, such as cost, time to market, and quality.

In many ways, these goals conflict as market expansion relies on more customizations and products, while product optimization relies on standardized configurations and processes. And these imperatives are taking place within the context of increasing demand variability, supply chain disruptions, intellectual property risks, and new regulations.

This IDC InfoBrief examines the **IT and business plans of discrete manufacturers related to product life-cycle management (PLM),** providing key insights for companies that want to **optimize product development and implement agile processes.**

Research findings come from the *2023 IDC Product and Service Innovation Survey* of 814 manufacturing companies across North America, Europe, and Asia/Pacific, drawing on the responses of PLM decision makers (n = 445).

Methodology for Top-Middle-Bottom Segmentation

SURVEY PARTICIPANTS WERE ASKED:
"What percent of your organization's new product offerings are currently meeting management targets for these six metrics?"

Based on these results, responses were segmented and reported according to three levels of new product performance:

Product cost

Product revenue

Product time to market

Product sales volume
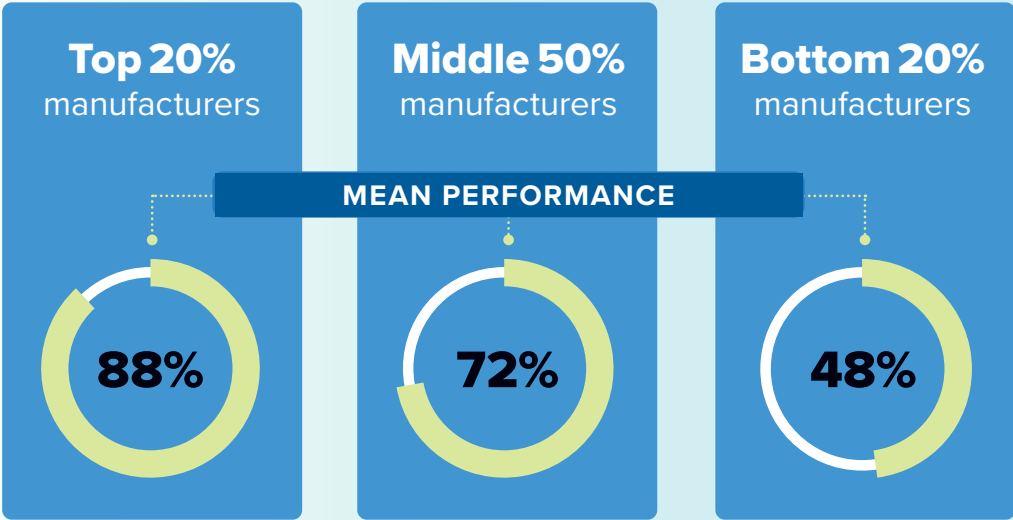
Product quality

Customer satisfaction

Top 20% manufacturers

Middle 50% manufacturers

Bottom 20% manufacturers

MEAN PERFORMANCE

88%

72%

48%

n = 95, Base = Top 20%; n = 228, Base = Middle 50%; n = 122, Base = Bottom 30%.

Product Manufacturers Face Complex Challenges

Manufacturers must balance the demands of customers, supply chains, revenue, and regulations.

Product-related challenges span multiple organizations.

The purpose of PLM is to streamline this cross-functional product development process.
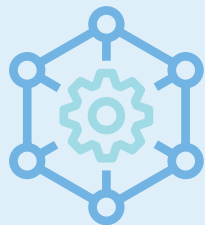
What are the primary business concerns for your organization?
(Percentage of respondents)

Concern	Percentage
Increasing customer satisfaction	39%
Increasing sales/revenue	39%
Increasing internal costs	37%
Expanding into new markets	36%
Delivering successful products/services	35%
Increasing supply chain disruptions	32%

Notes: Multiple dichotomous table; total will not sum to 100%. Not all responses included.

Manufacturers' Priorities Reflect a Product-First Strategy

Product strategies are designed to guard existing markets and act as a platform for growth.

In the next 12–24 months, what will your organization be prioritizing?

55%
Increase product quality

47%
Reduce cost of product development

44%
Develop new product lines

44%
Improve product satisfaction

43%
Accelerate product development
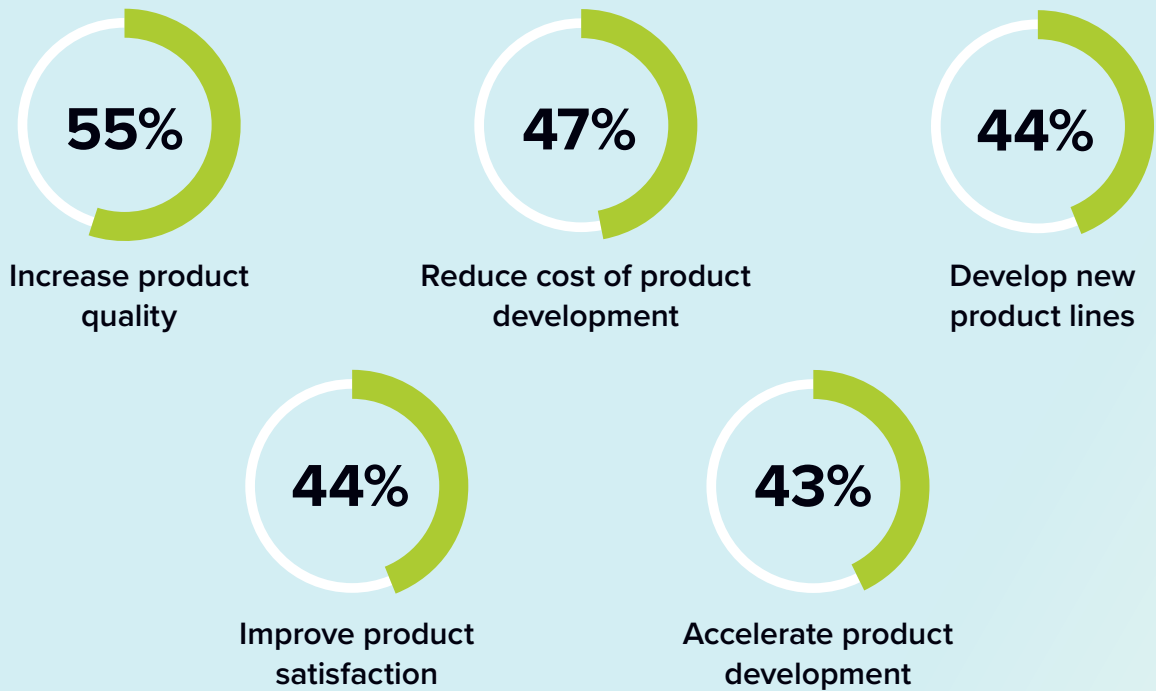
Notes: Multiple dichotomous table; total will not sum to 100%. Not all responses included.

Increasing product quality is the number 1 priority for manufacturers, regardless of the target industry or geographic region.

Other high priorities include reducing cost, increasing product offerings, improving customer satisfaction (CSAT), and accelerating time-to-market.

Putting PLM to Work: Collaborative Product Innovation

Manufacturers look to PLM as the system of record for new product introductions (NPI) and changes.

Product manufacturers expect PLM to **integrate** processes, **simplify** complexity, and **improve** collaboration to optimize cost, time, and quality across design, production, and service/support.

What are the top six drivers for your organization's PLM efforts?
(Percentage of respondents)

Improving product quality	54%
Improving product development	49%
Integrating with manufacturing/operations systems	44%
Designing sustainable products	43%
Managing product complexity	39%
Improving product change management	38%
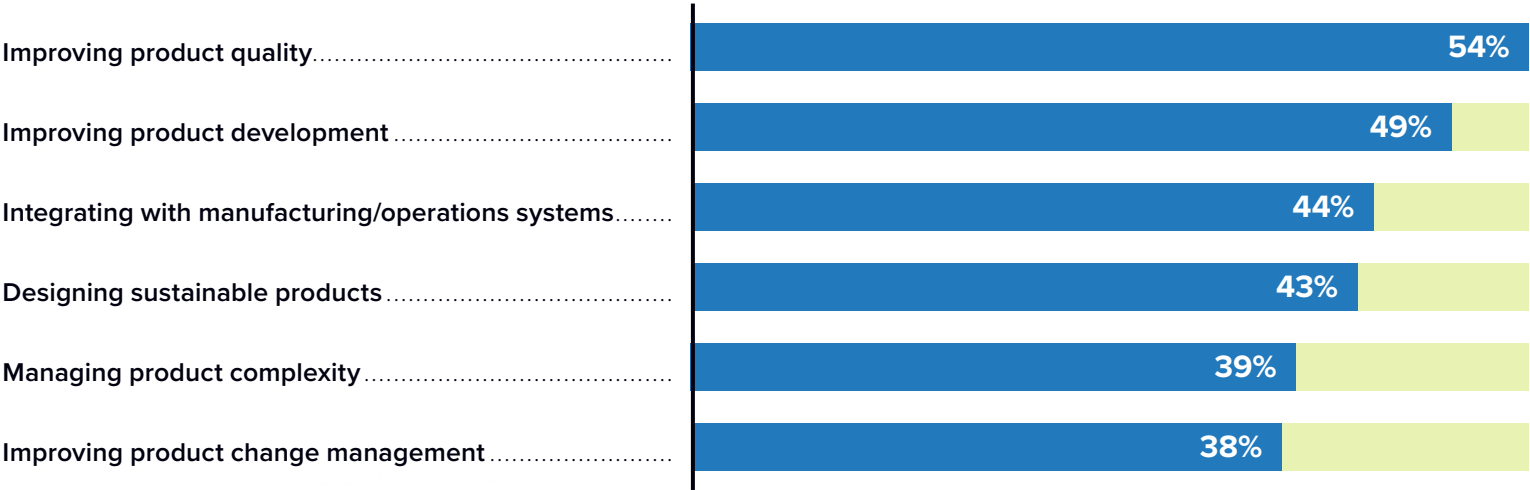
Notes: Multiple dichotomous table; total will not sum to 100%. Not all responses included.

Effective New Product Introduction (NPI) Is About Data and Collaboration

Manufacturers seek data-driven decisions but can only manage what they measure.

Cloud PLM simplifies data collection and supplier collaboration.

Cloud PLM offers significant differentiators:

▶ Data accessibility

▶ Workflow agility and scalability

▶ Ease of deployment and quicker time to value

New products and features involve trade-offs, and customer lifetime value hinges on properly balancing development cost, time, and quality.

Visibility into key metrics and milestones is essential across product engineering, manufacturing, sourcing, and service.

PLM is the enterprise solution for delivering successful products, and cloud-based PLM accelerates collaboration and innovation.
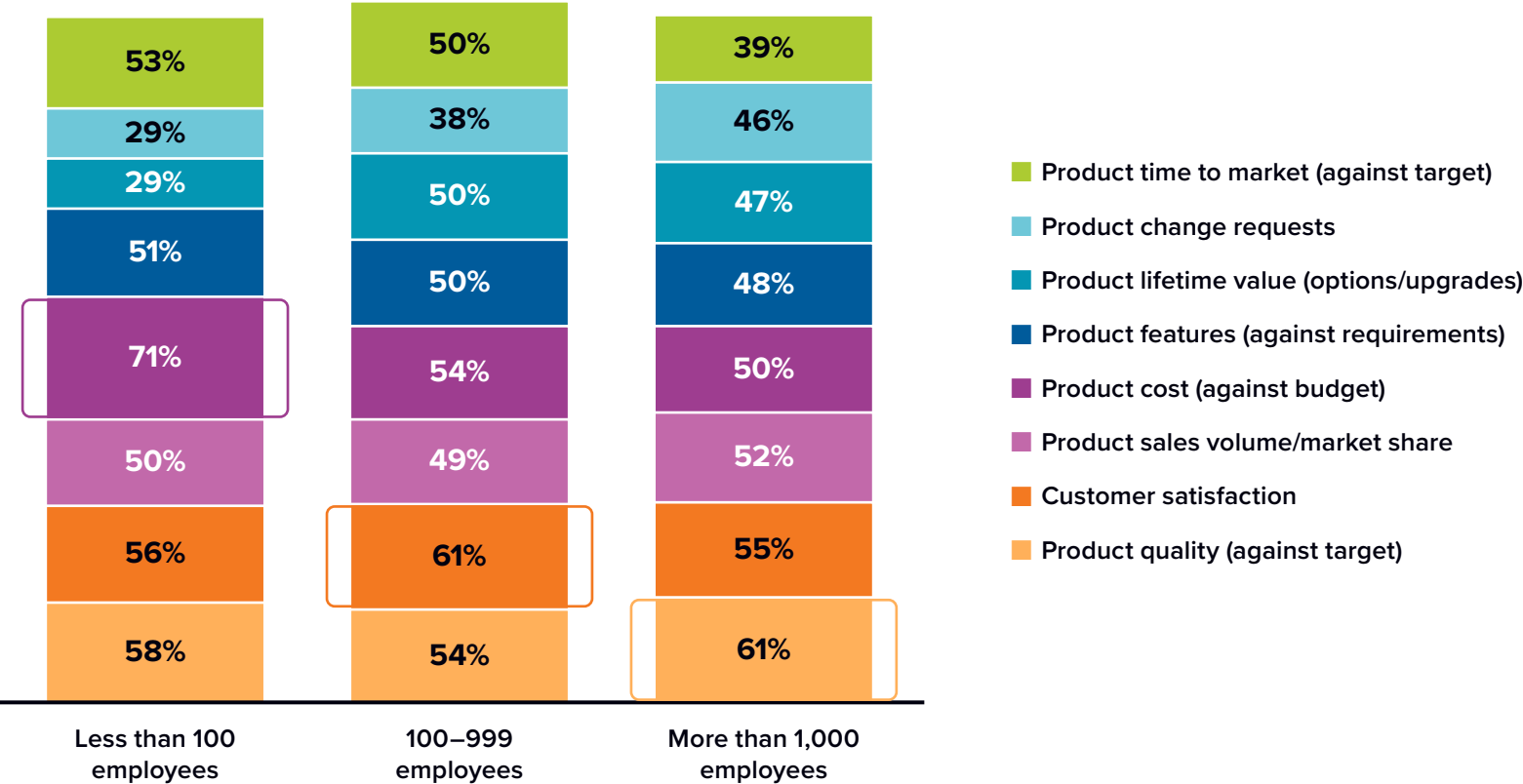
Repeatable NPI Performance Is a Numbers Game

Manufacturers use a variety of key metrics to measure progress and success.

What key performance indicators or metrics does your organization prioritize to determine new product success?
(Percentage of respondents, rank 1 to 5)

Less than 100 employees
- 53%
- 29%
- 29%
- 51%
- 71%
- 50%
- 56%
- 58%

100–999 employees
- 50%
- 38%
- 50%
- 50%
- 54%
- 49%
- 61%
- 54%

More than 1,000 employees
- 39%
- 46%
- 47%
- 48%
- 50%
- 52%
- 55%
- 61%

Legend:
- Product time to market (against target)
- Product change requests
- Product lifetime value (options/upgrades)
- Product features (against requirements)
- Product cost (against budget)
- Product sales volume/market share
- Customer satisfaction
- Product quality (against target)

Key performance indicators vary by company size.

- ▶ **Smaller firms emphasize cost,** which may reflect limited pricing power.
- ▶ **Medium firms emphasize customer satisfaction,** which may reflect shifting market demands.
- ▶ **Larger firms emphasize quality,** which may reflect long-term customer relationships.

Notes: Multiple dichotomous table; total will not sum to 100%. Not all responses included. For an accessible version of the data in this figure, see Supplemental Data in the Appendix.

PLM Allows Multiple Paths to NPI Success

Product manufacturers can chart their own course for product growth and success.

Which of the following initiatives is a near-term priority for transforming your organization's PLM success?
(Percentage of respondents)

Legend: ■ Top 20% ■ Middle 50% ■ Bottom 30%

Enable collaboration with suppliers, partners, and customers
- Top 20%: 44%
- Middle 50%: 33%
- Bottom 30%: 32%

Improve design for manufacturability/serviceability
- Top 20%: 42%
- Middle 50%: 36%
- Bottom 30%: 36%

Connect PLM with manufacturing and supply chain (data/processes)
- Top 20%: 34%
- Middle 50%: 39%
- Bottom 30%: 36%

Improve product customization/personalization/configuration
- Top 20%: 32%
- Middle 50%: 35%
- Bottom 30%: 38%
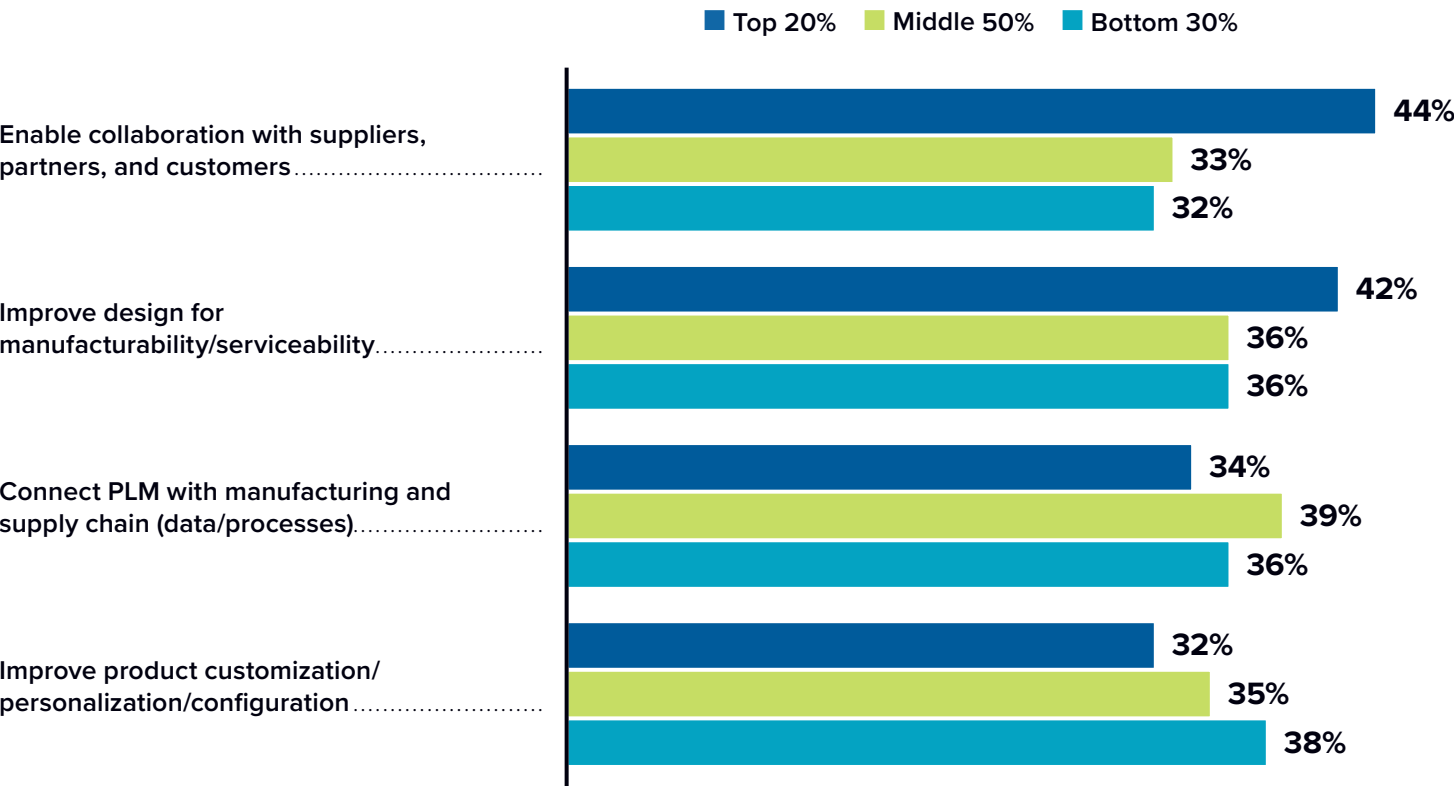
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77% of surveyed manufacturers use PLM to manage the design and improvement of products.

Top manufacturers focus PLM efforts on collaboration and design for quality.

As products become platforms, PLM provides a seamless connection between design and manufacturing, which is critical for delivering products on time, on budget, at scale, and with quality.
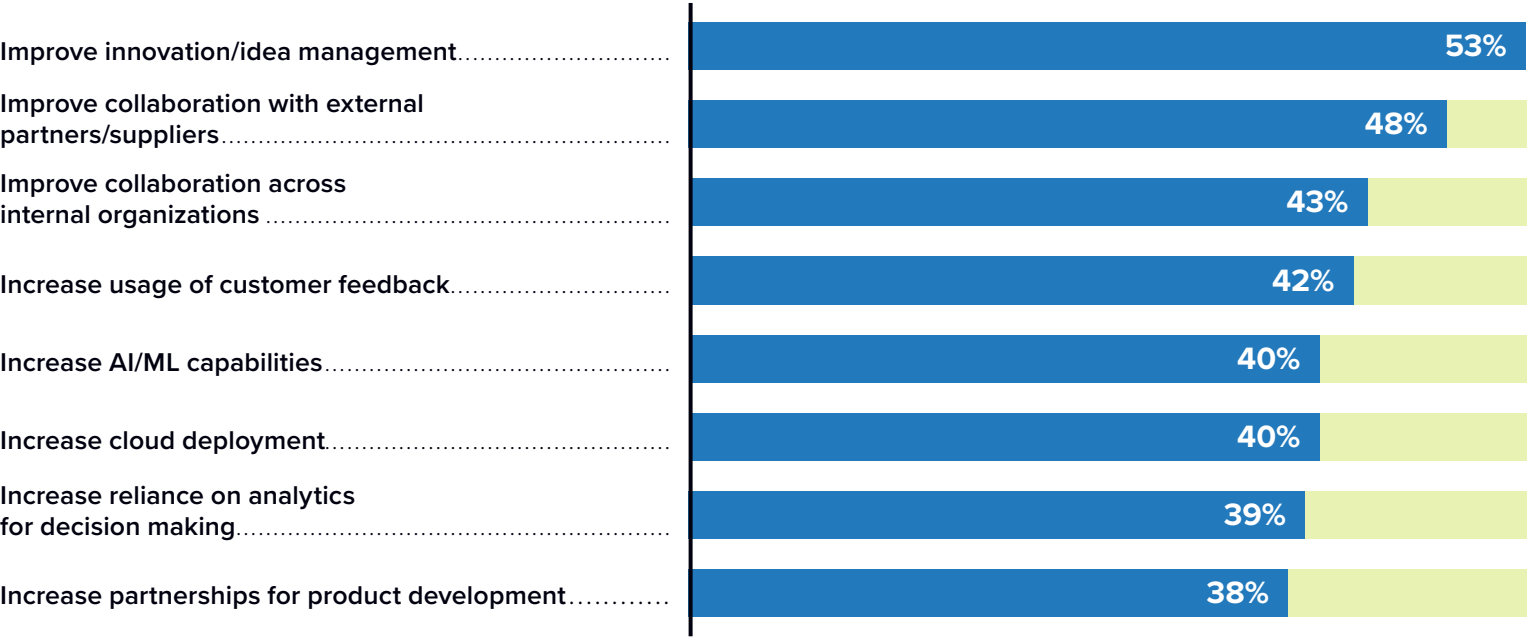
PLM: The Hub of Innovation, Collaboration, and Transformation

PLM works best in the cloud, where its data is fully accessible to the product innovation ecosystem.

PLM is the engine of product innovation, connecting key partners to share collective experience and providing critical data that transforms product development and production.

Manufacturers' success hinges on PLM as an instrument of process and organizational change that improves the cost, time, and quality of product development.

From a PLM perspective, does your company plan to make any of the following changes in the next three years?
(Percentage of respondents)

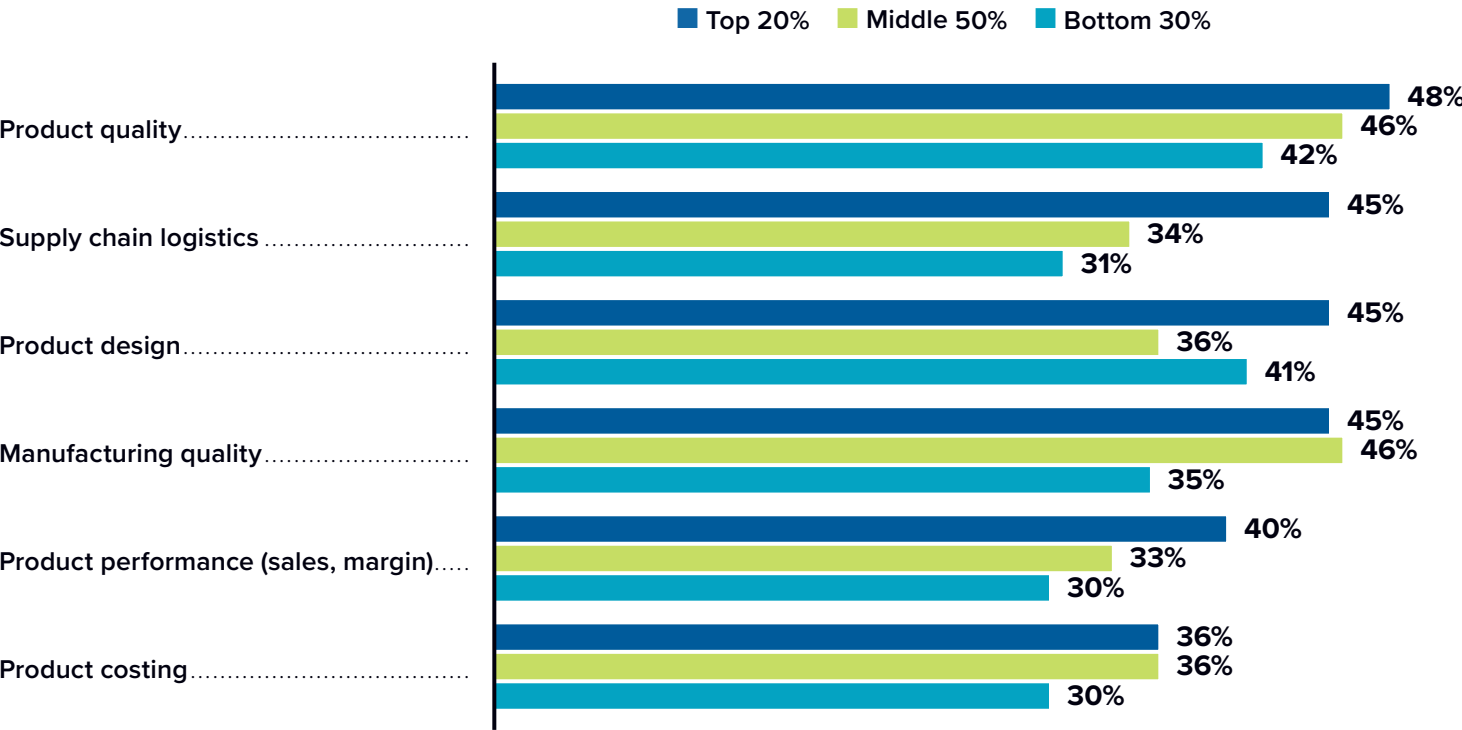|	
Improve innovation/idea management	53%
Improve collaboration with external partners/suppliers	48%
Improve collaboration across internal organizations	43%
Increase usage of customer feedback	42%
Increase AI/ML capabilities	40%
Increase cloud deployment	40%
Increase reliance on analytics for decision making	39%
Increase partnerships for product development	38%

Notes: Multiple dichotomous table; total will not sum to 100%. Not all responses included. n = 445.

PLM Leverages Analytics and Puts Data on a Dashboard

Leading manufacturers lean on PLM for analytics more, not less.

Which of the following is (or will be) tracked by reporting and analytics tools?
(Percentage of respondents)

Legend: ■ Top 20% ■ Middle 50% ■ Bottom 30%

Metric	Top 20%	Middle 50%	Bottom 30%
Product quality	48%	46%	42%
Supply chain logistics	45%	34%	31%
Product design	45%	36%	41%
Manufacturing quality	45%	46%	35%
Product performance (sales, margin)	40%	33%	30%
Product costing	36%	36%	30%

Notes: Multiple dichotomous table; total will not sum to 100%. Not all responses included. For an accessible version of the data in this figure, see Supplemental Data in the Appendix.
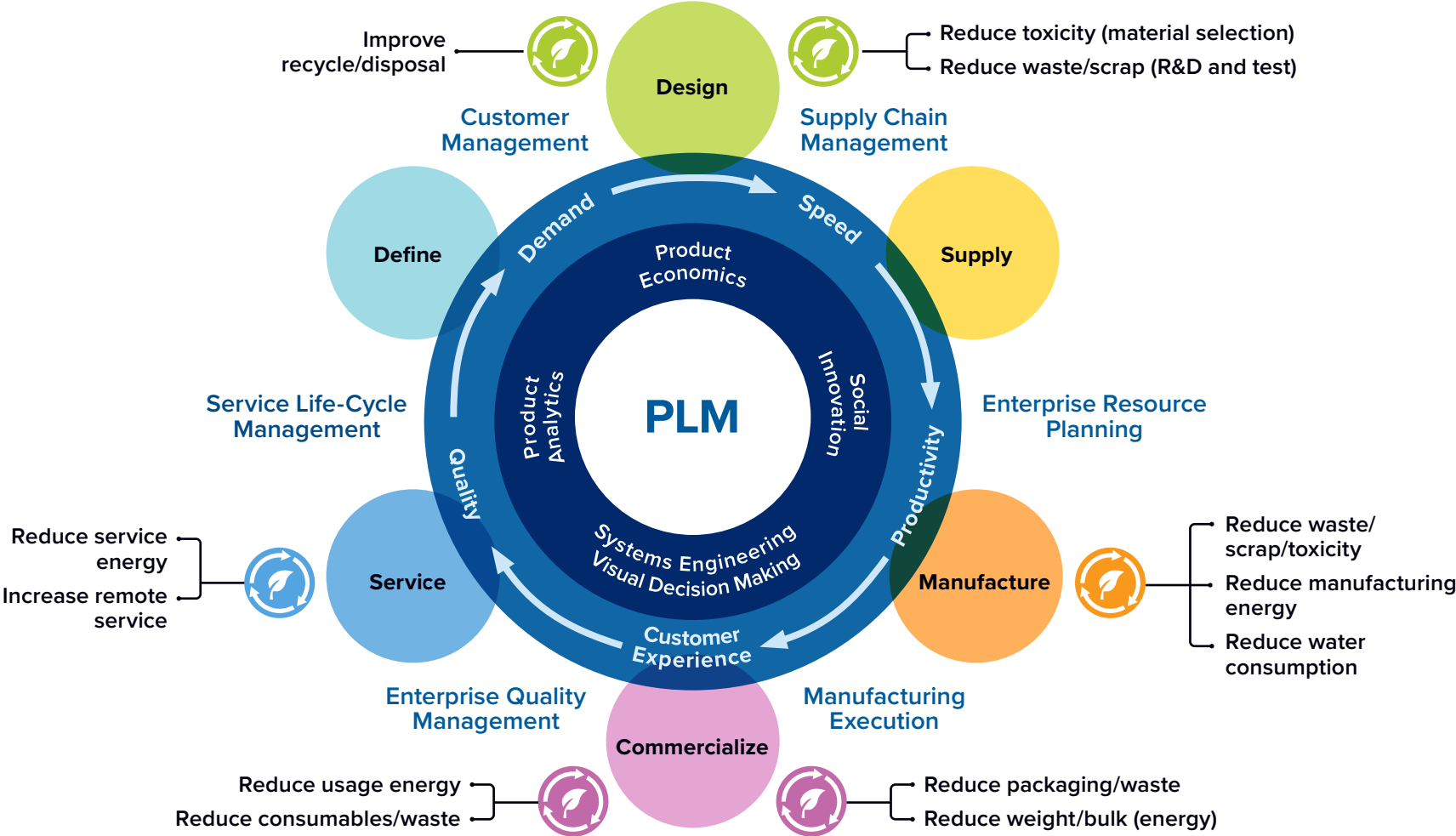
PLM is the primary system of record for product development initiatives.

Each manufacturer is free to focus on the metrics that matter to its business, whether design, quality, cost, supply chain, etc.

PLM reveals the health of NPI processes and highlights the problems that are hiding.

PLM in the Digital-First World

Digital threads weave together product development, manufacturing, supply chain, and service.

Improve recycle/disposal

Customer Management

Design

Supply Chain Management

Reduce toxicity (material selection)
Reduce waste/scrap (R&D and test)

Define

Demand — Product Economics — **Speed**

Supply

Service Life-Cycle Management

Product Analytics

PLM

Social Innovation

Enterprise Resource Planning

Quality

Productivity

Reduce service energy
Increase remote service

Service

Systems Engineering
Visual Decision Making

Manufacture

Reduce waste/scrap/toxicity
Reduce manufacturing energy
Reduce water consumption

Enterprise Quality Management

Commercialize

Customer Experience

Manufacturing Execution

Reduce usage energy
Reduce consumables/waste

Reduce packaging/waste
Reduce weight/bulk (energy)

Essential Guidance

- PLM is the essential tool necessary for **delivering successful products to market.**

- PLM sits at the heart of **enterprise integration and supplier collaboration,** providing a common view of development status for product requirements, cost, time to market, and quality.

- Cloud PLM is an **essential deployment model** that enables agile development practices and resilience to disruptions.

- Each manufacturer must evaluate **key business challenges and desired business outcomes** that are related to, or influenced by, product development and R&D.

- **Evaluate existing processes and bottlenecks** and prioritize the appropriate PLM use cases for your organization.

- **Compare your organization** to best-in-class manufacturers and define a PLM strategy that delivers similar outcomes.

- **Cloud PLM provides flexibility,** allowing manufactures to incrementally improve the workflows and business processes, and expand capabilities with each success.

Appendix: Supplemental Data

The tables in this appendix provide an accessible version of the data for the complex figures in this document. Click "Return to original figure" below the tables to get back to the original data figure.

SUPPLEMENTAL DATA FROM PAGE 9

What key performance indicators or metrics does your organization prioritize to determine new product success?

(Percentage of respondents, rank 1 to 5)

	Fewer than 100 employees	100–999 employees	More than 1,000 employees
Product time to market (against target)	53%	50%	39%
Product change requests	29%	38%	46%
Product lifetime value (options/upgrades)	29%	50%	47%
Product features (against requirements)	51%	50%	48%
Product cost (against budget)	71%	54%	50%
Product sales volume/market share	50%	49%	52%
Customer satisfaction	56%	61%	55%
Product quality (against target)	58%	54%	61%

Notes: Multiple dichotomous table; total will not sum to 100%. Not all responses included.

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Appendix: Supplemental Data (continued)

SUPPLEMENTAL DATA FROM PAGE 10

Which of the following initiatives is a near-term priority for transforming your organization's PLM success?

(Percentage of respondents)

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Improve design for manufacturability/ serviceability	42%	36%	36%
Connect PLM with manufacturing and supply chain (data/processes)	34%	39%	36%
Improve product customization/ personalization/ configuration	32%	35%	38%

Notes: Multiple dichotomous table; total will not sum to 100%. Not all responses included.

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SUPPLEMENTAL DATA FROM PAGE 12

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(Percentage of respondents)

	Top 20%	Middle 50%	Bottom 30%
Product quality	48%	46%	42%
Supply chain logistics	45%	34%	31%
Product design	45%	36%	41%
Manufacturing quality	45%	46%	35%
Product performance (sales, margin)	40%	33%	30%
Product costing	36%	36%	30%

Notes: Multiple dichotomous table; total will not sum to 100%. Not all responses included.

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About the IDC Analyst

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John Snow is Research Director for Product Innovation Strategies, part of IDC's Future of Industry Ecosystems practice. John's research includes product design, simulation, and innovation, with specific focus on strategies and technology that improve cost, time, and quality of new product development and introduction.

More about John Snow

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