eBook:
Challenges in PLM for Enterprise Organizations

Gatepoint Research

aras corp®

PLM Benchmark Report
Challenges in PLM for Enterprise Organizations
Gatepoint Research

Table of Contents

Executive Summary

Product lifecycle management (PLM) is a core requirement for modern product development, particularly as organizations face increasing product complexity and shorter product lifecycles.

PLM is also the key integration point for advanced product development technology such as application lifecycle management (ALM) and Internet of Things (IoT) data, and enables traceability required for Digital Thread and Digital Twin.

An organization's ability to innovate and pursue Digital Transformation is therefore significantly dictated by the level of PLM functionality and maturity across the organization.
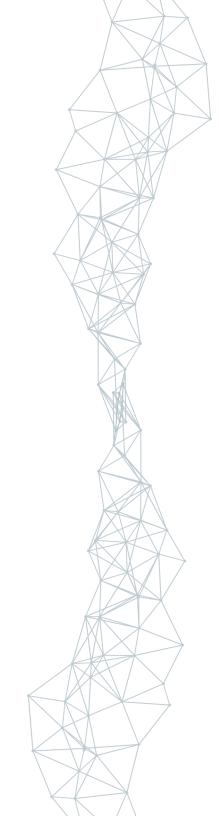
PLM Functionality **+** **PLM Maturity** **=** **Product Innovation**

Insight into the Current State of Enterprise PLM

The PLM Benchmark Survey for Enterprise Organizations reveals implications for product innovation and Digital Transformation. Importantly, the report suggests key actions to maximize PLM's benefits across the organization. Findings from 300 respondents suggest:

The Disconnect Between PLM's Vision and Implementation

Significant disconnect between current PLM implementations, PLM's original tenets/promise, and the value derived by different domains.

Lack of PLM-readiness for Product Innovation and Digital Transformation

Organizations are ill-prepared for product innovation and Digital Transformation based on their current PLM maturity, yet they do not have plans to update.
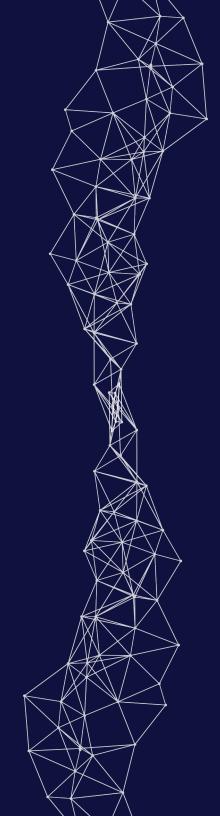
Actions for Complex Product Development and Innovation

Organizations should prepare for complexity and enable new capability such as Digital Twin and Digital Thread by maximizing their product development processes and extending data value downstream.

Finding #1:
The Disconnect Between PLM's Vision and Implementation

Finding #1:

The Disconnect Between PLM's Vision and Implementation

At its core, PLM was conceived to be an enterprise-wide product information backbone that connects people, data processes, and business systems to manage the product lifecycle from inception to engineering to manufacturing service and disposal.

Survey respondents cited key characteristics of a PLM system to be flexibility, technology that is complementary to their business processes, and ease of implementation. Specific domain uses of PLM include systems engineering, product management, product design, manufacturing planning, and product data management.

Shortcomings of PLM in Practice

Underutilization of PLM across the Enterprise

Rise of the PLM Underground

Shortcomings of PLM in Practice

In summary, a snapshot of current PLM implementations reveals 3+ years for implementation that results in only **37% satisfaction** with limited domain use and functional use.

Organizations using PLM for systems engineering *This should be a core strength of PLM*	**19%**
Organizations using PLM for MCAD/ECAD data	**31%**
Organizations using PLM for configuration management	**42%**
Organizations using PLM to collaborate across functions	**51%**

Why are organizations falling short?

Current PLM systems are not used fully for document management, bill of materials, and global product development

Underutilization of PLM Across the Enterprise

Organizations are greatly underutilizing PLM's capability. Initially, some usage numbers may be misleading when considering PLM's vision to provide enterprise-wide data sharing and workflow.

For example. numbers such as 66% for document management and 58% for BOM do not approach the vast majority e.g., 95% of product development that should reside in – or run through - the PLM platform.

Only 50% of respondents also report product development infor- mation residing in PLM, which suggests mainly CAD data, rather than broader product information from a range of design disciples and domains.

Current PLM usage also suggests underutilization by functional groups

~50% reporting users of 1-100 in contrast to the fact 66% respondents were from F1000 companies. These findings suggest PLM is limited to domain specific use e.g., engineering-only. PLM is critical for other groups e.g., Supply Chain to handle supplier collaboration.

This limited use of PLM is also demonstrated by only 1/3 of respondents who report visibility across the organization.

Overall, the PLM usage reported is extremely low given the types of enterprises (large manufacturers of complex product) that typically invest in PLM.
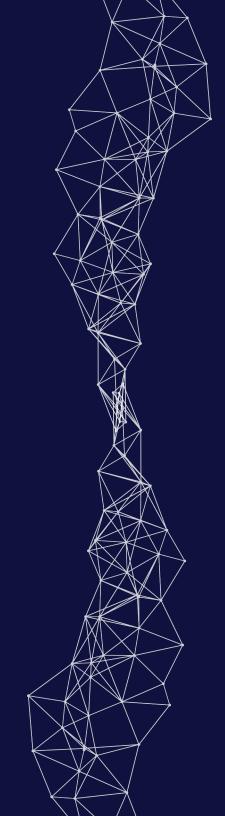
Rise of the PLM Underground

In the absence of system deployment, data suggests that organizations do not fully utilize PLM systems, therefore turning to organizational silos or manual methods (email, spreadsheets) to collaborate and share data.

50%

Say different systems are used in different parts of the company

31%

Report MCAD/ ECAD sits in PLM, meaning the rest sits on individual hard drives or non-product development systems.

19%

Only use PLM for Systems Engineering (SE) which becomes a barrier when SE needs to hand off data from SysML to engineers.

PLM

SPREADSHEETS
EXCEL
EMAIL
FOLDERS

Finding #2:

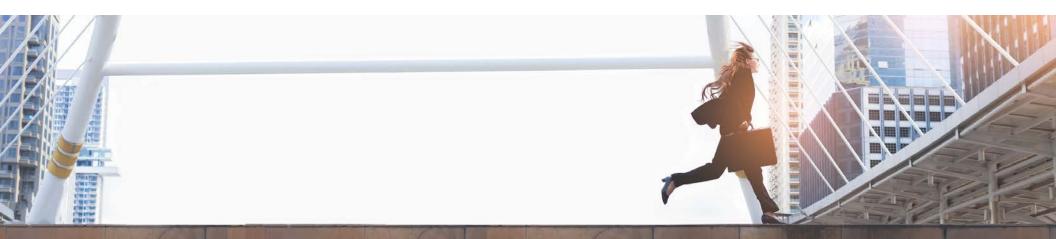## Lack of PLM-readiness for Product Innovation and Digital Transformation

Finding #2:

Lack of PLM-readiness for Product Innovation and Digital Transformation

To innovate and stay competitive, manufacturers must expand and change their product processes. As a foundation, it is critical that teams can collaborate across domains and disciplines, re-use designs, and generate and share product data: they require a PLM system that operates as a product innovation platform to unlock new opportunities such as Digital Twin, connect disparate systems together, and align business processes.

Organizations require agility, but face significant barriers that impact innovation and transformation of processes.
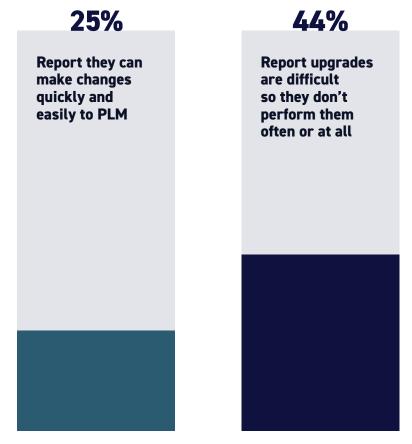
Inability to change

Indifference to change

Inability to Change

Organizations report an average three-year implementation with delayed ROI which puts them significantly behind in current features and capability (Industry analyst firm CIMdata also reported similar findings in their research*). An initial 3-5 year deployment followed by another 3-5 years to upgrade or customize places organizations 8 years behind.

25%

Report they can make changes quickly and easily to PLM

44%

Report upgrades are difficult so they don't perform them often or at all

*CIMdata Aerospace & Defense Industry PLM Value Gap Survey, March 2013

Indifference to Change

Indifference to technology change results in significant impact to the business. Technology change that keeps pace with external requirements is central to innovation. Organizations require the ability to review and potentially change business processes regularly for continuous improvement.

| Plan to expand to more users in the next 12-18 months | 13% |

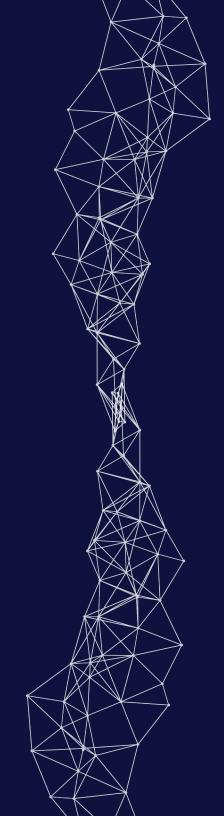| Plan to dedicate resources to improve existing systems | 12% |

| Plan to do nothing | 52% |

Achieving Success

Complex manufacturers require a PLM system/product innovation platform that enables change.

Finding #3:

Actions for Complex Product Development and Innovation

Finding #3:

Actions for Complex Development and Innovation

Maximizing enterprise-wide efficiency

Organization need to maximize their PLM with a platform approach that fortifies their business and technology process by expanding use across the organization. It must connect new and existing product development technologies and overlay the islands of automation.

The results of the survey point to actions to maximize efficiency of complex product development, create enterprise-wide value of engineering data, and position the organization for innovation.

Expand PLM use

Reset internal PLM expectations

Develop a PLM platform

Expand PLM Use

Organizations must look to expand PLM use across the organization, connect new and existing product development technologies, and overlay islands of automation.

Reset Internal PLM Expectations

Business and IT leaders must work to reset internal expectations of PLM to develop an enterprise-wide product innovation platform.

Teams report four critical areas of focus to align capability and expectations:

49% ability to handle complex architecture

45% should work with other PLM or other IT software

47% easy to upgrade

43% deliver predictable costs

Develop a PLM Platform

Organizations need to develop a PLM platform as a business critical system that positions the organization for change and creates a technology foundation for innovation.

Conclusion

Manufacturers seeking to transform their business processes and create new opportunities must take steps to evolve their underlying technology to support future product development process. The current state of PLM reveals significant disconnect between PLM vision and implementation, implications for innovation and digital transformation, and actions to handle new product complexity and connect the enterprise.

Organizations can maximize product development processes with a PLM platform approach that expands uses across the enterprise, enables new product capability (e.g., Digital Twin, IoT), and overlays disparate systems to tie together islands of automation. Beyond the technology solution itself, organizations must re-align teams with PLM's original vision and maximize use across disciplines.
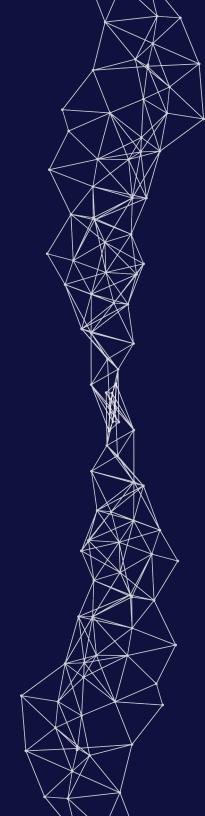
Survey Design

- Between September 2015 and January 2017, Gatepoint Research invited selected manufacturing industry and other executives to participate in a survey themed *Challenges in PLM for Enterprise Organizations*.

  300 executives have participated to date.

- Management levels represented are predominantly engineering and product management senior decision makers: 2% hold the title CxO, 14% are VPs, 57% are Directors, and 24% are Managers.

- Survey participants represent firms from a wide variety of industries

- Responders work for firms with a wide range of revenue levels:

  - 66% work in Fortune 1000 companies with revenues over $1.5 billion;
  - 12% work in Large firms whose revenues are between $500 million and $1.5 billion;
  - 6% work in Mid-Market firms with $250 million to $500 million in revenues;

- 100% of responders participated voluntarily; none were engaged using telemarketing.

About Aras

Aras enables the world's leading manufacturers of complex, connected products to transform their product lifecycle processes and gain a competitive edge. Aras' open, flexible, scalable, and upgradable PLM platform and applications connect users in all disciplines and functions to critical product information and processes across the extended enterprise.

Aras customers include Airbus, BAE Systems, GE, GM, Hitachi, Honda, Kawasaki Heavy Industries, and Microsoft.

Visit www.aras.com and follow us on Twitter @aras_plm and LinkedIn.

aras corp ®