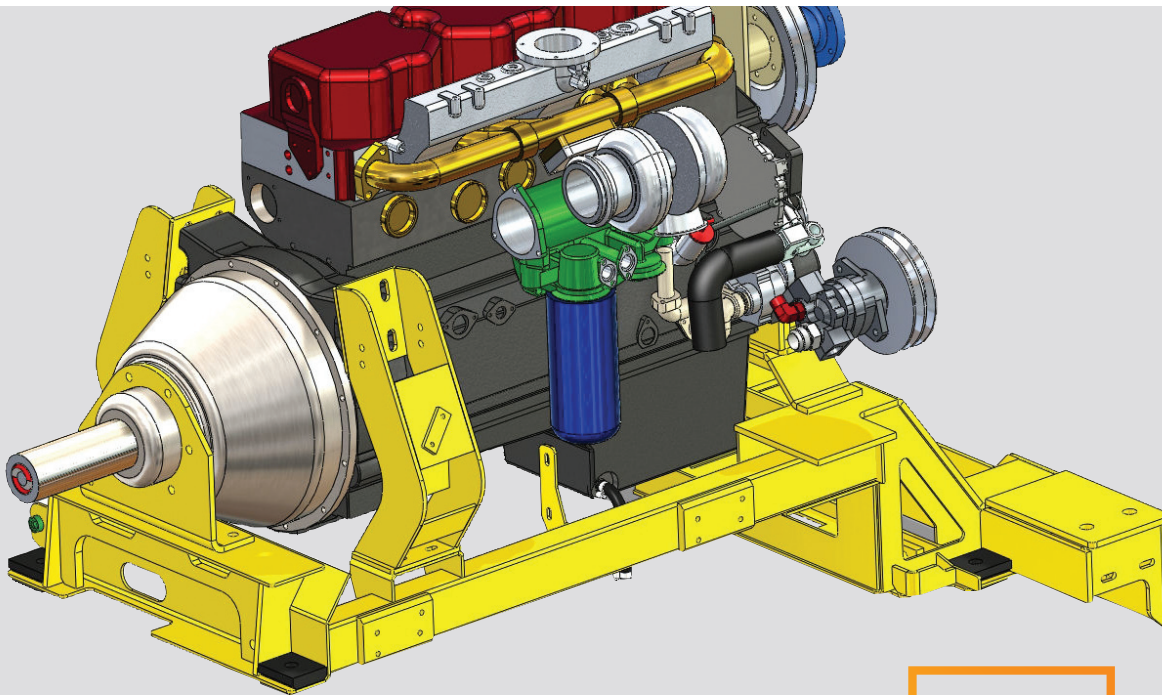


PDM vs. PLM: It All Starts with PDM



SUMMARY

Product data management (PDM) or product lifecycle management (PLM)—which system best fits the needs of your manufacturing organization? Although both solutions rely on a solid PDM foundation, selecting the right one from the many PDM and PLM systems available today can be challenging. While examining the differences between PDM and PLM, consider how each approach can benefit your company.

Introduction

All design engineering, product development, and manufacturing organizations need an automated solution for managing, utilizing, and leveraging 3D CAD design data. Choosing the most suitable PDM or PLM system, however, can be challenging for most manufacturers. Do you need a PDM system or a PLM application? Before making your decision, consider the following questions: What are the major differences between PDM and PLM? Is PDM necessary for your organization? What steps are required before you implement PLM?

Much of the confusion surrounding PDM and PLM stems from a basic misconception about the two technologies. Although many manufacturers believe they have to choose between PDM and PLM, the choice is not entirely an either-or proposition. In fact, all PLM systems use some form of PDM as the underlying data foundation on which they operate. Product development organizations and manufacturing concerns should address a key question: Do we need a full-blown PLM application, or will a PDM system meet our current and future needs?

To answer that question, first examine the primary differences between PDM and PLM systems, and then anticipate how each approach relates to the unique characteristics of your organization. While PDM focuses on managing design data as it relates to product development processes, PLM centers on reengineering product development and manufacturing processes as they relate to product lifecycles. PDM is a design-focused technology that increases efficiencies within existing product development processes by improving the management of product design data. PLM, on the other hand, is a strategic, process-centered approach that leverages PDM and other technologies—along with consulting services—to manage product lifecycles, remake processes, and increase output. As a result, PLM improves productivity across the connected enterprise rather than in a single department or a specific process.

Determining the ideal system not only requires a thorough assessment of the goals, structure, and needs of your product development and manufacturing organizations, but also an in-depth understanding of how PDM is critical to competing successfully in today's global marketplace.

As more and more companies migrate from 2D to 3D CAD systems for their primary product development platform, PDM has become a virtual necessity for manufacturers. While the move to 3D produces many benefits—including reduced cycle time, cost savings, quality improvements, and greater innovation—3D CAD systems also create a new set of data management challenges.

By becoming more productive with a 3D system, engineers are generating greater volumes of data. In addition, 3D files contain a variety of references, associations, and interrelationships that link them to other files, such as parts, drawings, bills of materials (BOMs), multiple configurations, assemblies, NC programming, and documentation. That is why engineers must have a reliable system for managing, preserving, and safeguarding these links. When numerous revisions are the norm, different engineers will work within assemblies, or more than one person will collaborate on a design.

By its very nature, 3D CAD increases the volume and complexity of product design data, and requires a capable PDM application to prevent data corruption, file overwriting, lost file associations, and costly data errors. A PDM system also can help product developers automate workflow processes and boost productivity, resulting in faster product time-to-market, shorter development cycles, reduced development costs, and better product designs. PDM has become a critical technology for all manufacturers using 3D CAD, since some degree of overlap does exist between PDM and PLM capabilities. The decision to take the additional step to a PLM system depends on the specific characteristics of your manufacturing organization. While a PDM system may provide a complete solution for some situations, other requirements may indicate the need for a PLM solution.

In reality, the choice between PDM and PLM is not entirely an either-or proposition. In fact, all PLM systems use some form of PDM as the underlying data foundation on which they operate.

Different manufacturers have different needs

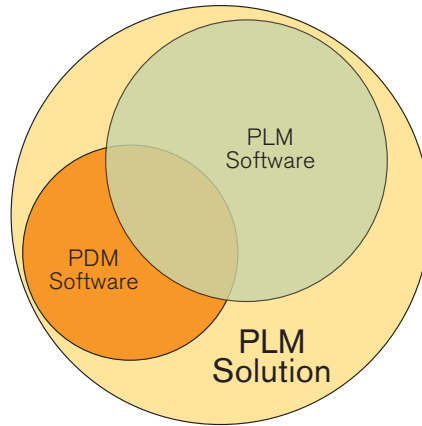
While product development organizations and manufacturers of all sizes benefit from PDM technology, a PLM system is more suited to large, global manufacturing concerns rather than small and midsize manufacturers. In fact, the data management capabilities of PLM are available with a PDM system—at a substantially lower cost and with far less disruption—because PDM is a subset of PLM. Typically, a PLM solution includes PDM software or PDM functionality, as well as a range of other tools and processes, such as ERP (enterprise resource planning), SCM (supply chain management), CRM (customer relationship management), and ALM (application lifecycle management) systems.

The scope and associated costs of a PLM system—and the fact that PDM provides some PLM data management functionality—are the reasons why an assessment of your organization is crucial in determining whether to pursue a PLM strategy. Company size is an important decision factor for PLM. Usually, only large, global corporations have the resources to afford PLM and the breadth of enterprise to justify it.

When considering the requirements for PLM, you should take into account the amount of gross revenues and the number of employees, CAD users, and non-CAD users who need access to product design data. All these factors will impact the total cost, planning requirements, implementation time, IT infrastructure needs, degree of customization, and maintenance required to support a PLM installation.

Furthermore, you should assess whether your company is effectively leveraging product design data to automate development processes, and if potential exists for improving future efficiency. If you find that your company is not efficiently managing product design data, PDM might be a more practical first step before fully committing to a PLM application.

To determine if the potential benefits of PLM outweigh the cost, consider these questions: Do you want to maximize efficiencies within existing processes, or are you more open to reengineering your entire enterprise? Do you see any existing opportunities for process reengineering? Is your enterprise large enough to benefit from PLM? Your answers can help you decide whether to begin with PDM tools before making the more sizable and resource-heavy commitment to a PLM system.

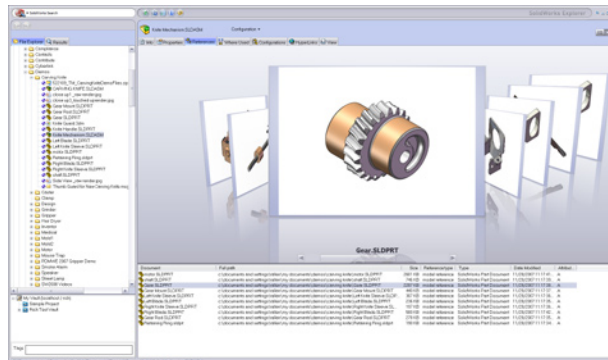


Many of the capabilities of PLM are available with a PDM system—at a substantially lower cost and with far less disruption—because PDM is a subset of PLM.

SINCE A PLM SOLUTION INCLUDES PDM FUNCTIONALITY, IT CAN ADDRESS MOST OF THE DATA MANAGEMENT NEEDS OF SMALL AND MIDSIZE MANUFACTURERS.

PDM: the first step for mainstream manufacturers

Even though some large, global corporations have enjoyed success with PLM implementations, the vast majority of mainstream manufacturers—primarily small and midsize companies—simply cannot afford and are not ready for PLM. These companies will benefit more quickly and substantially from a PDM system.



A SINGLE USER CAN MANAGE PRODUCT DESIGN DATA WITH THE BUILT-IN SOLIDWORKS® EXPLORER.

Given the accelerating migration from 2D to 3D CAD, PDM meets a manufacturer's most pressing design data technology needs. Before you can leverage product design data for PLM purposes, you must be able to find, configure, and manage it—functionality that a PDM system provides.

Implementing a PDM system is a more manageable, affordable step for mainstream manufacturers. By using 3D CAD data in conjunction with a PDM solution, you can improve fundamental product design and engineering processes that support automated manufacturing, while increasing productivity at each stage of your existing development process.

Implementing a PDM system is a more manageable, affordable step for small and midsize mainstream manufacturers. By using 3D CAD data in conjunction with a PDM solution, you can improve fundamental product design and engineering processes that support automated manufacturing.

PDM sets the foundation for future PLM

By making PDM your first step, you will set a solid data foundation. As your company grows, you can build upon it with a PLM system, if needed. Most of the manufacturers that have realized success with PLM are global enterprises with multiple locations, large organizations, and replicable product data. PLM has helped them to optimize processes across markets and countries through the reuse of design data, product components, tooling, logistics, and scheduling. Developing and manufacturing a new car model in another market using the same chassis and tooling from a previous car design is one example of how a company can use a PLM system to leverage its PDM foundation.

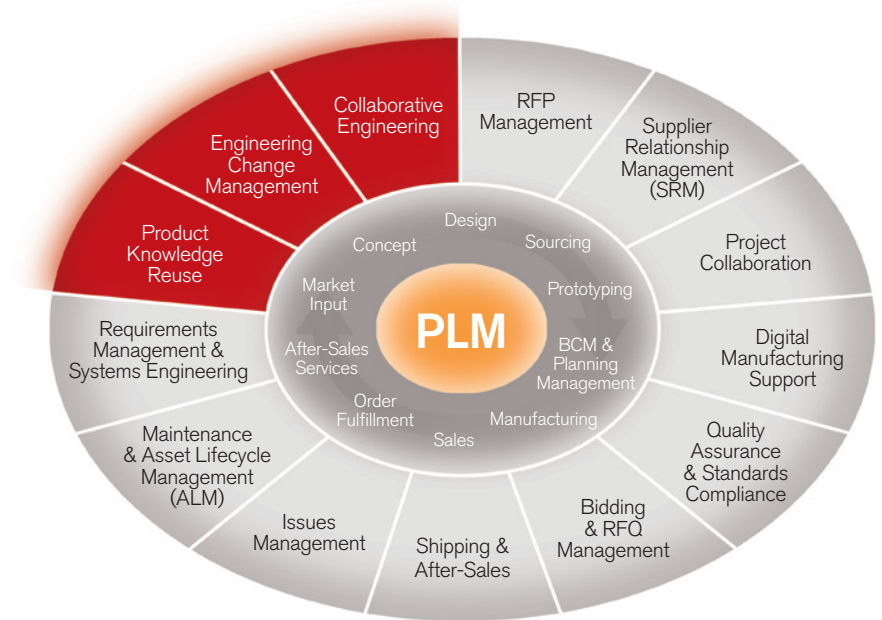
By implementing a PDM system, mainstream manufacturers can realize many PLM system benefits almost immediately, and still have the option to grow into a PLM system later. In addition to providing secure management and control of product design data, PDM systems can manage workflows, streamline operations, drive innovation, increase overall effectiveness, integrate certain systems, and accelerate time-to-market. A PDM solution can also facilitate design reuse. PDM not only enables manufacturers to classify, organize, and group design information for fast search and retrieval, but also to establish an automated process for channeling design data throughout the product development process.

In addition, a PDM system can automatically capture a complete, accurate, and detailed audit trail—from start to finish—for every product, assembly, and component that your product development organization creates. If you decide to adopt a PLM strategy, your company will need a solid PDM foundation to leverage product lifecycle information at the enterprise level.

For many mainstream companies, a full-blown PLM solution is simply beyond their reach, in terms of both the resources required for implementation and the size of the enterprise it can benefit. PLM will have broader application as technology advances, making the process simpler, faster, and more affordable. By implementing a PDM system, you can realize the efficiencies of effective data management today, while laying the groundwork for a potential PLM deployment in the future.

SolidWorks Enterprise PDM

By implementing a PDM system, mainstream manufacturers can realize many PLM system benefits almost immediately, and still have the option to grow into a PLM system.



A PDM SYSTEM REPRESENTS THE FOUNDATION OF A PRODUCT'S "DIGITAL BACKBONE," WHICH A PLM SYSTEM PUTS INTO EFFECT THROUGHOUT THE ENTERPRISE.

Conclusion

As the migration from 2D to 3D CAD systems continues to accelerate, manufacturing organizations need automated solutions for managing, utilizing, and leveraging 3D CAD design data. Unlike flat, distinct 2D data, 3D files contain a variety of references, associations, and interrelationships that link them to other files, such as parts, drawings, bills of materials (BOMs), multiple configurations, assemblies, NC programming, and documentation. In the 3D world, engineers need a system for managing, preserving, and safeguarding these links to prevent data corruption, file overwriting, lost file associations, and costly data errors.

A product data management (PDM) system can help product developers automate workflow processes and boost productivity, resulting in faster product time-to-market, shorter development cycles, reduced development costs, and better product designs. Today's design engineering, product development, and manufacturing organizations face the challenge of determining whether to implement a PDM solution or a full-blown PLM system.

For the vast majority of mainstream manufacturers—primarily small and midsize companies—PDM is the fastest, most affordable, and most realistic choice. A design-focused technology, PDM increases efficiency within existing product development processes by improving the management of product design data.

A full-blown PLM system is more suitable for large, global enterprises with multiple locations, large organizations, and replicable product data. PLM is a strategic, process-focused approach that leverages PDM and other technologies to manage product lifecycles, while improving productivity throughout the connected enterprise. Typically, PLM systems are more expensive, take longer to implement, and require greater levels of consulting services.



Dassault Systèmes SolidWorks Corp.
300 Baker Avenue
Concord, MA 01742 USA
Phone: 1 800 693 9000
Outside the US: +1 978 371 5011
Email: info@solidworks.com

www.solidworks.com

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