
5 WAYS PDM CAN HELP YOU SUCCEED THROUGH DESIGN REUSE

Overview

How often do you find yourself spending valuable time searching for a model or a file? Have you ever had to recreate a model because you could not find the original? Have you ever spent time creating a design only to discover later that one of your colleagues had previously modeled a similar design that would have met your needs? If you are not using an integrated product data management (PDM) system, chances are you can relate to these scenarios.



Take advantage of proven designs and win more business

In today's global economy, wasting your valuable time looking for or recreating designs that already exist not only puts you out, but also puts your company at a competitive disadvantage. Adapting, leveraging, and reusing existing designs can save you time and save your company money. It can also help you bring new products to market faster, improve your company's profitability, and win new business.

Companies that use an integrated PDM system can maximize the effectiveness of design reuse by efficiently addressing the associated challenges. This paper examines the five key benefits of design reuse and explores how SolidWorks® Enterprise PDM software can help you turn design reuse into a winning strategy.

PDM can help you succeed through greater design reuse

FIRST KEY TO SUCCESS—Slash design time

Time is more than money. Getting a new product to market or responding to a project faster than the competition is a critical requirement for success in today's competitive marketplace. Given these deadline pressures, it does not make sense to start every new product design or new proposal from scratch—especially when studies show that the majority of new product designs (as much as 85 percent in some studies) contain intellectual property from prior designs.

It's much faster to adapt existing components or design elements for use in a new design than to start with a blank slate. The essence of design reuse is to leverage existing designs in some way—either by completely reusing the design, which can eliminate design time, or by modifying or updating the design, which takes less time. In addition to reductions in modeling time, design reuse carries the potential for significant time and cost savings in downstream engineering, manufacturing, purchasing (saves time with fewer transactions, vendors, and material acquisition costs), and assembly operations.

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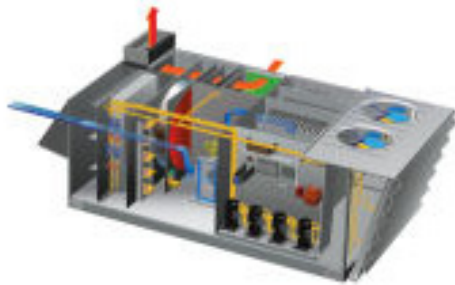
... a case in point

By using SolidWorks Enterprise PDM to support a 40-percent increase in design reuse, offshore oil and gas products manufacturer Oceaneering International, Inc., shortened its design cycles by 40 percent, cut time-to-market in half, and reduced development costs by 30 percent.

SECOND KEY TO SUCCESS—Leverage proven concepts

There is an old saying that if it's not broke, don't fix it. Existing designs carry the advantage of actual market circulation, and have already withstood the test of the consumer. These designs represent proven concepts and are known quantities with established performance histories and warranty return rates. Working from an existing design, a designer can have greater confidence that the design will perform as advertised.

It's less risky from a customer satisfaction and field failure perspective to leverage a validated, proven concept than to go off in a completely new direction. By working from a previous design, a designer can maintain design intent while adding aesthetic improvements. Design reuse can also spark innovative ideas and possible enhancements that a blank slate typically cannot deliver.



... a case in point

Munters Corporation, a leading manufacturer of dehumidification systems, uses SolidWorks Enterprise PDM to access the automated workflows used to develop products in Europe, so it can manufacture those proven systems in the United States. This ability helped the company to reduce design check-in errors by 25 percent.

THIRD KEY TO SUCCESS—Increase quoting speed and accuracy

Winning a competitive bid demands a promptly delivered, accurate quote. Existing designs and proposals typically include accurate estimates about the costs and lead times required in the past. Accessing information on previously used design components and updating that information into proposals can save time and improve accuracy when estimating new projects.

In addition to helping companies turn around accurate proposals on bid projects, design reuse can also facilitate and streamline the quoting process between manufacturers and outside vendors. For example, with an integrated PDM system, purchasing can access models and drawings for quoting purposes without having to take time away from a designer or engineer.

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... a case in point

Forestry equipment manufacturer Tigercat Industries uses SolidWorks Enterprise PDM to streamline its procurement process, giving purchasing personnel access to design data to obtain quotes.

FOURTH KEY TO SUCCESS—Reduce data duplication and SKUs

Design data is a manufacturer's lifeblood. However, when data is mismanaged, disorganized, or unwieldy, it can become a burdensome drag on product development. In most organizations, a healthy percentage of engineering data is either lost or difficult to locate due to the misfiling of files and documents. This can lead to data duplication, an unnecessary growth in the number of stock keeping units (SKUs), and additional data storage costs.

It's more cost-effective to reduce the number of parts in your database. In addition to making it easier for designers to locate and reuse existing components, reducing the number of SKUs or part numbers can reduce costs across the entire organization, because the addition of a single part can add many hours of work and additional costs downstream.



... a case in point

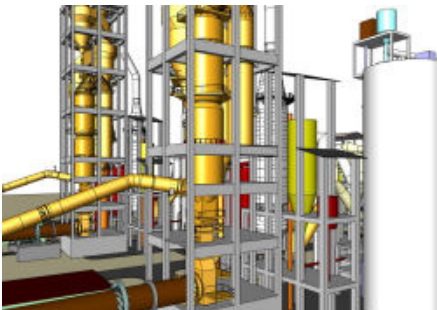
The Martifer Group, a global construction, energy, and biofuels company, reduced the company's data storage expenses by implementing SolidWorks Enterprise PDM.

FIFTH KEY TO SUCCESS—Integrate global resources

For many manufacturers, product development has increasingly become a worldwide effort, with design and engineering resources spanning the globe. While many product development centers once operated independently—each designing and manufacturing products for their own specific markets—more and more companies are taking advantage of their overall design talent by encouraging collaboration on a global scale.

It's much more efficient to leverage existing designs, whether they were created in the next office or on another continent. Although design modifications are often necessary to meet the customer needs and nuances of a particular market, the ability to reuse a design created elsewhere in the organization can save a substantial amount of time and money.

When data is mismanaged, disorganized, or unwieldy, it can become a burdensome drag on product development.



... a case in point

F.L. Smidth & Co. A/S, a global leader in the manufacture and construction of cement plants, integrated its worldwide mechanical design effort by using SolidWorks Enterprise PDM to refine workflows and standardize development processes, reducing the engineering effort by 30 percent in the process.

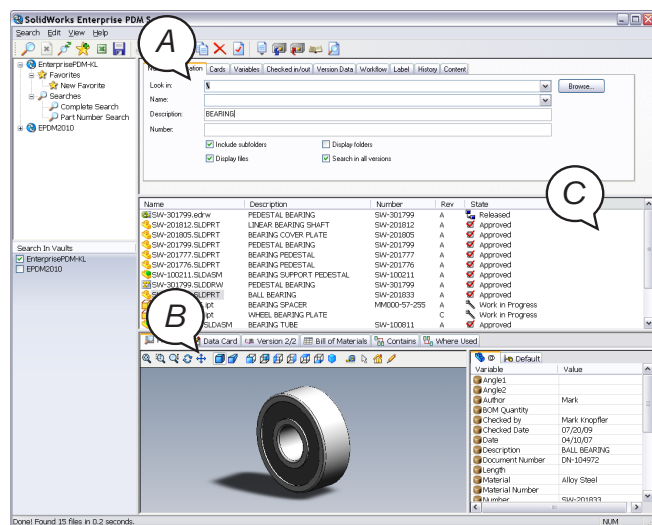
PDM Can Help You Overcome Design Reuse Challenges

Find the right design quickly and easily

To reuse a design, you first have to find it. How can you determine if a design like yours already exists? Where do you look for it? How can you know which design has similar characteristics to your needs and if you have the right revision? How do you account for all of the references, associations, and interrelationships between parts, assemblies, drawings, bills of materials, documentation, and manufacturing information?

If you are counting on part numbers and file names to provide the specificity of information that you require, you might have a long, agonizing search, adding unnecessary overhead to the process. In fact, according to Gartner Research, manual data management costs between 40 to 60 percent of a designer's time—time better spent helping your company succeed.

With an integrated PDM system like SolidWorks Enterprise PDM, you can utilize powerful search capabilities to quickly find the files you need and take advantage of design reuse. Because the system tracks data by design properties rather than project numbers or file names, finding the right file is a snap. For example, locating a 5-inch (127 millimeter) diameter, 1/4-inch (6.35 millimeter) cutting blade that utilizes a 6-hole bolt pattern using file names would be extremely difficult compared to searching on any of those properties using SolidWorks Enterprise PDM.



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With the powerful search capabilities of SolidWorks Enterprise PDM, you can search on design properties and find the file you need in a matter of seconds. All product related information is neatly displayed in a single window eliminating the need to navigate through a complex maze of separate windows.

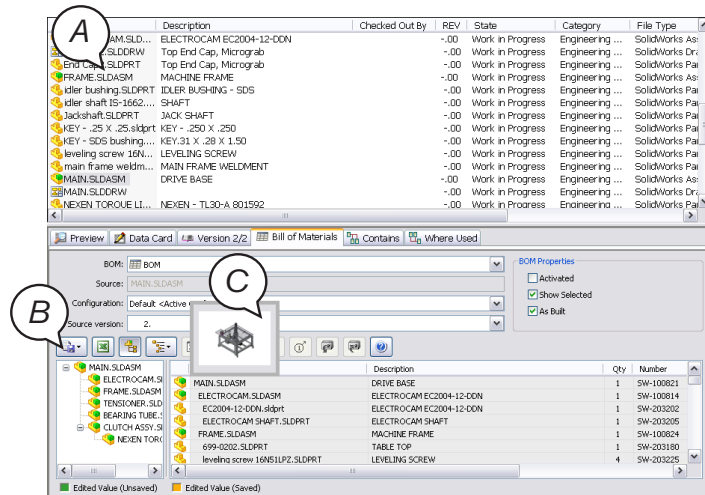
- A Personalize the user interface to meet the needs of individual user departments
- B Graphical preview facilitates quick and easy access to product information
- C Search results displayed front and center allows quick navigation of product data

Manage access to secure data and control revisions

What happens once you find the file that you need? How do you make sure that you don't overwrite a file or work with the wrong revision? Do personnel outside of engineering—such as manufacturing, purchasing, and field service personnel—require access to design data? How can they view the file they need without accidentally corrupting, deleting, or changing a design?

Perhaps the biggest challenge associated with design reuse is securing data to make sure that no one can inadvertently alter, overwrite, or delete it. Maximizing the returns on design reuse demands a guarantee that the data will remain as you found it, for use by someone else.

Using an integrated PDM system like SolidWorks Enterprise PDM, you can rest assured that your data is safe and secure. Because the system allows you to implement tight revision controls, formalize workflows, and administer access rights, you can ensure that only designated personnel can authorize making file alterations or rolling to another revision. Some personnel only require “read” access, while others might not have CAD access but can still access other design documents. Tight revision controls not only safeguard your data, they can open up opportunities for new business with customers that maintain stringent document control requirements.



To make finding the required file even easier, SolidWorks Enterprise PDM employs both thumbnail and detailed 3D viewing capabilities, providing a visual way to find relevant models, drawings, and images.

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- A Familiar Windows® Explorer-like interface provides a fast and easy learning curve
- B Robust data output options to support MRP/ERP systems
- C Graphical previews allow users to easily navigate bills of materials

Collaborate and share data globally while keeping it secure

As design teams grow and become increasingly global, design professionals need to be able to navigate, track, and safeguard digital product design information. You cannot regularly visit a design team member to discuss data management when the colleague's office is located on another continent. Yet, you still need to collaborate and cooperate with overseas divisions, other departments, customers, and external partners, particularly when pursuing a design reuse strategy.

In today's global business environment, geographical barriers have fallen and many manufacturers support and encourage global design collaboration because it's more efficient, boosts productivity, and makes good business sense. While one group may have originated a particular design, another division might be able to save time by reusing the design, or even offer ideas for making it better. Sharing your company's intellectual property with an overseas collaborator demands a high level of data security.

With SolidWorks Enterprise PDM, you can easily manage access and share design data anywhere in the world, enabling easy, effective collaboration. You can replicate portions of design data to different servers or provide secure web access to design data. The ability to make secure, controlled information available to whomever needs it anywhere in the world can be an important competitive advantage, giving your company the flexibility to function as a truly global entity.

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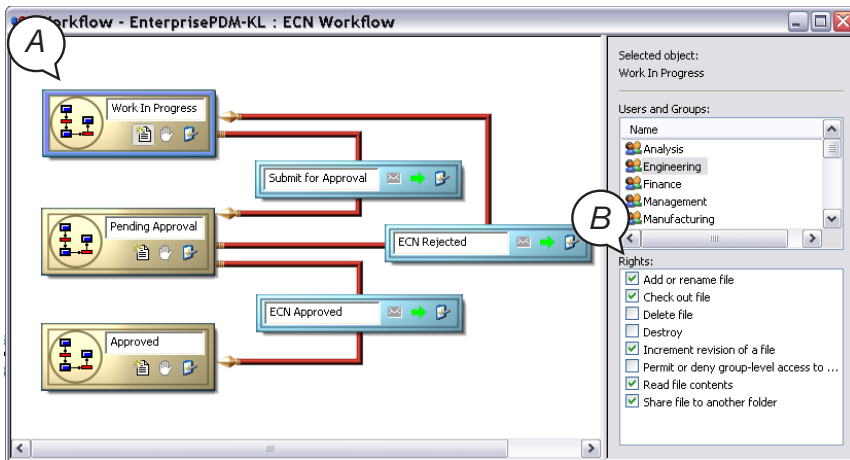
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Streamline change management

When you pursue a design reuse strategy, the one thing you can count on is that there will be many changes to existing designs and components. How can you manage these updates, and make sure that you capture and add them to your internal systems? How will design modifications affect your engineering change order (ECO) process, particularly when you are adapting a design from another division or location that might follow a different process?

Most manufacturers have their own distinct business processes for introducing new designs and making changes to existing designs. In order to maximize your return on a design reuse strategy, you need a means for tracking and managing the increased volume of changes that you can expect.

An effective PDM system like SolidWorks Enterprise PDM can help automate many of these tasks. SolidWorks Enterprise PDM has a built-in engineering change process that can help you standardize your process for reviewing and approving parts by the extended design team. You can also customize your ECO process and automatically revise it if any changes are made to new designs.



With SolidWorks Enterprise PDM, you can easily manage the increased volume of design changes that are part of a design reuse strategy.

- A** *Workflows can be configured to automate your current business processes*
- B** *Secure, managed access over a network or via the Web*

Automating workflows, standardizing modeling practices

To implement design reuse effectively, everyone in your product development organization needs to be on the same page in terms of how designs are modeled, reviewed, approved, tested, and manufactured. Maximizing the efficiency of design reuse requires an understanding of how the part was originally modeled, including how a designer added features and parametric relationships. Establishing modeling best practices provides a common design methodology that everyone can leverage in order to reduce the effort required to execute design reuse.

Likewise, everyone needs to follow your company's designated workflow processes in order to realize the substantial, potential benefits of design reuse. If everyone follows their own individual approach, it is increasingly difficult to duplicate all of the attendant processes, which is the underlying objective of design reuse.

SolidWorks Enterprise PDM ensures that everyone follows your designated processes by providing tools for defining and formalizing your organization's approach to product development. Well-defined processes, combined with the system's built-in notification capabilities, ensure that designs are modeled similarly, the right people review and approve product designs and changes, and the appropriate steps are followed before a design is released for production.

"SolidWorks Enterprise PDM 2010 and SolidWorks 3D CAD software enable the complete configuration of the SolidWorks Toolbox database within SolidWorks Enterprise PDM. Multiple design centers across our organization can now access and re-use data, helping to speed up the design process."

*Matt Shedlov
Project Manager
Boston Scientific*

PDM makes design reuse effective for growing your business

You now know the five key ways that design reuse can help you get products to market faster and win new business. However, as this paper describes, realizing the benefits of design reuse is not without its challenges. In order to leverage design reuse to its fullest potential, you will need an integrated PDM system. The remaining question is: How do you go about choosing the PDM system that makes the most sense for your business?

Here are some important considerations:

Select a PDM system

- ✓ that offers fast and significant return on investment (ROI).
- ✓ that is easy to implement and use.
- ✓ that is easy to administer.
- ✓ that requires the least amount of customization.
- ✓ that can be adapted to your workflows and processes.
- ✓ with minimal training requirements.
- ✓ that does not require significant hardware acquisitions.
- ✓ with minimal needs for IT support.
- ✓ with an open architecture that can integrate with existing systems, such as material resource planning (MRP), enterprise resource planning (ERP), and other business systems.

To learn more about how SolidWorks Enterprise PDM can make design reuse work for you, visit www.solidworks.com or call 1 800 693 9000.

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