

PTC & the Modern Product Data Management System

Manage, Share and Review Your Product Data

This eBook introduces you to PTC's Product Data Management solutions – enabling engineering teams to better Manage, Share and Review their product data with flexible deployment options best suited to their needs.

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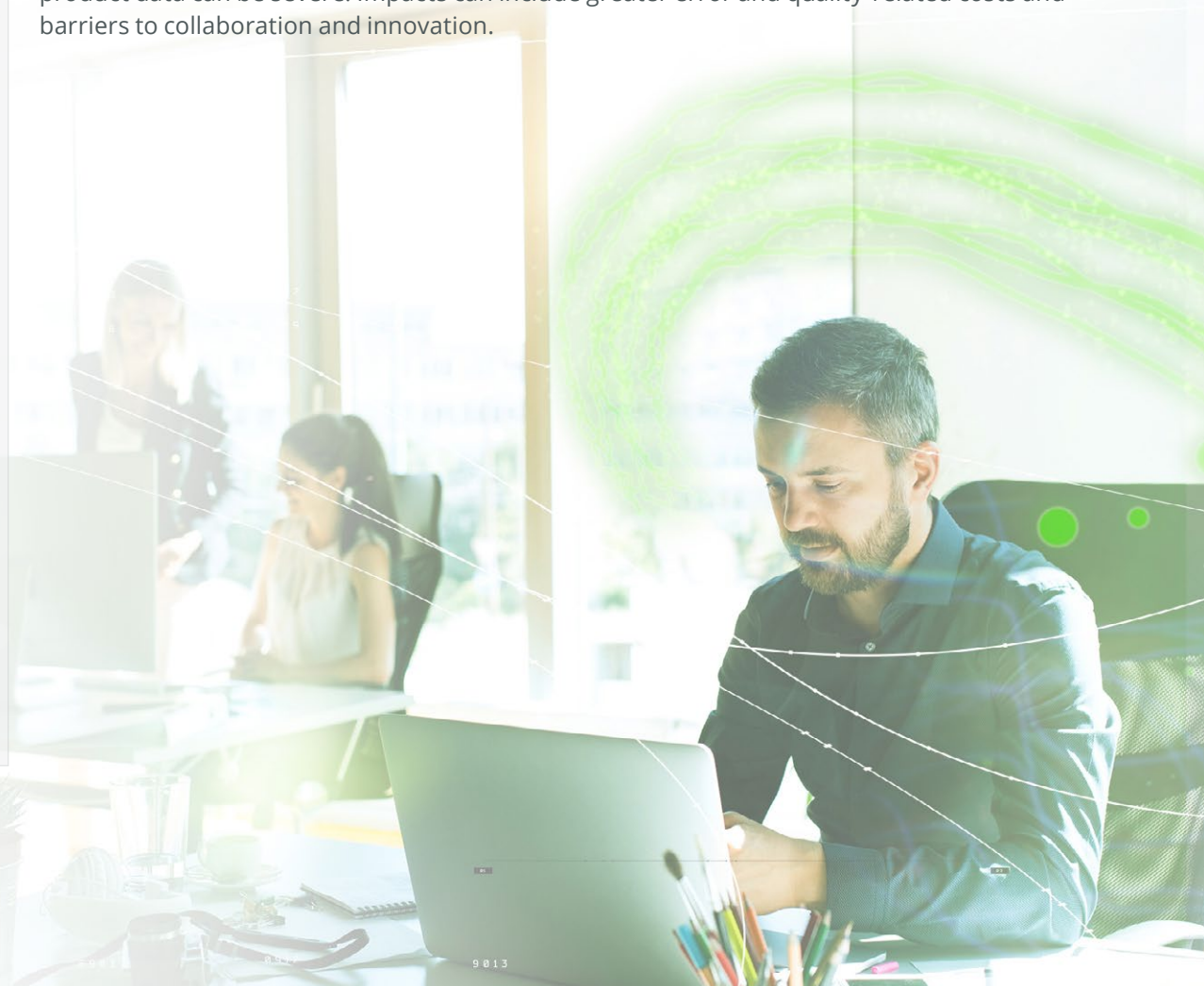
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Introduction

Within today's highly competitive, geographically dispersed design and manufacturing environments, effectively managing product content has never been more important. Yet, product designers run into a series of challenges that make this process hard to handle. In fact, engineers in organizations without a Product Data Management (PDM) initiative spend 25% more time on nonproductive data management tasks. In addition to a loss in engineering productivity, the consequences of using outdated data or ineffectively managing CAD and product data can be severe. Impacts can include greater error and quality-related costs and barriers to collaboration and innovation.



01. MANAGE

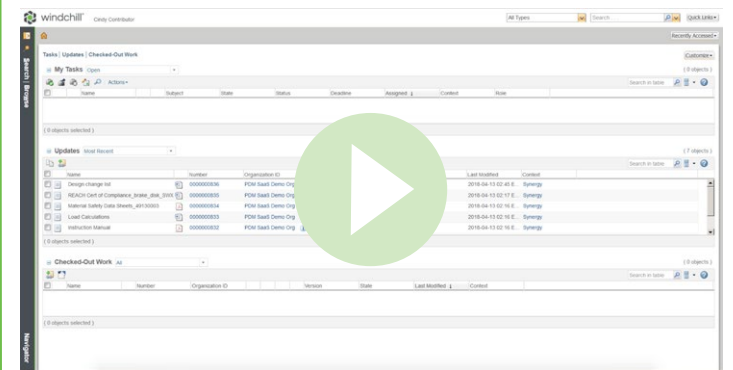
Storing and Searching for Product Information

Locating product-related information is consistently among the most pressing concerns for engineers. Many organizations are hampered in their search efforts by deficiencies in their existing systems. Sharing files on network drives does not allow for meaningful search and reuse of existing content. This difficulty is compounded as the complexity and quantity of products increases.

PTC's PDM solutions are the central repository for all product information such as CAD models, documents, technical illustrations, calculations, and requirement specifications. The entire history and associated relationships for each piece of content is recorded. This makes it possible for users to easily answer questions such as "Who accessed this content?", "What changes were made?", and "Which products use a particular component".

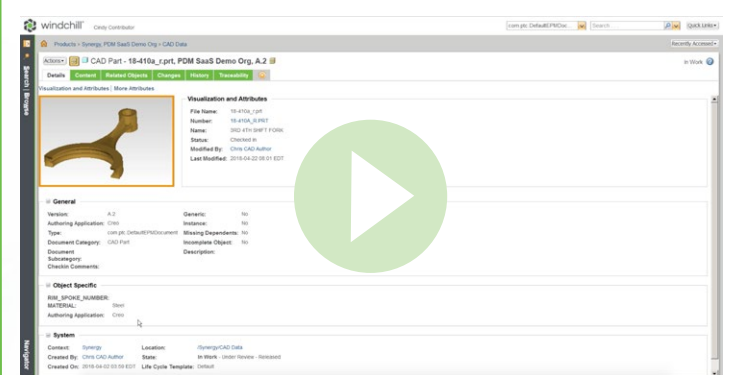
To quickly find content, the Windchill user interface provides immediate access to searching and browsing capabilities. This is enabled from a generic toolbar at the top of the main screen to function-specific windows such as the folder listing and the assembly structure tab. Searches can be generic (e.g., *find all products that begin with "101"*) or complex (e.g., *find all released components created by me after a certain date*).

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Central Repository: Windchill provides a single view to all product data

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Embedded, Faceted Search: Windchill let's you find what you need, when you need it



Although most organizations attempt to standardize on one specific CAD modeling tool, many are compelled to manage more than one. That's because they work with multiple clients, vendors and partners — each of which may use a different system. PTC's PDM solutions work efficiently with all major MCAD systems so they can be used to store and control access to all CAD information. And, just as with Creo, users can access and leverage data management capabilities (like check in and check out) without leaving their native MCAD environment.

Furthermore, Creo users can leverage [Creo Unite](#) license capabilities to open and check 3D CAD designs from SolidWorks, NX, CATIA V5, Inventor and Creo Elements/Direct into Windchill without needing a seat for these CAD tools on their desktop. Users can then call upon these 3D designs as design scenery in context with other native Creo designs, without needing to import them or use standards file formats like STEP, IGES, etc.

[Definitions]

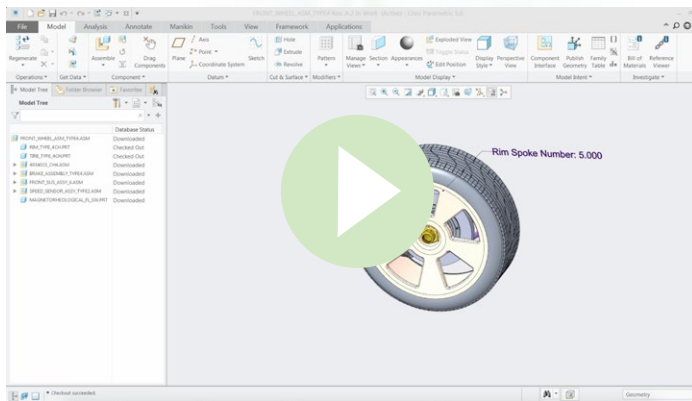
Versions, Revisions and Iterations:

Most content in PTC's PDM solutions are assigned a revision and an iteration. Together, they define the content's version (e.g., if A.1 is the version, then A is the revision and 1 is the iteration).

Configuration Management

Any part stored or managed in PTC's PDM systems can be reused across numerous design assemblies; the original part definition is automatically referenced within other design assembly structures. As such, when users make a change to a part in Windchill, the updated information automatically appears in any design assembly using that part. By finding and reusing existing content, this type of "building block" design saves a great deal of time and enhances overall efficiency. This also prevents anyone from inadvertently generating multiple definitions of the same part — an all-too-common occurrence that can result in serious and costly consequences.

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Control design and versioning with Windchill's Check In and CheckOut

Windchill's configuration management capabilities ensure designers are accessing the correct version of the design. As a design matures over time, version management keeps track of all the changes while maintaining the same part names. For example, if part A is modified, Windchill will define the new item as part A version 2. PTC's PDM systems can keep track of multiple versions at the same time, so users can easily see which part versions were used in the same product over time.

Finally, when working with CAD designs, it is sometimes critical to preserve specific configurations of the design. This includes when the design – or a configuration from a point in time, called a baseline – was last "saved" in the CAD environment. These historical snapshots make it easy to do a "before and after" comparison.

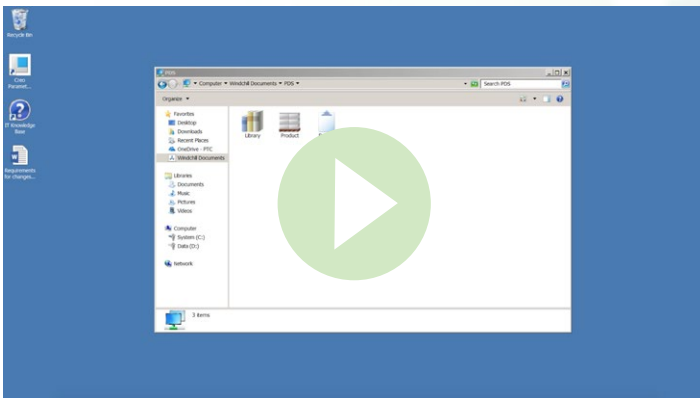
Managing Documents

Organizations accustomed to storing documents on shared network drives often struggle to locate files, determine authorship and manage changes. Using the same functions provided for CAD documents, such as access and version control, check in/check out, Windchill also helps organizations efficiently manage documents such as specifications, requirements, and other product development documents. Managing these documents in the same system as the CAD data provides a single, accurate, source for product development data.

Most document management activities can be done directly within Microsoft Windows or Office applications. Windchill provides familiar drag-and-drop interaction with file folders as if they were local to the desktop

as well as common Windchill functions, such as check-in, check-out, search, edit, and more available within supported Microsoft Office applications. You can browse through product content and folders in Windows the same as if looking at other PC files. When users open a Word document, they are asked if they wish to check out the document. After editing the document, they're asked if the document should be checked back in. If so, all comments and changes are automatically captured. These comments, as well as the attributes and textual content of the document, are indexed for easy search and reuse.

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Desktop Integration: Browse Windchill data through desktop explorer



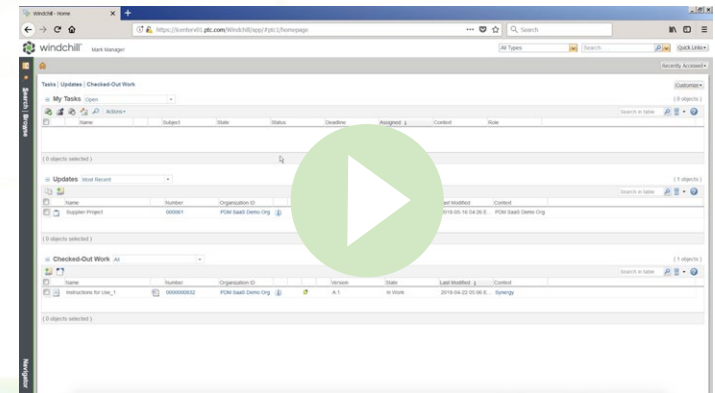
02. SHARE

Controlled and Secure Project Spaces for Design

To foster collaboration in today's geographically dispersed organizations, PTC's PDM solutions provide a centralized location in which all stakeholders can share content like designs and other critical information in secure collaboration spaces called 'Projects'. This extends to collaboration with members of external groups, such as partners, vendors and customers. Furthermore, users can securely control the content each participant sees and accesses in these Projects. For example, a contractor can only see selected subsets of product information. Or bids can be solicited from multiple partners with each partner only able to see their copy of an assembly drawing and/or 3D CAD design in their respective Projects. Once the bidding process is complete – and at any time – organizations can easily turn off access to these collaboration spaces.

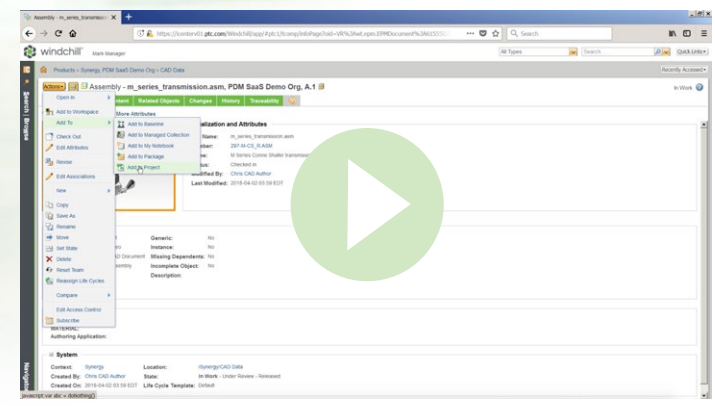
In serving as a collaboration platform, PTC's PDM solutions streamline the exchange of files, large and small. Windchill can manage straightforward collaboration activities as well as more involved situations. For example, allowing multiple colleagues at different locations to collectively iterate a design specification, or enabling separate teams to jointly investigate multiple design options.

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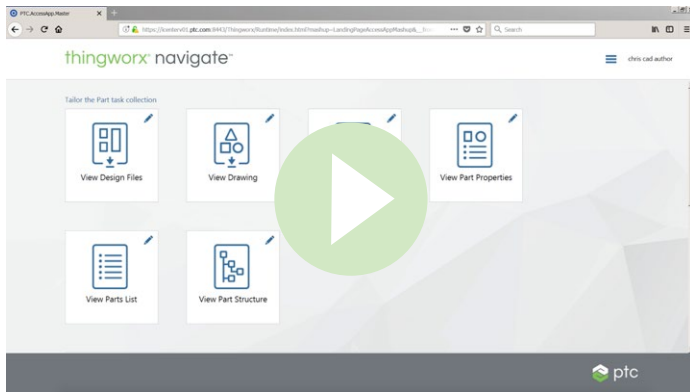
Add suppliers to design projects and control their access

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Send selected data to design projects and seamlessly work with your suppliers

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ThingWorx Navigate provides fast, role-based access to what you need, when you need it

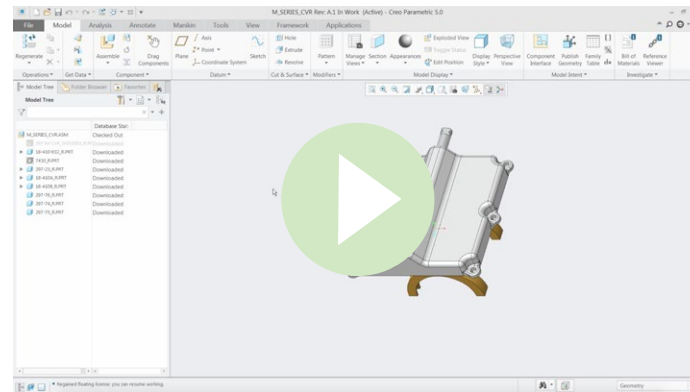
Role-based, Self-service Access to Product Data

PTC's PDM solutions include [ThingWorx Navigate](#) role- or task-based suite of applications. The apps were designed to be easy to use and expand product data access to more stakeholders throughout the organization – such as manufacturing, purchasing and operations – as well as to the extended partner and customer ecosystem. The simple interface provides a modern, easy-to-navigate user experience without the need for extensive training.

ThingWorx Navigate's underlying architecture directly connects stakeholders to the data they need to make informed decisions based on validated and up-to-date information. These role-based apps enable casual users to access and work with information managed by Windchill and other enterprise systems in a cost-effective and easy-to-configure manner.

Adding to their simple nature, ThingWorx Navigate apps are mobile-ready. Users can access them via their device of choice (i.e., smartphone, tablet, or PC) and preferred platform (Microsoft, iOS, OSX, and Android) with adaptive layouts based on device resolution, screen size, and aspect ratio. The apps also support 3D visualization across devices and browsers.

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Windchill lets you know if a part has changed while you were working with it

Concurrent Design

For an organization to become fully agile, a seamless flow of information must exist between the teams designing and developing products. That means even dispersed engineering teams must easily access the most up-to-date product information in a timely fashion to plan, validate and optimize ahead of production...even as data changes.

Engineering teams must work concurrently on designs without overwriting each other's changes. While this may be possible when working off of shared drives, for example, it becomes challenging and costly when incorrect or out-of-date product information is shared within or outside of engineering. PTC's PDM solutions offer automated notifications within the engineering CAD environment to alert engineers to changes being made by their peers. They can then choose to accept (or reject) the changes and incorporate them into their designs without disruption or delay to the development process.

Windchill and ThingWorx Navigate apps support this process so that changes are captured in real time and across multiple assemblies and various engineering teams. Scalable, configurable traceability throughout the product lifecycle is at the core of Windchill – ensuring better visibility, and faster and more accurate response time to design changes.

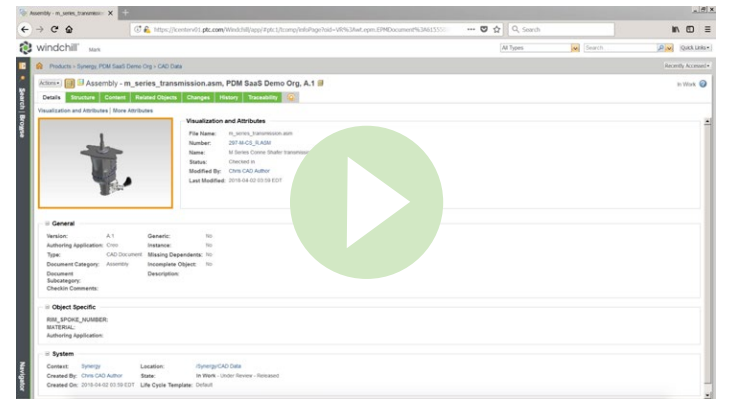
03. REVIEW

The Simplified Approval and Release Process

Many organizations lack processes for effectively managing change. Difficulties arise when changes are “managed” on an ad-hoc, haphazard basis. In fact, being accustomed to informal practices, some organizations may even resist the idea of clearly defining a change approval or promotion process — even though such processes are critical to maximizing success.

PTC’s PDM solutions enable organizations to automatically manage simple promotion and approval processes leveraging industry-standard workflows that build upon the CAD management and document management capabilities. It is ideally suited for today’s complex manufacturing environment — one in which stakeholders tasked with approval responsibilities are often scattered around the globe. PTC’s PDM solutions ensure every required change approval happens. It also provides a complete audit trail of the entire process.

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Windchill controls the release process -- only duly reviewed and approved items are released

[Def-in-i-tions]

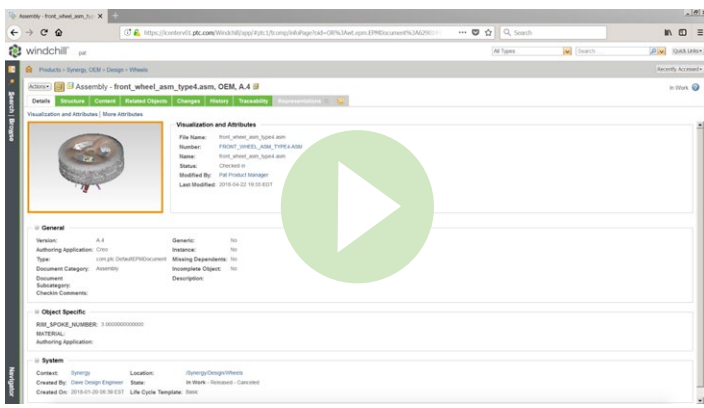
Workflow:

Workflow defines the steps involved in completing a task; from origination to completion.

Promotion Process:

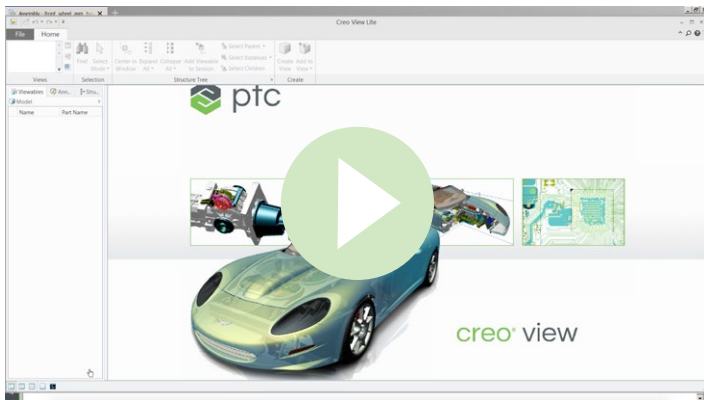
A series of review and approval steps that occur before a CAD document, part or document moves from one lifecycle state to another (e.g., work-in-progress to approved)

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Create and save design notes and annotations that others can review

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Open design notes and annotations that others have saved

Visually Interrogate Product Designs

Many people inside and outside a company need to review product designs but don't have the necessary CAD tool(s) installed on their computer to do so. PTC's PDM solutions include [Creo View Lite](#), PTC's visualization tool, that automatically generates accurate, lightweight, viewables of CAD data. With its compact, yet accurate 3D viewable format, Creo View Lite makes it possible for any user to quickly access and interrogate a product model – including adding comments

(or markups) and taking measurements – without disturbing the original design file. Users can also view many other types of drawings, images and documents using Creo View Lite. This, combined with ThingWorx Navigate, allows non-engineers to easily participate in the review process. The result? Greater efficiency for engineers, who must no longer take time to search or locate product data for non-CAD users, with fewer errors and more timely, accurate reviews.



PDM in the PTC Cloud

All the benefits of PDM with greater confidence and less risk:

- Dedicated SaaS instance
- PTC-owned updates/upgrades
- Guaranteed application uptime and performance
- Industry-standard security and risk reduction

Flexible PDM Deployment Options

Windchill offers a variety of deployment options when it comes to PDM to best meet the varying needs of organizations.

Software as a Service (SaaS):

For companies that want software architected and delivered by PTC for application, infrastructure, and services in a secure, dedicated cloud environment. PTC Cloud delivery includes deployment, operations, support, monitoring, application upgrades, system updates, backups, and disaster recovery.

Managed Service:

For companies that want their PDM solution deployed and managed by PTC in a secure cloud environment, PTC Cloud delivery includes deployment, operations, support, monitoring, backups, and disaster recovery.

On Premise:

For companies managing their own systems, PTC offers the flexibility of subscription pricing for traditional on-premise deployments.



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J11334-PDM-EN-0512