

ORACLE

GUIDE

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Product Lifecycle Management



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Oracle Cloud PLM helps align design, planning, manufacturing, and service processes to provide the foundation for business transformation.

1. Product Lifecycle Management (PLM) for the innovation battleground

Innovation has become the new battleground for today's top companies. But finding great ideas, choosing which to invest in, getting them to market quickly and optimizing them over time is far from easy. Most companies can't tell you whether or not their product functions are delivering a proper return on investment. Lacking this visibility, how can you strategically invest in new product development without being concerned about stifling top-line revenue growth?

As we continue moving towards an "anything-as-a service" economy that delivers on customer expectations, a big part of revenue hinges on not only your products' success, but also the success of its embedded software. Managing these product and service lineups require you to have a holistic and connected view from innovation throughout your supply chain. As a result, many companies are quickly discovering that their old PLM systems are making it even more challenging to keep pace and are turning to cloud-based PLM software that's ready to help them build a resilient global value chain that's more adaptable and responsive.

“Because manufacturers can continuously monitor products in use, they can update their products, patch problems, and rethink functionality—all of which improves customer satisfaction. The intelligence from smart, connected products can also inform future product features and new product development. We are all familiar with automatic app updates on our phones, giving us access to new features or fixing problems over the air. Smart, connected products can update themselves in the same way.”

Shreenivasa Chakravarti,
Global Head, Manufacturing Innovation and Transformation,
Tata Consultancy Services



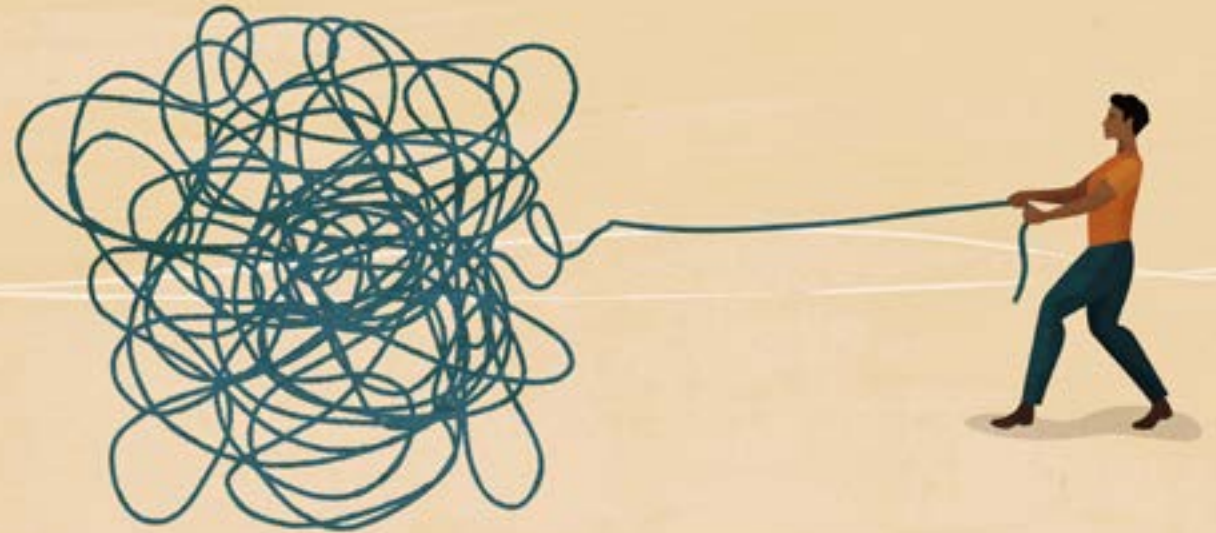
2. Where legacy systems fail

The industry has talked about PLM managing the enterprise product record for years. The reality is that legacy PLM systems only create a consolidated product development record, but data still remains fragmented across many siloed applications and throughout product development, manufacturing, maintenance, and quality management. As the speed of innovation accelerates and customers are demanding more fulfilling experiences and personalized products, many companies mistakenly think that they can establish additional manual controls and build heavy customizations on top of their current PLM software to keep up. Attempts at doing this have only led to increasing IT costs and complexity, without tangible business improvements.

The problem is that these legacy systems weren't designed to meet the digital requirements for today's innovation processes—they're engineering-centric, do a poor job of managing the complexities of global product launches, and aren't built to support complete service offerings such as 'products as a service' (PaaS). Because traditional PLM systems require these extensive customizations to meet today's dynamic business requirements, product innovation ends up being confined within the product development team.

But just in the last few years...

Product development has become customer focused, meaning companies need to quickly shift from selling just products to offerings increasingly defined as products, software, or services. The data walls between PLM, Supply Chain, Manufacturing, and customer experience have to dissolve to support the velocity and resilience of new business models and continuous innovation.



Recent product development research by engineering.com shows that when asked about the anticipated benefits of how an integrated cloud PLM solution will affect their businesses, respondents said that 10 out of 11 benefits will result in moderate to revolutionary impact on their product development. Yet as it stand today.

- **Only 32%** of development teams have access at any time to product data across the product lifecycle (engineering.com).
- **54%** of product development teams lack proper tools for tracking data sourced as part of the development process.
- **Only 34%** of product development teams can check their performance against key performance indicators (KPIs) in real time.

3. Drive faster, higher-quality innovation through commercialization

New technologies, products, services, and business models are evolving quickly. Your company's viability depends on how fast you can innovate and commercialize successful, profitable products and services that customers want. But innovation isn't waiting around.

With today's product offerings coming in many flavors, PLM must evolve to become a smart, connected platform that can deliver the velocity needed to support digital transformation and drive faster product launches. The elements of a modern PLM platform are essential for companies who depend on innovations to help them grow. A modern PLM solution unifies processes, allowing for a seamless flow of data from idea capture to design, all the way through manufacturing and service so you can accelerate global product launches and time to market share.

What are the essential elements of a modern PLM?





Innovation management

Faster Innovation

Capture and invest in the right ideas

Profitable innovation, faster

Drive faster, smarter innovation and ensure sustainable growth. Oracle Cloud PLM helps you maintain a profitable innovation pipeline fueled by a steady stream of the highest-value, on-target, and relevant ideas.

Capture ideas from any source

Capture ideas for new products, services, markets, or customer experiences from any source. Evaluate each proposal across a 360-degree perspective of resource needs, assessed value, cost, and constraints.

Manage requirements and concepts

Document, prioritize, and agree on requirements that can be leveraged in developing innovation concepts. Reuse existing items, trace requirements through design, and validate that each has been met to reduce new product introduction risks.

Build agility into innovation portfolios

Balance core, adjacent, and transformational innovation initiatives while aligning your resources, risk mitigation, and budgets. Use best-practice analysis to select an innovation portfolio that achieves your strategic and profitability objectives.



Product development

Accelerate product development

Manage development product record and processes

Rapidly develop and launch products

Gain faster, more efficient product development and launch processes. Bridge traditional, disconnected engineering, R&D, and manufacturing functions by managing an integrated enterprise product record.

Minimize design cost

Gain complete visibility into your product's evolution by monitoring product iterations. Get feedback sooner and avoid costly rework with more effective collaboration internally and with your design partners.

Reduce supply risk

Reduce supply risk and track part preferences for manufacturing throughout each stage of design by maintaining a single view of qualified parts and suppliers across the entire product structure.

Accelerate change management

Effectively manage and model change iterations with a collaborative change management process. Eliminate rework and compress cycle times by configuring defined workflows with the flexibility to make changes if needed.

Enforce product compliance

Enforce product compliance and proactively track changes throughout your product's lifecycle so you can quickly adjust to changing global standards, efficiently manage engineering documentation, and design compliant, finished products.



Quality management

Manage the quality of your products

Drive down the cost of quality

Closed loop

Improve the productivity, quality, and profitability of your processes and products. Drive closed-loop quality processes through design, procurement, inventory, manufacturing, and field service to ensure rapid detection and resolution of quality issues.

Data-driven

Make faster, more-informed decisions and reduce risk with a predictive and connected 360-degree view of product quality across product lifecycle and supply chain processes.

Proactive

Rapidly respond to issues, prevent their reoccurrence, and drive continuous improvement with closed-loop corrective action processes that are tightly integrated with your product development, enterprise change, document management, and inspection processes.

Centralized document management

Manage standard operating procedures and industry regulations with a single source of truth that integrates training, document management, and change control to drive operational consistency, compliance, process improvement, and audit readiness.

Integrated issue management

Drive greater efficiency with consistent controls of your quality processes. Capture, aggregate, and perform root-cause analysis on quality issues raised from sources including the Internet of Things (IoT), field service, incoming inspections and work-in-process inspections.



Product master data management (MDM)

Harmonize product data

Orchestrate launch to hit your targets and capture the best ROI

Product commercialization

Efficiently commercialize new products and services by sharing the right product data required for your sales, marketing, supply chain, and financial processes.

Item mastering

Keep your item master data clean and synchronized across applications, data pools, and partners with a best-practice product information management process and flexible attribution, change control, and native governance capabilities.

Omnichannel commerce

Ensure that complete and consistent product information is published across your sales channels while efficiently sharing trusted product data across SCM, ERP, and order fulfillment systems.

Integrated collaboration for external users

Automate and deliver continuous business rule validations and verification of data to allow global contract manufacturers and suppliers to receive accurate information and authenticate the data they provide—no matter where they're located.

Centralize and consolidate product data

Gain a single platform to centralize and consolidate product data without disrupting ERP and supply chain operations. A modern PLM can help you unify data from the numerous ERP systems that can result from organic growth, mergers, and acquisitions.



Configurator modeling

Model complex products

Optimized user experience

Build better user experiences by guiding your customers to valid product configurations. Use display condition rules and a variety of selection controls to dynamically control how your content is displayed in the user interface.

Templatized design

Quickly create the dynamic runtime user interface that best meets your needs by choosing from predefined user interface templates.

Model behavior simulations

Design, build, and test business logic and model behavior, as well as overall user experience, prior to release. When releasing new versions, you can leverage comprehensive impact analysis and validation checks to ensure quality.

Simplified sales process

Guide your customers to the right products. Simplify the configuration process by adding high level questions and tying the answers directly to one or more options.

The six defining traits of modern PLM cloud applications

1

Integrated and intelligent

Connect design through service processes—from capturing your initial idea through maintaining products and services—all on a single data model for faster decision-making. Modern PLM leverages social monitoring, (IoT), digital twins, artificial intelligence, and quality data to close the data latency and information gaps between the product and the customer.

2

Innovation driven

Empower smarter innovation with the tools needed to streamline, translate, optimize, and execute a balanced and achievable portfolio targeted to deliver winning offerings matched to growth strategies. Tightly link the voice of the customer with the voice of the product into the enterprise product record to enable faster, smarter decisions and traceability.

3

Collaborative

Efficiently view and share information from any device in real time across internal and external teams while developing and managing new products and engineering change requirements. Cloud PLM delivers a flexible user experience that encourages collaboration through social, mobile, AI, and chatbot-enabled applications.

4

Purpose built

Reduce the need to staff an entire IT department for new product introductions and product launches. Uses embedded solutions for configurability and delivers a single source of truth on a common data model across applications, for complete visibility.

5

Continuously improved

With rapid and unpredictable change, Cloud PLM is continuously updated to ensure the latest innovations are always built in without disrupting your business.

6

Secure

Use leading security technologies to implement and manage consistent security policies. Exercise positive controls to ensure that key data assets are formally managed and governed throughout the enterprise.

4. Digital: PLM ties the digital thread and enables digital twins

4a. How modern PLM delivers the digital thread

Technological advancements that enable businesses to respond to change quickly are driving new business models, digital transformation, and Industry 4.0. Modern PLM software provides the core foundation and intersection of critical, cradle-to-grave product lifecycle processes woven with real-time data from technologies such as IoT, AI, and machine learning (ML). Global organizations are leveraging what emerged as a “digital thread” and “digital twins” to change how they design, manufacture, and service products.

The digital thread can be defined as a collaborative, single data platform that ties together all elements of the enterprise and its data to produce a holistic view of a product’s physical and digital journey throughout its lifecycle. The digital thread helps break down the walls created by disparate and siloed systems and reduces the latency and complexities of having to gather information across supply networks and share it at every step of the product value chain, including early product design, operations, manufacturing, service, and end of life. Today’s PLM software provides the digital thread you need to access the right information, delivered to the right people, at the right place and time—breaking down organizational barriers to unlock speed and agility while ensuring the highest product quality.

4b. How modern PLM supports digital twins

Simply put, a digital twin is a digital representation of a physical asset. Digital twins leverage the aggregation of current, historical, and representational data of a product to reflect its real-world use. When a physical object’s data is made available, a digital representation—a digital twin of the same object—can be simulated to model the behavior of the object as it’s designed, built, maintained, or manipulated; creating a virtual profile of the object at every step of a product’s lifecycle.

As data continues to be collected across the product lifecycle—data from customers, factories, IoT sensors, AI, ML, PLM, and operations—it’s woven into the digital thread and the digital twin becomes more accurate. Digital twin technology provides invaluable, real-time updates that enable organizations to identify and analyze a problem in an asset or in the production line, and fix it quickly. Companies that have adopted digital twins gained significant competitive advantage through eliminating unplanned downtime, which reduces cost while improving product quality and customer experience. This is only possible with a modern PLM capabilities.

“Oracle has taken a different approach by rewriting its ERP, PLM, SCM, customer experience (CX), and IoT applications on a unified cloud platform. With this approach, Oracle is providing a single enterprise record that spans all enterprise cloud applications, creating an expansive digital thread that runs through the entire product lifecycle.”

CIMdata,
Leading PLM analyst firm

5. Outcome-driven PLM



Innovate and get to market faster

Accelerate new product introduction by efficiently managing design, requirements, and engineering change orders while enhancing and unifying the enterprise product record across the supply chain and into commercialization.



Accelerate product development

Efficiently develop and manage new products and engineering change requirements while enhancing your product record through item and approved manufacturer list (AML) management, bill of materials (BOM) management, change management, and supplier collaboration.



Simplify requirements management

Ensure your design meets requirements by utilizing powerful guided selling and configuration solutions that enable flexible modeling of configurable, multi-option, and customizable products and services.



Harmonize product data

Establish governance and publish product master data for globalized manufacturing and omnichannel commerce. Seamlessly syndicate data to internal and external applications and marketplaces with a single, multidomain solution, delivering trusted and commercialized product information.



Reduce costs

Free your CapEx and channel your resources toward building new products instead of maintaining and customizing IT systems.



Increase return on investment

Get early visibility into the success or failure of your idea with the ability to shift from failing projects to higher-value opportunities, and gain deep insights to optimize your innovation portfolio.



Ensure customer satisfaction

Close data latency and expectation gaps between the product and the customer, leveraging the voice of the customer, social monitoring, and voice of product, IoT, digital twins, AI, digital assistants, and quality assessment. Configure complex, multi-option, and customizable products and services.



Ensure product compliance

Enforce product compliance and proactively track changes throughout your product's lifecycle so you can quickly adjust to changing global standards, efficiently manage engineering documentation, and design compliant, finished products.



Ensure product quality

Manage closed-loop quality at every step of design through service with built-in, enterprise-ready, closed-loop quality management to define, identify, analyze, and correct quality events and improve the overall effectiveness, safety, and profitability of your products and services.



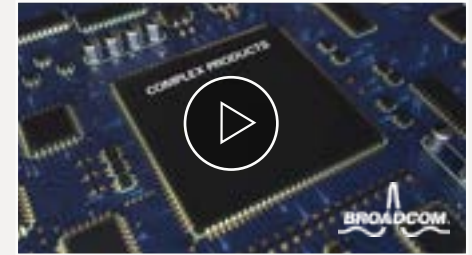
Scale rapidly

Overcome scale constraints imposed by legacy systems and rapidly scale your business processes as they grow to ensure consistently great customer experiences.

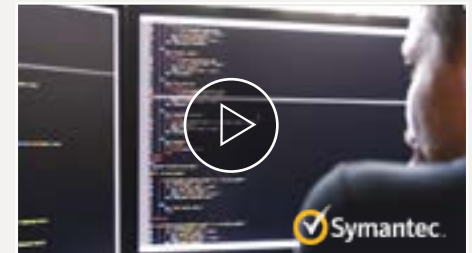
6. Oracle is your partner on the path to PLM success

Oracle Cloud PLM is built and delivered on a Software-as-a-Service (SaaS) model, meaning it's always kept up to date with the latest features, functions, and best practices. Cloud PLM rolls out updates regularly, so you're continuously leveraging the latest innovations. Access to these new capabilities means you get immediate value from built-in, predictive analytics, AI, ML, IoT, and digital assistants that work together to create 3D models and digital twins that turn data into preventive, predictive, proactive, and prescriptive insights.

Oracle Cloud PLM delivers visibility through a true digital thread—aligning design, planning, manufacturing, and service processes—to provide the foundation to support business transformations. When PLM is unified on a common platform across ERP, SCM, supply chain planning, manufacturing, maintenance, IoT, and customer experience, you can drive faster decisions and maximize ROI with higher-quality innovations throughout and after product launch, while remaining resilient when markets change.



Oracle Cloud PLM helps Broadcom manage complex product launches and get to market faster.



Symantec replaced Agile and multiple other systems with Oracle Cloud PLM to simplify their process and reduce go to market time from 3 to 4 weeks to 3 to 5 business days.

For more information

Please visit: oracle.com/scm/product-lifecycle-management

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