

Modernize Product Development with the 3DEXPERIENCE Platform

How Connected Engineering, Virtual Twins and
Industrial AI Accelerate Product Development

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Innovation drives business growth. Yet in modern manufacturing, innovation alone isn't enough. Organizations must innovate continuously and bring products to market faster than ever before. Competitors already use cloud-based collaboration, AI-driven insights and virtual twins to accelerate development, reduce design iterations and respond quickly to shifting market demands. Companies limited by disconnected, on-premises environments risk slower decisions, longer development cycles and missed opportunities.

For many CATIA designers, the design environment is the foundation of daily work. It supports precise modeling, established methods and the product knowledge teams build over time. But design decisions now need to move faster across a much broader development process. Today, CATIA designers are expected to work in context with simulation, systems engineering, manufacturing and collaboration across distributed teams. Expanding that environment with connected data and collaborative processes helps designers contribute earlier, work across disciplines and create more value throughout the product lifecycle.

To achieve sustainable innovation, you need a connected digital environment where every contributor works from trusted product data across the entire lifecycle. This requires collaboration across disciplines, faster decision-making and the ability to apply virtual twins, AI and modern engineering practices from concept through production.

Leading manufacturers are modernizing their CATIA environments to support connected product development. For organizations using CATIA V5, extending design to the **3DEXPERIENCE** platform in the cloud is often the first step. For organizations already using CATIA on the **3DEXPERIENCE** platform, the next opportunity is expanding PLM capabilities across engineering, manufacturing and the extended enterprise. In both cases, the objective is the same: creating a connected engineering environment that improves collaboration, strengthens lifecycle management and establishes a foundation for virtual twins, Industrial AI and continuous innovation.

This e-book explores how organizations using CATIA can modernize at their own pace by extending their existing design environment to the **3DEXPERIENCE** platform on the cloud. It shows how connected data, collaborative engineering and broader access to downstream capabilities can help teams work more effectively, innovate faster and deliver products with greater agility and confidence.

“The platform brings all teams together and means that non-CAD people can see the data too.”

JOHN RUSSELL, SENIOR DESIGN ENGINEER
VERTICAL AEROSPACE

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THE NEW REALITY OF PRODUCT DEVELOPMENT

Manufacturers face growing pressure to develop increasingly complex products while reducing costs and accelerating time-to-market. Organizations using disconnected engineering environments—or those that have yet to fully connect design with simulation, manufacturing and lifecycle management—risk slower innovation as competitors adopt collaborative engineering, Industrial AI and virtual twins.

Maintaining the status quo can seem like the safer choice, especially for organizations with mature CATIA environments. But the competitive landscape has changed. Engineering teams, suppliers and manufacturing organizations must collaborate in real time using trusted product data to respond quickly to customer demands and market opportunities.

To stay competitive, you need more than powerful design tools. You need a connected platform that supports continuous innovation across the entire product development lifecycle.

What this means: the cost of standing still isn't zero. Every delayed decision and duplicated file is the time a competitor uses to move ahead.

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THE ROLE OF PLM

Product Lifecycle Management (PLM) provides a systematic approach to managing a product from inception to end-of-life. Traditionally, PLM has focused on managing product information, engineering changes, configurations and bills of materials to improve quality, productivity and time to market.

As products become more complex and development teams become increasingly distributed, organizations need more than product data management. They need a connected environment that brings together people, processes and trusted product information across the entire product lifecycle.

Cloud Services plays an important role in this evolution by providing the secure, collaborative foundation for modern PLM. By connecting engineering teams on the **3DEXPERIENCE** platform, organizations establish the foundation to progressively adopt broader PLM capabilities, including product data management, engineering change, lifecycle governance, manufacturing collaboration and engineering-to-manufacturing continuity.

This connected foundation enables organizations to expand beyond core engineering processes to support sustainability and compliance-driven engineering while improving end-to-end quality across the product lifecycle.

With this connected foundation in place, organizations can extend beyond design to leverage virtual twins, Industrial AI and intelligent collaboration, transforming PLM from a system that manages product information into a platform that accelerates innovation, improves product quality, supports regulatory compliance and advances sustainability throughout the product development process.

“When you’re doing something as complicated as building a vehicle from the ground up, it’s essential that we have a very mature, stable and durable PLM platform. It must be able to scale with us as we continue to evolve, and that’s exactly what the **3DEXPERIENCE** platform delivers.”

JOHN HARRIS, CO-FOUNDER AND CEO
HARBINGER

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Digitalization has changed product development by connecting people, processes and product information across the enterprise. With teams working from a shared product definition, organizations have improved collaboration, data consistency and engineering efficiency.

But digitalization is only the beginning. You need more than connected data. You need the ability to explore ideas, validate decisions and optimize outcomes before committing to the physical world.

3D UNIV+RSES extends digitalization by bringing together virtual twins, trusted product information, modeling and simulation and Industrial AI in secure, industry-specific collaborative environments. These environments combine virtual and real-world representations, letting you evaluate alternatives, predict outcomes and continuously improve products and processes while keeping a connection between the virtual and physical worlds.

The **3DEXPERIENCE** platform goes beyond traditional product data management by bringing together virtual twins, AI, simulation and trusted knowledge in a secure environment. It enables organizations to model products, processes and operations, explore unlimited what-if scenarios, leverage generative AI and virtual assistants for smarter decision-making and optimize sustainability throughout the product lifecycle. At its core, the platform captures, protects and builds on engineering knowledge and intellectual property, transforming product data into a strategic asset that drives continuous innovation and competitive advantage.



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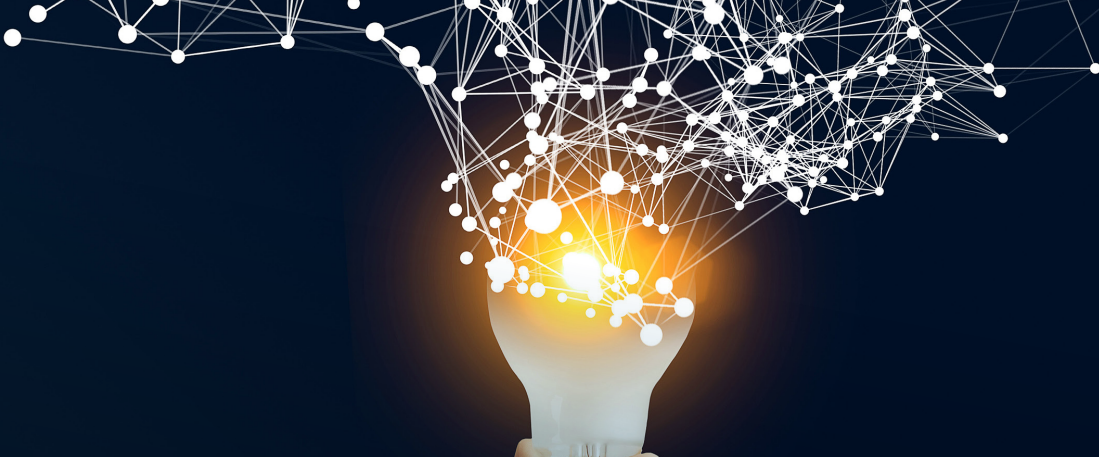
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THE CLOUD PLATFORM THAT POWERS INNOVATION

To realize the full value of digitalization, organizations need a cloud-based platform that connects mechanical, electrical and software engineering across the entire product development process. Instead of relying on disconnected systems and file-based collaboration, a cloud platform provides a single environment where engineering, manufacturing and business teams work from the same trusted information.

The **3DEXPERIENCE** platform provides this foundation. It connects all stakeholders within a single secure environment. Teams collaborate in real-time, share knowledge as products evolve and reuse valuable intellectual property throughout the product lifecycle.

The platform also helps you protect your most valuable asset: your intellectual property. The **3DEXPERIENCE** platform serves as a global IP management platform. Centralized data governance, secure access controls, version management and complete traceability ensure product information reaches the right people at the right time while you maintain control over sensitive engineering data. Moving engineering to the cloud is not simply an infrastructure decision. It establishes the foundation for a broader PLM strategy that connects engineering disciplines, product data, lifecycle

processes and business stakeholders in a single collaborative environment. As organizations mature, they can progressively adopt additional capabilities that improve governance, engineering change, product configuration, cross-functional collaboration and enterprise-wide digital continuity.

For CATIA V5 organizations, the platform provides a progressive path to cloud-based innovation while preserving existing design methods, engineering knowledge and product data.

For organizations using CATIA, **3DEXPERIENCE** offers the chance to expand usage beyond design by integrating simulation, manufacturing, lifecycle management, and AI-enabled collaboration throughout the enterprise.

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CONNECTED ENGINEERING ON THE 3DEXPERIENCE PLATFORM

The **3DEXPERIENCE** platform changes product development by replacing disconnected files and isolated systems with a shared digital environment. Product information lives in a centralized, secure repository where every stakeholder can access the latest design context, regardless of location.

Working from a shared product definition lets teams collaborate simultaneously, reducing errors, minimizing rework and speeding up decisions. Role-based applications give each user the tools they need while keeping complete traceability across the product lifecycle.

By making product knowledge accessible across the organization, you can improve design reuse, shorten development cycles and bring products to market faster. Connected engineering also provides the foundation for consistent product quality throughout the lifecycle. By connecting engineering, manufacturing and quality processes around a shared product definition, organizations improve traceability, reduce errors and ensure every stakeholder works from the latest approved information.

Connected engineering is also the gateway to broader PLM capabilities. Once engineering teams collaborate around a shared product definition, organizations can extend governance, lifecycle processes, supplier collaboration and engineering-to-manufacturing continuity without disrupting existing design workflows.



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Once you have a connected digital foundation, you can apply virtual twins and Industrial AI to transform decision-making.

A virtual twin is a dynamic representation of a product, process or operation. It combines engineering models, simulation results, real-world data and business context. Instead of relying on assumptions or physical prototypes alone, your teams can evaluate design alternatives, validate manufacturing strategies and predict performance before making changes.

Industrial AI strengthens these virtual environments by analyzing trusted product data, identifying patterns, and delivering actionable insights across the product lifecycle. This is where Generative Experiences and the Virtual Companion add value. Generative Experiences proactively recommend design and process options, while the Virtual Companion helps engineers navigate complex data and automate routine tasks.

Together, virtual twins and Industrial AI create an environment to make better decisions across the product lifecycle by improving product quality, supporting sustainability and compliance-driven engineering, and identifying potential issues earlier in development. Teams can evaluate what-if scenarios, optimize designs, validate manufacturing readiness and continuously improve products and processes before they reach production.

This means that decisions that once took weeks and required physical prototypes can now be made virtually, with greater confidence and less risk.

“We manage over 16 million model objects, over 120 million attribute objects and close to 160 million index objects on the 3DEXPERIENCE platform. Our query and execution rate is almost 10 times as efficient.

ENVISION ENERGY

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Every organization has a different modernization journey, but Cloud Services is often the catalyst for broader digital transformation. Extending CATIA to the **3DEXPERIENCE** platform establishes a connected engineering foundation that organizations can build on over time. As adoption grows, teams can progressively expand PLM capabilities across engineering, manufacturing and the extended value network, creating greater digital continuity, stronger governance and AI-driven collaboration. By connecting your engineering environment to secure, cloud-based 3D UNIV+RSES, you can:

- Collaborate in real-time across disciplines and the extended value network
- Apply virtual twins and Industrial AI to make faster, more confident decisions
- Strengthen product quality, governance and regulatory compliance
- Support sustainability objectives throughout the product lifecycle
- Capture and protect engineering knowledge and intellectual property

Whether you begin with a single team or scale across the enterprise, you can adopt new capabilities progressively without disrupting ongoing projects.

The future of product development is not about replacing what already works. It is about expanding its value. By extending CATIA to the **3DEXPERIENCE** platform, organizations can improve collaboration, broaden engineering capabilities and accelerate product development while building on the design practices, data and expertise they already have.

Take the next step. Connect with a Dassault Systèmes expert or [request a demo](#) to see how CATIA can be extended to the **3DEXPERIENCE** platform on the cloud.

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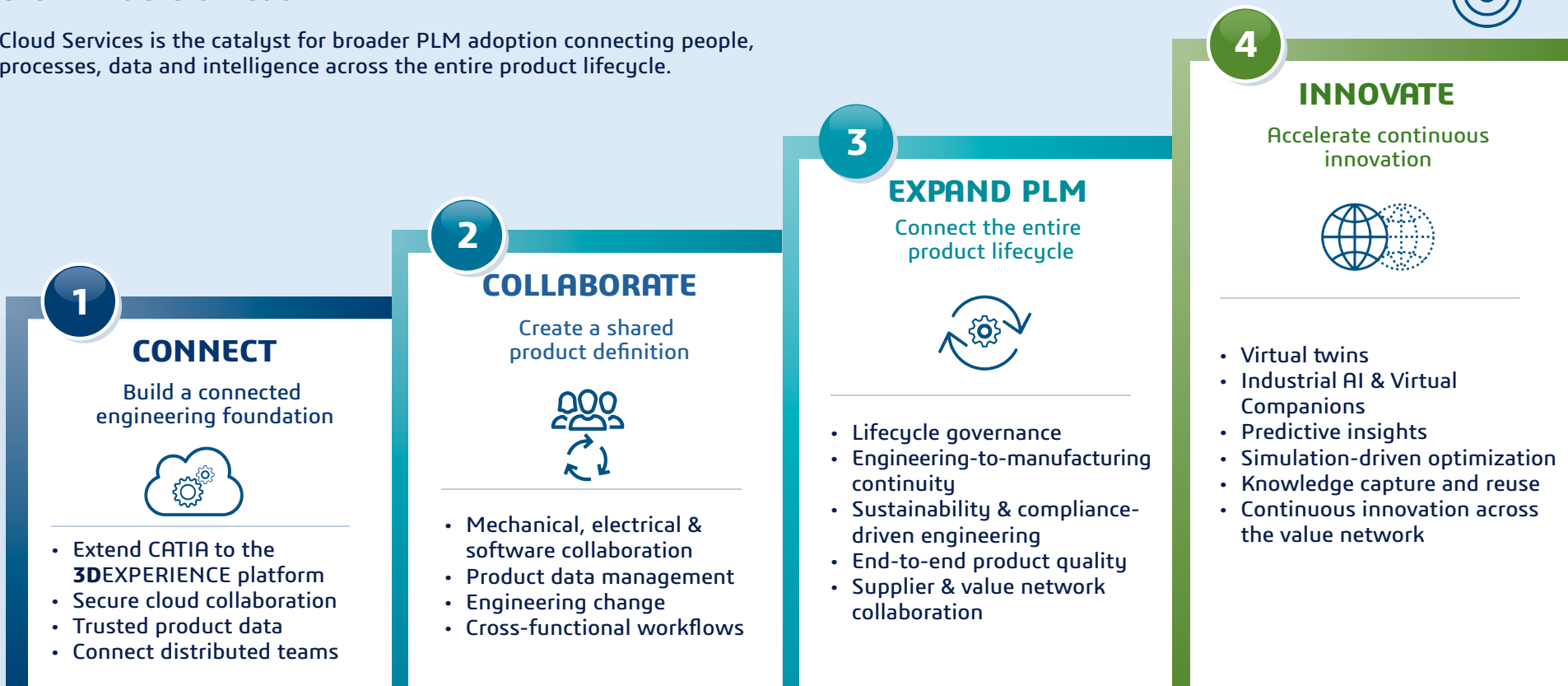
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Modernize Your CATIA Environment

A progressive path to connected product development and PLM transformation

Cloud Services is the catalyst for broader PLM adoption connecting people, processes, data and intelligence across the entire product lifecycle.



One platform. Your pace. Greater value.
Extend your CATIA investment with the 3DEXPERIENCE platform and unlock the full value of PLM, Industrial AI and connected product development

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Build on Your CATIA Investment

Extend proven design capabilities into connected, intelligent product development.

PROGRESSIVE EXPANSION



CAPABILITY	CATIA V5	CATIA on the 3DEXPERIENCE platform
CORE ENGINEERING		
World-class 3D design	✓	✓
Advanced modeling & engineering	✓	✓
Engineering data management	✓*	✓
CONNECTED PRODUCT DEVELOPMENT		
Real-time collaboration	○	✓
Shared product definition	○	✓
Cross-discipline engineering	○	✓
Cloud accessibility	○	✓
Lifecycle governance	○	✓
Engineering-to-manufacturing continuity	○	✓
End-to-end product quality	○	✓
Sustainability & compliance-driven engineering	○	✓
INTELLIGENT INNOVATION		
Virtual twins	○	✓
Industrial AI & Virtual Companions	○	✓
Enterprise knowledge reuse	○	✓



Available

○ Available by extending or expanding your environment

* Typically through existing PDM/PLM solutions

Cloud Services provides a progressive path to expand your CATIA environment without disrupting proven design workflows.

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The future of commercial vehicles is being built today, and the companies leading the transition are rethinking product development from the ground up. Discover how Harbinger leveraged the **3DEXPERIENCE** platform to connect engineering teams, manage product data, accelerate collaboration and bring an innovative battery-electric chassis to market. Learn how a connected product development approach enables manufacturers to innovate faster, improve quality and prepare for the next generation of engineering.

“If we were all working separately in siloed applications, it would be impossible to do anything live. Thanks to the platform, we can see everything and make those informed trade-offs on the spot.

John Harris, CEO & Co-founder, Harbinger

» Learn More



V E R T I C A L

The future of aviation depends on more than breakthrough aircraft. It requires a connected approach to engineering, collaboration and certification from day one. Discover how Vertical Aerospace is using the **3DEXPERIENCE** platform to develop one of the world's most advanced electric aircraft while defining scalable engineering processes, managing complex product data and accelerating innovation across a growing ecosystem of partners and suppliers. Learn how a digital-first approach enables organizations to move faster, reduce risk and prepare for the next generation of aerospace development.

“The **3DEXPERIENCE** platform will help us develop and share requirements, validate the aircraft and manage certification. It's a one-stop shop for Vertical Aerospace and our business partners that allows us to work concurrently wherever we are in the world.

Eric Samson, Head of Engineering, Vertical Aerospace

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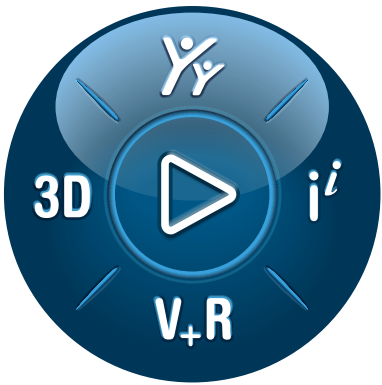
Cloud Services provide the secure foundation while the **3DEXPERIENCE** platform helps you progress from design and product data management to lifecycle governance, quality, sustainability, virtual twins and Industrial AI—improving collaboration and protecting engineering knowledge every step of the way.

[Request a demo](#) to start your journey to connected product development.

Dassault Systèmes is a catalyst for human progress. Since 1981, the company has pioneered virtual worlds to improve real life for consumers, patients and citizens.

With Dassault Systèmes’ **3DEXPERIENCE** platform, 370,000 customers of all sizes, in all industries, can collaborate, imagine and create sustainable innovations that drive meaningful impact.

For more information, visit: www.3Ds.com



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**Virtual Worlds
for Real Life**



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