

# INDUSTRIAL EQUIPMENT

## INNOVATION MADE EASIER FOR INDUSTRIAL EQUIPMENT

PLM and the 3DEXPERIENCE platform



### INTRODUCTION

The Fourth Industrial Revolution is changing the way Industrial Equipment (IE) companies engage with their customers. Emerging technologies in areas such as automation, IoT, artificial intelligence and big data analysis provide opportunities for manufacturers to differentiate themselves and deliver customer-inspired innovations. Along with these opportunities comes the challenge of managing the associated rise in business, product and process complexity. One way to address complexity is to adopt product lifecycle management (PLM) to manage the product development process. While this is a necessary first step, PLM alone is no longer sufficient to satisfy the demands of an increasingly complex business environment.

This white paper discusses the need and role of PLM to address product development challenges and the imperative to think beyond PLM to connect the entire value network to foster innovation and achieve business objectives.

## THE ROLE OF PLM

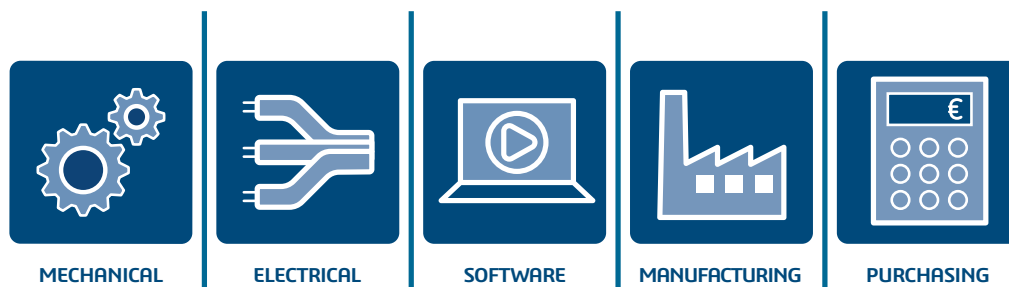
Product lifecycle management is a systematic approach to managing the entire lifecycle of a product from inception, through engineering design and manufacture, to service and end-of-life of manufactured products. PLM comprises an integrated set of software tools for managing critical information generated by product development organizations, marrying this data with associated engineering and business processes. Common PLM processes include design management, engineering change and configuration management, as well as bill of materials management.

These common processes have been the foundation for many companies that have made significant productivity, quality, and time-to-market gains from successful PLM adoption. In today's economy, however, companies need additional capabilities to address rising complexity and to support additional business processes such as portfolio and program management, quality management, customer relationship management, supplier collaboration and manufacturing execution.

PLM has become more than part of an IT infrastructure; it should now be part of an overall strategy for sustainable growth and competitive differentiation. Now, more than ever, it is critical to evaluate your current and future business needs to ensure your PLM strategy aligns with your business strategy.

**Creating sustainable growth and competitive differentiation requires aligning your PLM strategy with your business strategy.**

## CHALLENGES TO THE INNOVATION PROCESS



To keep ahead of the competition and meet increasing customer expectations, manufacturers must continue to innovate. Today's innovations require developing products that include integrated technology through the combination of mechanical, electrical and software. A sustainable innovation process requires early and on-going cross-discipline contributions from quality, costing, manufacturing, and service organizations. Unfortunately, many PLM solutions were initially developed to only support the mechanical design process, and are not well suited to manage and include this wider set of contributors in the product development process. Consequently, these extended disciplines typically maintain their set of product data in their own system and database, creating silos of information and various file formats all representing some aspect of the product under development.

For industrial equipment manufacturers with multiple sites and/or globally dispersed sets of partners and suppliers, even sharing basic design information is challenging at best. When information is stored in silos this creates work duplication, errors and wasted time as stakeholder's search across the enterprise for the latest information.

Centralizing product design around a single, consolidated, and real-time view of the latest product definition fosters collaboration while eliminating the burden of time-consuming, error-prone synchronization of data.

## BEYOND PLM

Industrial Equipment manufacturers must find ways to address today's business challenges that include the need to significantly increase innovation, rapidly address customer demand, and successfully mitigate the rising business, process and product complexities. Consequently, Industrial Equipment companies are increasingly taking advantage of digitalization to improve the way they do business. Digitalization means sharing information through digital data and processes, rather than through the copying of electronic files. Digitalization facilitates exchange between project stakeholders because it does not involve cumbersome, high-friction file exchanges. Instead, every stakeholder can immediately access and leverage the latest data whenever and wherever they need it, increasing collaboration and fostering innovation.

Since product ideas can come from anyone in the value network, a single, up-to-date digital master becomes essential to define the product at any one point in time.

Combining inputs from design, engineering, sales, supply chain, end-customer or after sales creates a "holistic digital product definition" that evolves with every new stakeholder contribution. To encourage and enable these contributions, a solution must be user-friendly and offer instant communications, real-time collaboration and real-time updates of data.

Even though PLM systems today manage product development well, alone they lack the ability to connect the entire value network through digital continuity and to manage a single, holistic representation of the product.

**A single real-time view of product definition fosters collaboration by doing away with information silos.**

## THE NEED FOR AN INNOVATION PLATFORM

To manage the innovation process, more and more companies are adopting a platform business approach to spur innovation and remain competitive as well as support their move to digital. According to Accenture<sup>1</sup>, by 2020, 25% of the world's economy will be digital and in this digital age, companies' success hinges on enabling people to learn, adapt and propose new solutions with the help of technology. Ideas can come from anywhere creating a context for social collaboration.

Through a single holistic system, with apps that connect various stakeholders into that system, an "innovation platform" delivers the critical capabilities necessary to create exceptional products and delightful customer experiences. An "innovation platform" allows stakeholders to leverage the holistic digital product definition, in real-time, to virtually create and validate their experiences.

Platforms provide the structure and flexibility to link stakeholders 24/7/365 from diverse locations. They allow the capture and sharing of knowledge and expertise, while managing intellectual assets and processes throughout a product's lifecycle. Platforms become the corner-stone for digital business transformation that weaves a live digital thread through all the functionalities and organizations involved in a product's lifecycle, from development to commercialization, as well as all upstream and downstream applications.

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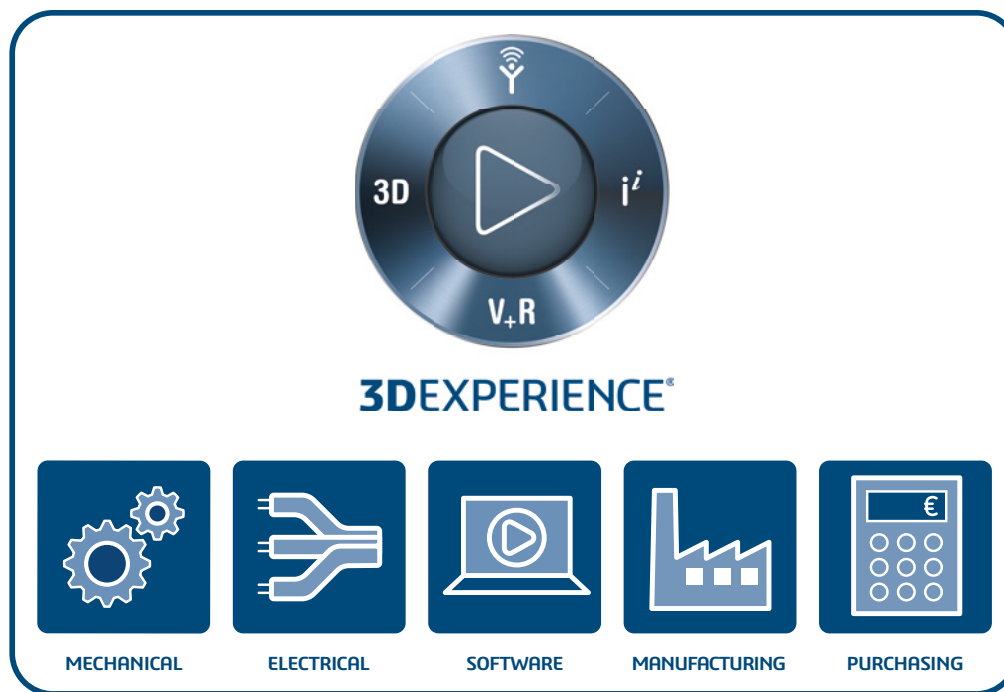
Digitalizing a business is moving from a document-based, "siloe" system to a data-driven environment that fosters innovation and increases productivity across functional, role-based domains. In a file-based world, electronic documents such as PDF files do not automatically update when data changes, and require processes for data synchronization and the creation of new file versions. However, digitally connected applications update in real-time because they are data-driven and always are views on the latest digital product definition. At the core is a virtual representation of the real-world object, allowing those in the value network to explore and contribute to the product definition throughout the development process. The virtual

representation acts as the single source of truth for companies to optimize their innovation process. Unlike a value chain, which connects and collects contributions in a serial way (up and down the chain), the connected value network works in parallel with each other to drive innovation and readily adapt to new contributions and changes because everyone experiences them in real-time.

From the most remote sales office to the edge of the supply chain, platforms eliminate silos by providing a single, up-to-date holistic view of the product definition to foster collaboration and optimize the development of products and experiences that exceed customer's expectations.

Because it is increasingly difficult to develop tomorrow's products with yesterday's solutions, IE companies' must adopt a platform-based strategy that connects the value network and supports their critical applications.

### THE 3DEXPERIENCE PLATFORM



According to Joseph Pine II and James H. Gilmore in *The Experience Economy*, memorable experiences have become the predominant offering in today's economy. Customers want more than products and services, they want exceptional experiences tailored to their needs, and often pay extra for the higher value these superior experiences bring them. In such a fast-moving and competitive business context, Industrial Equipment companies need to look beyond their PLM strategy and consider how their business can sustainably deliver innovative experiences.

The **3DEXPERIENCE**® platform is an innovation platform developed by Dassault Systèmes to enable companies to embrace their value network to explore their possibilities in a social way. The platform provides companies with a holistic approach to creating value by enabling all the players in the innovation process from ideation, design, engineering, manufacturing, marketing, sales and services to share a single source of truth and collaborate more effectively. In addition to being data-driven, the **3DEXPERIENCE** platform adds model-based capabilities to define a **3DEXPERIENCE** twin—which provides more than a virtual representation, it provides ways to create and test new possibilities, new innovations, and new enhancements. It comprises applications to model, simulate and virtually perfect all aspects of the customer experience before launching a product on the market.

**With the 3DEXPERIENCE twin, companies model, simulate and perfect the customer experience before releasing a product to market.**

With the **3DEXPERIENCE** platform, an enterprise is digitally connected through its data-driven apps working from a single and complete product definition with different functional views on the same data, rather than separate data repositories for each function. This real time access to the digital product definition helps Industrial Equipment companies accelerate the digitalization of their businesses to support a sustainable innovation process. The **3DEXPERIENCE** platform supports multiple disciplines with data-driven and model-based apps for:

- product modeling with design, engineering and systems engineering applications that revolutionize the way organizations conceive, develop and realize new products and that support additive and subtractive manufacturing;
- stakeholder collaboration and sustainable innovation across the global ecosystem;
- manufacturing excellence by enabling manufacturers to plan, manage and optimize their global industrial operations through virtual simulation of their production environment;
- accelerating the process of evaluating the performance, reliability and safety of materials and complex assemblies before committing to physical prototypes using simulation technology for structures, fluids, plastic injection molding, acoustics and structural applications;
- gathering, aligning and enriching big data whether internal or external, structured or unstructured, simple or complex and delivering that information in a way that supports real-time information intelligence.

Existing CAD systems can be connected to the platform, providing designers the benefits of the platform and additional capabilities without requiring them to change their CAD application, migrate data or author designs in a new environment.

The platform supports social networking and information intelligence, natively delivered on the **3DEXPERIENCE** platform, for instant communication and data access throughout the corporate ecosystem. Stakeholders can, for example, engage in social collaboration, share, view and simulate 3D models on line and transform big data into insights in the context of a user's needs through the creation of customized business dashboards—all in the same environment.

The **3DEXPERIENCE** platform offers a part supply marketplace. This **3DEXPERIENCE** Marketplace offers a comprehensive and intelligent catalog of components for designers to search, download and insert into their designs. The marketplace also includes a seamless way to get parts made and collaborate with leading digital manufactures worldwide.

## PLM AND THE 3DEXPERIENCE PLATFORM

One key set of apps on the **3DEXPERIENCE** platform are PLM Collaboration Services. These services provide a comprehensive and robust set of capabilities for product lifecycle management. With PLM capabilities on the platform, digital continuity ensures PLM data is accessible by everyone in the value network and that all relevant stakeholders are included in the PLM processes. For example, notification of a design update is delivered to all the team members who need to be informed of an update, some of whom may be outside of the design and engineering department in manufacturing, purchasing or services organizations.

The **3DEXPERIENCE** PLM Collaboration Services provide capabilities for management of designs authored with CATIA® V5, **3DEXPERIENCE** CATIA, SOLIDWORKS® and 3rd-party CAD tools. Additional PLM applications include change management to provide an enterprise-wide change and notification process to address increased product complexity; configuration management to efficiently manage product variants for faster delivery of personalized products to market; Bill of Materials management to ensure everyone has their required view on the holistic digital product definition; and document management for version and change control.

The platform also provides a host of model-based business applications to improve product planning and ensure proper governance of data and processes. These include the ability to translate the “voice of the customer” into data-driven requirements that define new products; plan product portfolios and efficiently manage projects and programs; classify, protect, and reuse intellectual property (IP); enforce common quality processes and support global and local regulatory requirements; and establish a well-defined process for requesting, reviewing, and approving a material’s compliance with regulations.

In short, the advantage of PLM on the **3DEXPERIENCE** platform is the availability of a comprehensive and robust set of capabilities to meet all current and future needs.

## INDUSTRIAL EQUIPMENT INDUSTRY ADOPTION

The digitalization of the 4th Industrial Revolution is forcing Industrial Equipment companies to re-shape how they engage with customers. They are challenged to provide a better industrial experience that moves beyond simply selling products from a catalog to producing increasingly tailored offerings that address the changing situations and requirements of customers over time. This means cultivating relationships with their customers, to better understand constantly evolving requirements and relying on digitalization to facilitate and enhance the way equipment is designed, produced, marketed, delivered and serviced.

The **3DEXPERIENCE** platform provides Industrial Equipment manufacturers with the opportunity to realize this integrated digital journey with their customers, placing customers at the heart of the product development process. It allows Industrial Equipment companies to go from

ideation to final delivery in one virtual environment. Insights across the corporate ecosystem are captured and the product digitally verified with the customer before actual production. Through the broad ENOVIA portfolio of technical and business applications that include powerful requirements and change management features, configuration and project management, and collaborative capabilities, IE companies can engage with their customers to help ensure that designs comply with customer needs. With closer collaboration with the IE manufacturer, customers gain confidence that the solution will meet their needs. The result is higher customer satisfaction that deepens brand loyalty and drives a manufacturer’s revenue growth.

**A better industrial experience increases customers’ level of satisfaction and deepens brand loyalty.**



## INDUSTRIAL EQUIPMENT PERSPECTIVE: 3CON

3CON, a global leader in manufacturing equipment for the automotive industry, needed to accelerate design and delivery of machines tailored to its customers' specifications. The company adopted the **3DEXPERIENCE** platform for virtual design, collaborative innovation and workflow management. The result is a 50% reduction in commissioning time at the customer site and improved design productivity by 30%.

"With the **3DEXPERIENCE** platform, we have a flexible and open environment that enables us to collaborate and exchange information with our clients," Christian Mayr, CTO at 3CON said. "In this way, they can easily provide us with the data that forms the basis for the customized machine we will manufacture for them before design begins and throughout the development process."

3CON uses the **3DEXPERIENCE** platform's design and visualization apps during the sales process to convince prospects that it has the best solution to their needs.

"Machine concepts are modeled in a virtual environment providing prospects with a clear view of what we propose before they place their order," Daniel Schöpf, COO at 3CON said. "They can make informed decisions and additional requests at this early stage, which are easier to implement than if we had to make the changes further down the line."

In a hyperconnected world where the Internet of Things continues to expand, 3CON machines must include the latest innovations to maintain their competitive advantage. "The **3DEXPERIENCE** platform can serve as the foundation to capitalize and analyze all the information generated by 3CON machines installed in the field, information that will not only improve maintenance but also future designs," Auer said.

In the future, 3CON plans to use the **3DEXPERIENCE** platform as the company's central database for capacity management to help ensure that its IT resources are correctly sized to meet its business requirements. "We are also interested in pushing the virtual reality facet even further by delivering high-end 3D virtual experiences to our sales force and customers," Auer said.

[Read full case study here.](#)

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## CONCLUSION

Product lifecycle management must be a key component of an industrial equipment manufacturer's product development process. However, increasing business, product and process complexity demand implementing a platform-based approach to connect the value network and drive sustainable innovation. The **3DEXPERIENCE** platform provides value to every stakeholder, connecting everyone to a single source of product definition. The platform provides digital continuity across a comprehensive and robust set of data-driven applications, ensuring everyone is working with the most up-to-date information resulting in increased efficiency, improved collaboration, lower costs and faster time-to-market as well as a better industrial experience for their customers.

Industrial Equipment manufacturers searching for a PLM solution to address today's challenges should ask themselves if the solution they select is able to manage the innovation process required to be competitive today and in the future. While solutions exist today to independently manage the product development process, only the **3DEXPERIENCE** platform connects the entire value network to a single version of the truth. As their business objectives evolve, companies can rely on the **3DEXPERIENCE** platform's robust and flexible architecture and breadth of applications to solve today's, and tomorrow's, challenges. It is the foundation upon which companies can deliver true innovation.

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<sup>1</sup> Accenture - IT Tech Trends Technology Exec Summary 2016

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## Our **3DEXPERIENCE**® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3DEXPERIENCE**® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 220,000 customers of all sizes in all industries in more than 140 countries. For more information, visit [www.3ds.com](http://www.3ds.com).

