

AEROSPACE & DEFENSE CASE STUDY
SAFRAN TRANSMISSION SYSTEMS



Challenge:

Safran Transmission Systems sought to increase program efficiencies and reduce support of multiple software systems.

Solution:

Safran Transmission Systems chose Dassault Systèmes' 3DEXPERIENCE platform including the *Co-Design to Target* industry solution experience to deliver digital continuity across all product-related departments.

Benefits:

With *Co-Design to Target* Safran Transmission Systems has an enterprise-wide, digital platform that improves collaboration and operational performance across multiple sites and with partners. It has instantaneous project visibility in real-time dashboards, and data traceability that helps ensure compliance. Moreover, the 3DEXPERIENCE platform fulfills the link between PLM and ERP.

ENGINE POWER

850 million. This is the number of hours Safran Transmission Systems's power transmission systems have operated worldwide. "This represents a vote of confidence on the part of our customer base of engine manufacturers, which is a source of pride for every Safran Transmission Systems employee," Hélène Moreau-Leroy, CEO, Safran Transmission Systems said. "It's also a great deal of responsibility for the men and woman who work hard to satisfy the quality requirements of a demanding and rapidly evolving aerospace sector."

With facilities in France and Poland, and a joint venture with Rolls-Royce launched in 2015, Safran Transmission Systems aimed to increase the efficiency of its programs whose data was previously managed by disparate software. "The main challenge in our profession is to be able to ramp up production on new programs and to reach the level of performance our clients expect," Moreau-Leroy said. "We also need to demonstrate the reliability of our transmission systems once they are in service. Safran Transmission Systems has 40 years of proven experience in this area. Our products are designed together with our clients, who are involved from the earliest stages of the development process. It ensures that they have innovative and reliable products throughout their entire lifecycle."

MULTI-SITE COLLABORATION IS KEY

Safran Transmission Systems's digital environment was a collection of heterogeneous and often incompatible software, which impeded data flow between divisions, subsidiaries and even with partners. Exchanging information was difficult, which slowed down the development process. "Safran Transmission Systems is currently working on a number of development projects, for which different sites need to collaborate together," Jean-Philippe Salini, PLM manager, said. "Smooth and instantaneous exchange of information with our partners, subcontractors and subsidiaries is an absolute necessity to meet project deadlines."

"The creation of Aero Gearbox International, our jointly-owned company with Rolls-Royce, has made it more essential than ever to streamline collaboration with a common toolset that facilitates access and use of intellectual property," Moreau-Leroy added.

SUPPORTING RELIABLE INFORMATION ACCESS

A single source of information helps ensure that the technical, physical and functional characteristics of a product are linked and taken into account by all project actors. "Developing a power transmission system requires managing a huge volume of data," Michel Dion, responsible for configuration management, said. "At the configuration management division, we are responsible for the airworthiness of our products. It is, therefore, our job to make sure that every project stakeholder works on a single product reference with reliable, up-to-date data that complies with the requirements of our external and internal customers," he said.

Safran Transmission Systems selected the 3DEXPERIENCE® platform and its *Co-Design to Target* industry solution experience as the company's digital platform to manage all data and processes across its subsidiaries and with its partners. "With *Co-Design to Target* we can coordinate all our activities with our suppliers, and with the people working in methods, product development, and testing to trace their progress throughout a project," Laurent Raoul, CTO, said. "*Co-Design to Target* provides our product development stakeholders with real-time access to the most up-to-date and compatible information enabling multi-disciplinary collaboration that improves the efficiency of our design and engineering programs," Salini added.

Systems integration during the implementation of *Co-Design to Target* was handled by a Dassault Systèmes service partner and Dassault Systèmes Industry Services working closely with Safran Transmission Systems. "Their proactive support enabled a smooth and rapid deployment throughout the group," Salini said. "They not only implemented the solution, they also trained our engineers to use and to maintain the system."

"Whenever we encountered a difficult situation, the Dassault Systèmes' team was able to quickly resolve the issue every time," Raoul, added. "We are very satisfied with the relationship between our two companies," Moreau-Leroy said. "From the moment we began searching for a new solution, Dassault Systèmes' response, software and support, was a notch above the rest."

To keep deployment costs and schedules in check, Safran Transmission Systems wanted to use the standard version of *Co-Design to Target* as much as possible. "From the beginning we wanted to limit the number of specific developments to those that were absolutely necessary," Raoul said. "When we consulted our engineers to ask them what features they wanted to see installed, it turned out that most of their requirements were met by the out-of-the-box version of *Co-Design to Target*. The ratio we finally achieved is 16% specific developments and 84 % standard, which illustrates that the solution is already well-suited to our industry."



Image © Yann Piffreau / Safran Transmission Systems

"The 3DEXPERIENCE platform actively contributes to helping us work towards a goal we hold dear: zero defect design."

— Hélène Moreau-Leroy
CEO, Safran Transmission Systems

Users found the application intuitive and easy to adopt. "They can rapidly find the information they need. We easily made only minor adjustments so that the interface reflects our internal processes and the way our engineers work," Dion said.

More than 400 users in France, Poland, Germany and England access the platform and use *Co-Design to Target*. "The **3DEXPERIENCE** platform supports all our company processes," Salini said. "It enhances our product development efficiency as a group," H  l  ne Moreau-Leroy added.

30%

Safran Transmission Systems has recorded 30% productivity gains on configuration control tasks using the **3DEXPERIENCE** platform.



DIGITAL CONTINUITY DRIVES EFFICIENCY

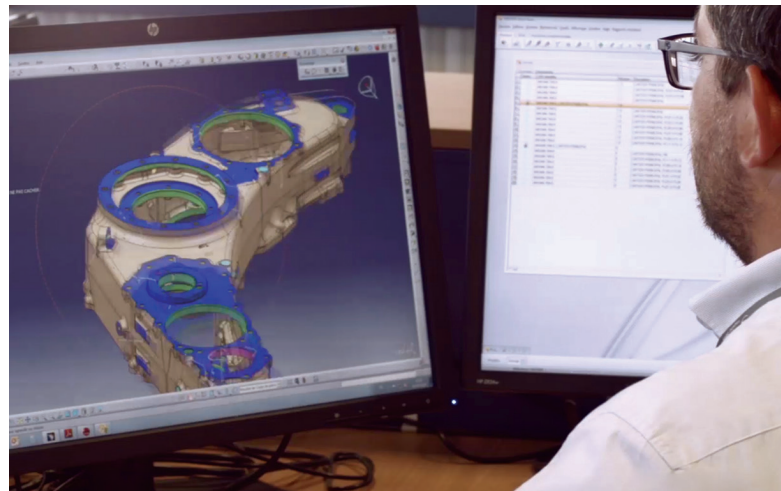
Safran Transmission Systems is undergoing a digital transformation and the first step is to rationalize its information systems. **3DEXPERIENCE** plays a major role in this transformation. "The platform is not simply another system in our IT environment," Charles Manin, CIO, said. "It enables us to replace a number of outdated or independent applications that operated in silos with an integrated system that provides us with a global, unified view of our group's activities. For example, in the past we had CATIA on one side and our old PLM system on the other. Today our CATIA V5 data is naturally linked to, and managed by, ENOVIA V6 thanks to this unified platform. The **3DEXPERIENCE** platform gives us the digital continuity we need to be more efficient and productive. This digital continuity greatly reduces maintenance costs by limiting extensive customization or additional developments to bridge independent software together or to convert data back and forth, which not only complicates development but proves complex and costly to maintain over time."

"Until now," Jean-Philippe Salini added, "we had the digital mockup in a separate system, but with the **3DEXPERIENCE** platform, the digital mock-up is linked to the product configuration. Our users find the dashboards available within *Co-Design to Target* very useful because they display program milestones and key performance indicators in real time, helping teams to rapidly assess risks and speed decision-making," Salini said.

"The **3DEXPERIENCE** platform provides our engineers with a leaner approach to their activity. Superfluous tasks are greatly reduced, enabling us to focus on doing quality work and delivering products to market on time," Dion said. "For example, it normally takes anywhere from three to 18 months to carry out a design change, depending on its complexity. Thanks to easy and rapid access to accurate information on the **3DEXPERIENCE** platform, we can reduce this time by up to 30% on configuration control tasks."

DESIGN CHALLENGES AND DATA SECURITY

"Power transmission designers must come up with a product that combines performance and reliability, at the right cost and that takes into account all manufacturing constraints," Raoul said. "In manufacturing, our challenge is to guarantee the performance of new materials while improving production efficiency," Raoul said. "With *Co-Design to Target* all of our engineering and manufacturing processes are available on one



Top image: Manufacturing line of power transmission

Bottom image: Data management within the **3DEXPERIENCE** platform

Focus on Safran Transmission Systems
Designs, develops, produces and supports power transmission systems for aircraft engines

Products: mechanical power transmission systems and propulsion components

Employees: 1,450

Revenue: 287M€

Headquarters: Colombes, France

For more information
www.safran-group.com

common platform, which enables us to better synchronize the activities of the different actors throughout the development process. Moreover, it helps to ensure the reliability and traceability of all product information," he said.

Data security is another benefit of *Co-Design to Target*. "This industry solution experience allows us to manage and secure our intellectual property by allowing external partners access only to the information they need," Salini said. "This enables us to base all our projects on one platform. Every project stakeholder is declared in the system, which saves time when searching for information or when interacting with a colleague or partner on a design."

MATERIALS COMPLIANCE MANAGEMENT

With *Co-Design to Target* Safran Transmission Systems can manage and maintain the composition of the materials used in its products and assess materials compliance with REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) requirements. "We can easily check material content information from the earliest stages of product development to verify REACH compliance and to make the appropriate design changes if needed," Raoul said. "We must be precise in the way we handle our materials over the long term as they have a lifecycle that can easily exceed 30 years. This traceability is possible with *Co-Design to Target*."

ZERO DEFECT DESIGN

Safran Transmission Systems's current success with *Co-Design to Target* has prepared it for the next phase of its implementation, which will expand the use of the solution to all of its current and future power transmission systems development projects. "To keep pace with advances in engine design, we also must innovate and introduce new power transmission systems concepts," Moreau-Leroy said. "This evolution is only possible if we master the required technologies and advance the way our products are manufactured. The **3DEXPERIENCE** platform helps us to efficiently and productively deliver on this dual objective by allowing all actors and functions to collaborate in real time using compatible tools on a single platform and by providing project traceability from the earliest design stages. As a result, *Co-Design to Target* helps elevate the precision of our work and consequently of our products. With the market demanding an accelerated rate of new product introductions, *Co-Design to Target* helps us to respond in a positive way by shortening our development cycle time. The **3DEXPERIENCE** platform actively contributes to helping us work towards a goal we hold dear: zero defect design," she concluded.

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 210,000 customers of all sizes in all industries in more than 140 countries. For more information, visit www.3ds.com.

