

AEROSPACE AND DEFENSE CASE STUDY
MESSIER-BUGATTI-DOWTY



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Challenge:

No. 1 worldwide in aircraft landing and braking systems, Messier-Bugatti-Dowty (Safran) is structured into five operating divisions. The complementarity of its products and technologies enables it to provide global expertise. The company must find customized solutions for each client as rapidly as possible, often across continents.

Solution:

Messier-Bugatti-Dowty adopted Dassault Systèmes' **3DEXPERIENCE**® platform for design, data management, simulation and analysis, manufacturing and documentation as provided through the industry solution "Ready for Rate."

Benefits:

The **3DEXPERIENCE** platform provides engineering and manufacturing planning stakeholders with cross-site digital continuity and real-time access to accurate product and product build information, thus accelerating development time and improving quality and design innovation.

FROM IDEA TO REALITY

About 25,000 Messier-Bugatti-Dowty-equipped aircraft make over 40,000 landings every day, all over the world. Its dedication, global expertise and technological breakthroughs in aircraft braking have made Messier-Bugatti-Dowty the world leader in landing and braking systems.

Its carbon brakes are 50% lighter than older generation steel counterparts. Airlines save on fuel through new composite materials, including titanium, used for machining equipment and landing gear, thus reducing their weight, environmental impact and operating costs.

These achievements reflect the technological breakthroughs of this company at the forefront of innovation. "Responding to a specific market requirement always means a new technological challenge," said Naoufal Hadi, PLM competency center manager (Product Lifecycle Management), Messier-Bugatti-Dowty. In 2012, the company launched a Manufacturing and Engineering Data System (MEDS) project to streamline development processes by rationalizing information systems at landing gear production sites. "Our products are developed in a cross-cultural, multi-site environment by technicians and engineers working in different countries who do not necessarily speak the same language and who, in the past, were using different methods and tools," Hadi said.

"As our sites in Gloucester (UK), Montreal and Toronto (Canada), and Bidos (France) each had their own industrialization processes and tools, data exchange was difficult and collaboration practically non-existent," continued Pascal Tavernier, MEDS project manager, Messier-Bugatti-Dowty. The MEDS project defines production processes, possible alternatives, as well as the manufacturing resources needed and requisite instructions. "One major challenge was to streamline processes and work methods across our sites," Tavernier said. "We chose Dassault Systèmes' **3DEXPERIENCE** platform to support our development processes because it provides us with a unique platform with data references for design, delivery and maintenance. This digital continuity ties all our sites together so that everyone is working with the same and most up-to-date product information with real-time accessibility," Hadi added. "We have adopted a zero paper approach, which is an enormous time saver that improves our productivity and efficiency."

"Moreover, the **3DEXPERIENCE** platform is industry-oriented and flexible because it provides the 'out-of-the-box' industry-specific tools we need to manage the entire production chain," Tavernier said. "We can easily customize some functions to incorporate our specific business practices and know-how."

A SHARED BUSINESS PLATFORM

Messier-Bugatti-Dowty uses many **3DEXPERIENCE** platform applications including CATIA for design, ENOVIA V6 for



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— Pascal Tavernier, MEDS Project Manager

multi-site collaboration and digital product management, SIMULIA for digital simulation and analysis, DELMIA V6 to manage assembly plans and machining sequences, and 3DVIA to exchange information throughout its ecosystem and to generate client documentation. "All applications are completely integrated and fully compatible, which helps harmonize teamwork and streamline data exchange," Hadi said.

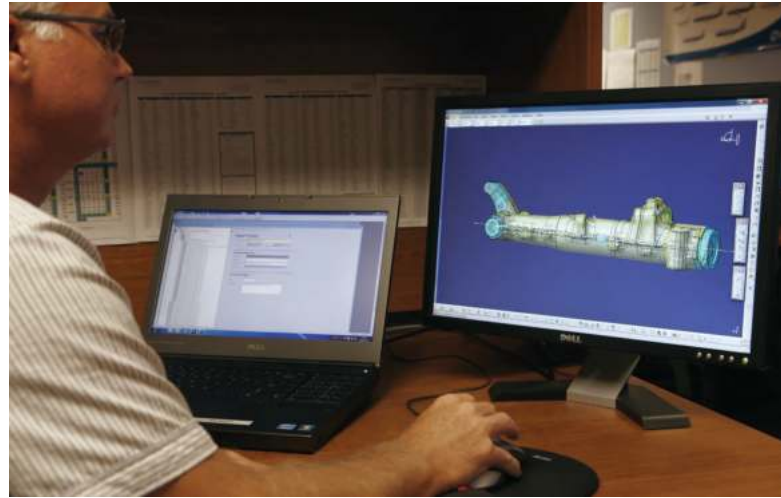
The industry solution experience offers Messier-Bugatti-Dowty numerous advantages. Design and manufacturing teams benefit from real-time multi-site collaboration since they share and exchange in reference to the same model, which accelerates the development process. "We no longer need to email information back and forth so we are no longer hampered by the delays inherent to this type of communication," Hadi added. "With development cycles becoming increasingly shorter, we need real-time access to product information across all of our sites to speed things up."

Another advantage is improved adherence to the quality standards and regulations required in the aerospace industry. "We have traceability and can ensure that configuration management and our manufacturing and control files comply with aerospace regulations and quality standards," Tavernier added. "Our next step in the mid-term? To link DELMIA with Apriso to extend our use of the 3DEXPERIENCE platform to the workshop," he said. "This will give us digital continuity all the way to the numerical control (NC) machine."

3D MASTER AS A REFERENCE

3D models, particularly production process models, play an increasingly preponderant role in the aerospace industry. "The 3DEXPERIENCE platform meets the need of a strong evolution in the aviation field where the 3D model takes a leading role in the industrialization process," Tavernier said. "The 3DEXPERIENCE platform's 3D Master approach helps us accelerate our development cycle as it provides a single common reference, the 3D model. The 3D model as developed by the design office becomes the reference for all downstream production. The same model defines manufacturing process, methods, NC machine programming, as well as our control and inspection processes. It is digital continuity in action."

"Since 3D is a universal language, cultural and linguistic barriers no longer exist," Hadi added. "We are not wasting time translating, explaining and ironing out misunderstandings. 3D helps designers to better visualize and understand the object



Top image: Messier-Bugatti-Dowty designers use CATIA application based on the 3DEXPERIENCE platform to model their customer's landing gear.

Bottom image: Messier-Bugatti-Dowty uses Dassault Systèmes solutions to model landing gear for the entire Airbus product range. Here, A400M landing gear testbench before certification. (Photo © Philippe Stroppa / Safran)

Focus on Messier-Bugatti-Dowty

Messier-Bugatti-Dowty (Safran) partners with 30 major aircraft manufacturers in the civil, military, regional and business sectors. Its expertise covers the entire life cycle of its products from design and manufacturing to maintenance and repair. Today, the company is located in 20 sites worldwide.

Products: landing gear, wheels and carbon brakes, electro-hydraulic and all-electric equipment, electronic control units.

Employees: over 7,000

Headquarters: Vélizy-Villacoublay, France

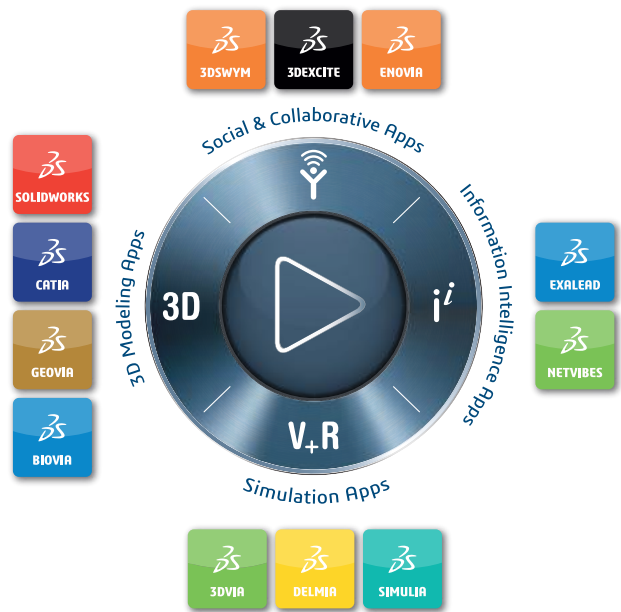
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they are creating. They can try out different options live before agreeing on the best solution."

Messier-Bugatti-Dowty capitalizes on its years of experience and uses the latest technologies to develop leading-edge products that have earned them the trust of their clients. Many airliner and helicopter manufacturers, including Airbus, Boeing, Dassault Aviation, Embraer, Bombardier and Comac, rely on Messier-Bugatti-Dowty braking systems and landing gear. Some Formula 1 racing teams equip their cars with these braking systems. "Our clients' trust is in part linked to our capacity to innovate and to deliver quality products and services within budget and to specification," Tavernier said. "Faced with the increasingly challenging demand for lighter and more robust systems, we must remain in tip top technological shape so that our response meets expectations. Helping us stay in shape is the unique partnership we have forged with Dassault Systèmes and what we've accomplished with its service organization. They have been very attentive to our needs and have systematically proposed the best solution that provides us with the most benefit. The value of this relationship and what we've gained from the 3DEXPERIENCE platform helps ensure that we continue to be well-equipped to meet our challenges in the coming years," he 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 190,000 customers of all sizes in all industries in more than 140 countries. For more information, visit www.3ds.com.



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