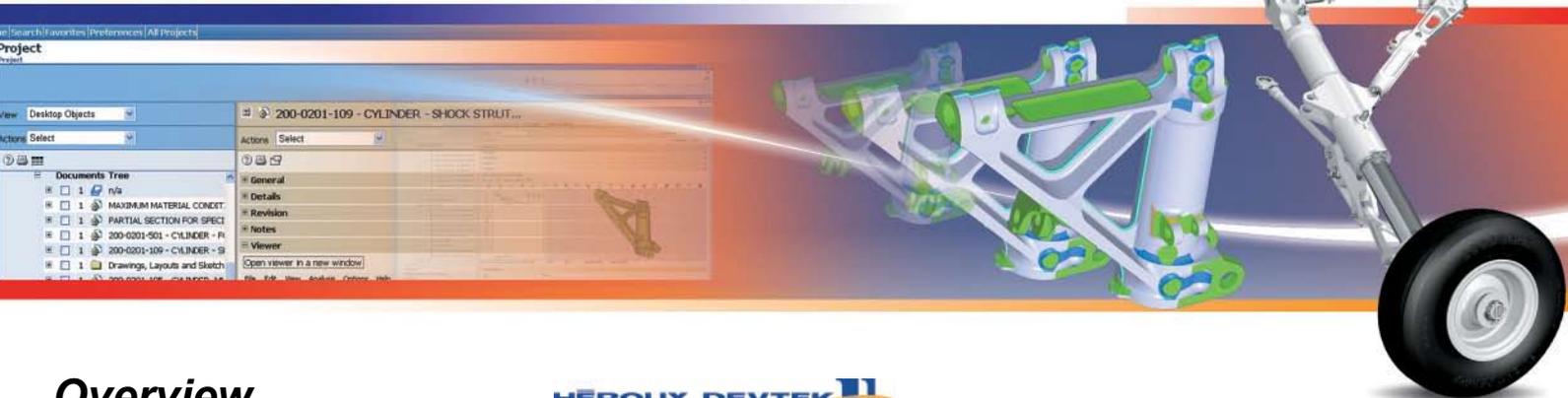


Héroux Devtek

Collaboration with V5 PLM lands better design solutions



Overview

■ Challenge

To maximize the opportunities created by close collaboration between engineering and manufacturing, Héroux Devtek needed to bridge the physical distance between the two groups.

■ Solution

To create a real-time collaboration environment, Héroux Devtek adopted V5 PLM from Dassault Systèmes, including ENOVIA SmarTeam and CATIA V5.

■ Benefits

Héroux Devtek identifies more design improvements earlier in the development cycle, improving manufacturability and quality and reducing costs.



“The more we can get manufacturing involved early in the process, the better the design is going to be. We have achieved maximum efficiency with ENOVIA SmarTeam.”

Nagi Homsy
Vice President Engineering
Héroux Devtek



V5 PLM profitably aligns engineering, manufacturing

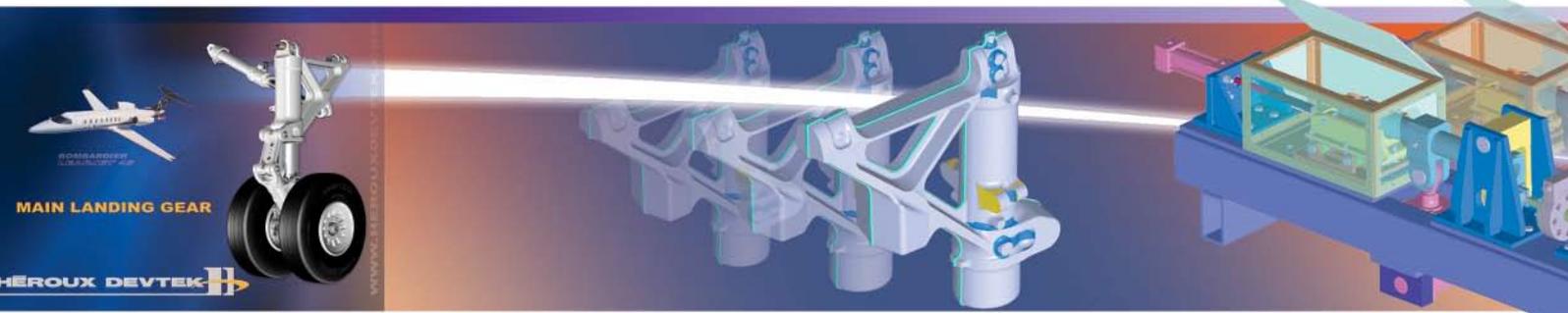
For more than 60 years, Héroux Devtek of Montreal, Canada, has been one of the aircraft industry's most trusted suppliers of landing gear. The major aerospace OEMs and their airline customers rely on Héroux Devtek for its excellence in design, manufacturing, repair and testing of these systems, which are crucial to aircraft operation and safety.

Whether Héroux Devtek designs a landing gear system or manufacturers one designed by one of its OEM customers, collaboration between its engineering and manufacturing operations is vital. While engineering must meet the operational and safety requirements of a system's design, manufacturing must ensure it can be machined within quality and safety tolerances at a competitive price.

Achieving these goals requires ongoing communication between engineering and manufacturing during design development. However, the multi-site company has three separate manufacturing engineering groups, which requires frequent trips to the engineering department to consult on designs in development. In the past, many opportunities were identified only after the finished design was released to manufacturing – an expensive and time-consuming point at which to deal with changes.

“We knew if we could find a way to let engineering and manufacturing consult together every day, the manufacturing engineer would see more opportunities for improvement than if he were in our office only a few times,” said Nagi Homsy, Vice President of Engineering. “The more we can get manufacturing involved early in the process, the better the design is going to be, and that is always our primary concern.”





“The results of V5 PLM-enabled collaboration between engineering and manufacturing have improved our time-to-market, and product quality, cut our production costs and organized our product data for fast and easy re-use. We can definitely see the benefits of this investment in our financials.”

Martin Brassard
Vice President and General Manager
Landing Gear Division, Héroux Devtek

Effortless collaboration yields superior products

To create a real-time collaborative environment, Héroux Devtek turned to V5 PLM from Dassault Systèmes, including CATIA V5 and ENOVIA SmarTeam. V5 PLM allows engineering and manufacturing to collaborate virtually in real time.

When manufacturing engineers had to travel to the engineering department’s offices to consult on a design, the amount of collaboration that could be done was limited by the manufacturing engineer’s availability, Homsy said. With ENOVIA SmarTeam, however, manufacturing engineers can use SmartWeb to view developing 3D designs created in CATIA V5 on a daily basis, with full fly-through capabilities that allow prospective designs to be viewed from any angle or cross-sectioned for interior views.

“Before ENOVIA SmarTeam, I always worried that we missed opportunities because we could only take the time manufacturing could afford to give us,” Homsy said. “Now, all the manufacturing engineer has to do is walk to a terminal in his office to view our designs, which means he is continuously available. He can think about the design every day rather than once or twice a week. We’re identifying and following through on more opportunities than were possible before.”

The benefits, Homsy said, include reduced manufacturing costs, improved design quality, and streamlined manufacturing requirements.

Improvements are identified earlier in the design process, which substantially reduces the number of late-cycle changes required to improve manufacturability or reduce rejected parts. Earlier identification of issues shortens design cycles and improves quality while lowering both engineering and manufacturing costs.

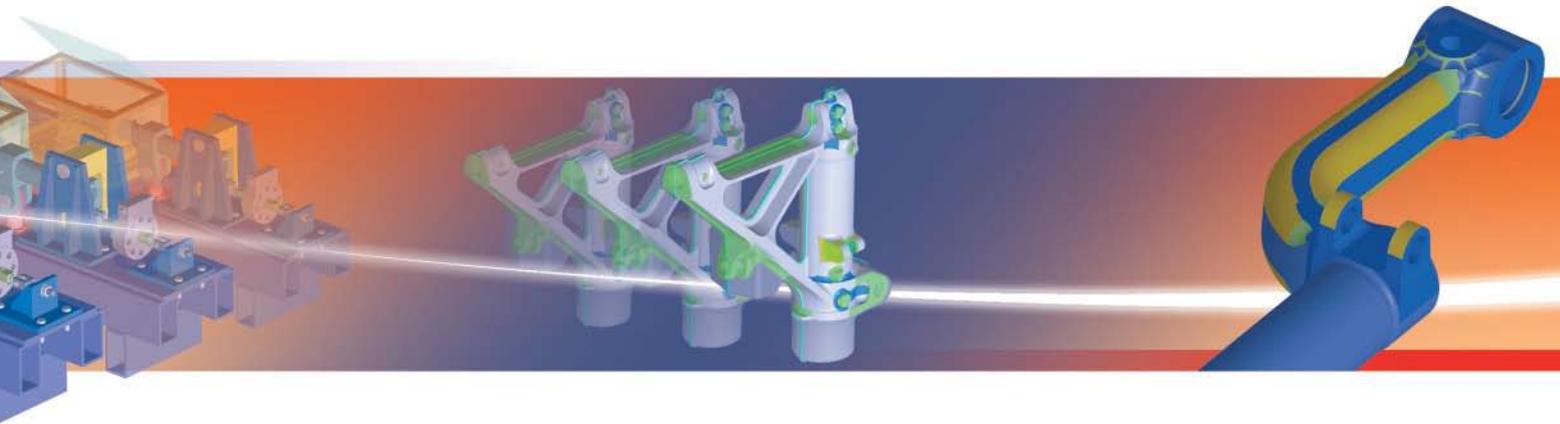
“The more we can get manufacturing involved the better the design is going to be,” Homsy said. “It’s that simple. From that perspective, we have achieved maximum efficiency with ENOVIA SmarTeam.”

The improvements have been noticed even at the top levels of the company. “The results of V5 PLM-enabled collaboration between engineering and manufacturing have improved our time-to-market, and product quality, cut our production costs and organized our product data for fast and easy re-use,” observes Martin Brassard, Vice President and General Manager of the Landing Gear division of Héroux Devtek. “We can definitely see the benefits of this investment in our financials.”

Improved data availability with detailed audit trails

ENOVIA SmarTeam also manages all of the data associated with every project and provides data vaulting and version control.

“With ENOVIA SmarTeam, everything we produce goes into the electronic vault so we know where it is and we know we can find it,” Homsy said. “All



the drawings, documents, test results – anything and everything is in ENOVIA SmarTeam. We can spend three years on a single study. If we were to lose it the cost could not be calculated, and we ran that risk before we adopted ENOVIA SmarTeam.”

In the past, Héroux Devtek’s landing gear design data was stored in different ways by different people and scattered across dozens of workstations. “We had to go from one computer to another looking for it,” Homsy remembers. “Now, with ENOVIA SmarTeam, everything we produce is in the electronic vault and we can find it in seconds. We know that we will always look very smart to the customer because even if they come and ask for a study we did five years ago, we can retrieve it instantly.”

ENOVIA SmarTeam also is vital to maintaining the detailed records and audit trails required by airline industry regulatory agencies, Homsy said. “The sheer volume and variety of documentation we have is unbelievable because we work with so many different customers. With ENOVIA SmarTeam we know when a document was created, who created it, who made every change along the line, when they made it and why they made it. We don’t have a staff to document for the regulatory agencies like our OEM customers have, but with ENOVIA SmarTeam we don’t need one. It is all done for us automatically.”

CATIA V5 eases collaboration with customers

CATIA V5, which engineering uses to generate the 3D designs it shares with manufacturing via ENOVIA SmarTeam SmartWeb, has become a prerequisite for success in the aerospace industry, Homsy said. “The aerospace industry is practically all on CATIA, so if you don’t have it you may not even be considered for the job,” he said. “We were very happy when CATIA V5 was introduced because it is much more user friendly than CATIA V4 was, much easier to learn, and it gained acceptance with our engineers very quickly.”

Because CATIA V5 has become an industry standard, having it makes working with outside partners significantly easier, Homsy said. Héroux Devtek can take an OEM’s CATIA V5 design and begin working on it immediately, without the delays and difficulties involved in translating data from one format to another. It also can work more closely with OEMs earlier in the design stage, helping them identify cost-saving opportunities and changes that will improve design quality and increase Héroux Devtek’s value-add.

The company’s engineers also appreciate CATIA V5’s surface analysis capabilities, which they use to identify potential flaws in their designs that could interfere with manufacturability.

“In the past, when we were building a 3D model, we were looking first to achieve the needed functionality and then the manufacturability. Now, since



“With CATIA and ENOVIA SmarTeam and the team spirit that is present at Engineering, we have enhanced our competitiveness and are now ready to take up new challenges.”

Kemal Aksakal
Engineering Manager
Héroux Devtek

CATIA and ENOVIA SmarTeam are more and more 'team friendly,' we can achieve those two goals almost concurrently," said Kemal Aksakal, Engineering Manager. "With CATIA and ENOVIA SmarTeam and the team spirit that is present at Engineering, we have enhanced our competitiveness and are now ready to take up new challenges. With the surface analysis function, the designer can have an idea if a complex surface is changing its shape too much in a short distance, which means it would not be easy to manufacture and would create too many rejected parts. If we find we have a design like that, the analysis program alerts us to smooth the surfaces."

Adding value to the V5 PLM investment

In the future, Aksakal said, he would like to add stress analysis capabilities to the portfolio available to the company's designers. Stress analysis would allow designers to run preliminary stress calculations to optimize their design before sending it for formal verification. Such capabilities would limit the number of times a stress engineer must review a design, shortening design cycles and allowing specialists to spend more time on their final analysis.

Homsy also sees advantages to expanding the use of ENOVIA

SmarTeam to other departments at Héroux Devtek. "Right now, only engineering's data is on ENOVIA SmarTeam, and that's only about 10% to 15% of all corporate documentation," Homsey said. "Ideally, we would like to have everything on ENOVIA SmarTeam, so that we all have access to everyone's data."

Putting all of the company's data in ENOVIA SmarTeam would improve data sharing between divisions, eliminating the lag times spent determining who has the data and shipping CDs back and forth. "We have people who are working full time to keep data up-to-date manually and to audit it to ensure that we have the right data," Homsey said. "We could eliminate that in the other departments, just as we did in engineering, just by adopting ENOVIA SmarTeam throughout the company."

Homsy said he doesn't need complex return-on-investment calculations to know the value of ENOVIA SmarTeam to his business. "There are some things you simply cannot live without," he said. "We cannot live without the data we create. ENOVIA SmarTeam ensures that we do not have to. That is a benefit beyond price, beyond ROI."



"With ENOVIA SmarTeam, everything we produce goes into the electronic vault so we know where it is and we know we can find it."

Nagi Homsey
Vice President Engineering
Héroux Devtek



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