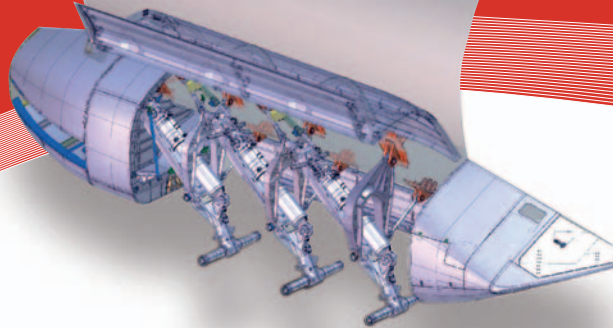


Airbus A400M  
Nose Landing Gear.

By **Nick Lerner**



Switching to V5 PLM has increased productivity by more than 25%.

## The Ups and Downs of PLM

Messier-Dowty, is achieving significant productivity increases through concurrent engineering driven by Dassault Systèmes Product Lifecycle Management (PLM). Today all areas of design and manufacture are reaping the benefits of V5 PLM.

### CHOCKS AWAY

Messier-Dowty, a SAFRAN group company, makes landing gear for more than 30 airframe builders in the aerospace Industry. Such is their volume of output that a set of their landing gear touches down somewhere in the world every 3 seconds. The company is truly multinational with specialist sites in France, Canada, the US, Singapore and China. At its UK facility in Gloucester the company handles all aspects of production including product design, production engineering and final assembly.

### SMOOTH ASCENT

Messier-Dowty have been using CATIA since 1988 and by 2007 will have completed the transfer to V5 PLM. Dave Smith, Messier-Dowty's Principle Engineer, explained how V5 PLM is integrated into the company. "Our system covers design and manufacture, test and inspection and is based on the latest 'Model Based Definition' for virtual aerospace design." He continues, "One of our objectives in using V5 PLM is to move further toward concurrent engineering. This already saves time and increases productivity in the areas of Design, Testing, Manufacture and Inspection. This is because several departments can start their activities, in parallel, by working on the same assembly or component before any individual department has completed its work."

In practice, a designer using CATIA does not have to complete a design before other work related to its manufacture, starts. Through the use of ENOVIA SmarTeam, data is available to production engineers so that they can start work well in advance of the final design being made available. Therefore production engineers can prepare for future manufacturing work and produce more precise advance schedules. This concurrency achieves increased productivity. Dave Smith pointed out other areas where V5 PLM has integrated the company's processes. "Messier-Dowty assembles landing gear sets in Gloucester where Dassault Systèmes V5 PLM is used to develop assembly instructions and specialised tooling that we need for operations. Another recent development has seen process planning engineers using images from CATIA to identify potential difficulties digitally before they can occur on the shop floor."

### ON BOARD SERVICE

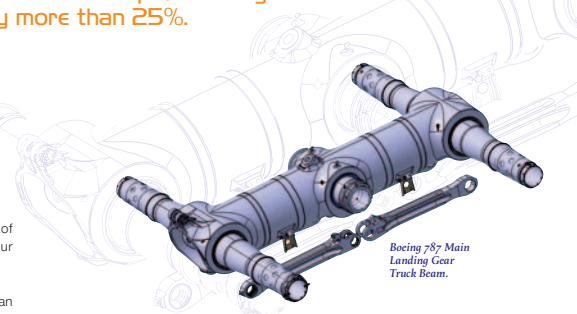
This intensive and long-term use of V5 PLM has given Messier-Dowty considerable expertise in extending the use of PLM software. Dave Smith pointed to one example. "Thanks to CATIA and ENOVIA SmarTeam we produce manufacturing stage models linked to the engineering master data. This is very useful in calculating and programming tool paths."

This simple technique saves hours of programming and is a great boost to our concurrent manufacturing."

Another place where V5 PLM has had an impact on productivity is through the use of Human Builder software. As designs are being developed, serviceability and the physical handling of components and assemblies must be considered. Best practice is in these disciplines is developed using Human Builder to ensure that assembly and subsequent servicing of landing gear is optimised for efficiency, safety and ease.

To keep Messier-Dowty at the very forefront of PLM usage the company works with their Dassault Systèmes' partner INCAT, which provides training and support services as well as helping to get the best out of the 80 V5 PLM licences at Gloucester.

Dave Smith spoke about INCAT's role. "They have helped us to develop methodologies that get the best out of our PLM software as well as from the people using it. Switching to V5 from V4 can be quite daunting for some users so INCAT has delivered PLM training that is based on our own needs and methodologies. They have also been a great help in recognising areas where our software functionality could be improved - and then improving it."



Boeing 787 Main  
Landing Gear  
Truck Beam.

Because Messier-Dowty is in a constant process of innovation driven both by its own needs and those of its customers, INCAT is on hand to assist with PLM processes at several levels. Recent requirements have seen them working together on developing methods for enhanced communication with OEM's digital models and on integrating disparate software programmes into a completely seamless whole.

### PROFITABLE JOURNEY

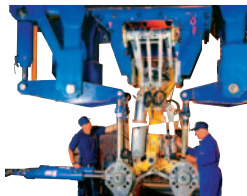
Dave Smith and his colleagues have not only to meet and overcome technical challenges but must also find ways to increase productivity and lower costs in times when material and other prices are rising fast. "The savings throughout the production process that have become available to us by switching from V4 to V5 PLM are in the order of 25%", says Dave Smith. "These savings derive from introducing truly concurrent engineering practice and by devising ways to automate processes that were formerly manual. By streaming data through the system to effect changes where they are needed, savings of up to 50% have been measured. Hours can be taken out of

some processes using PLM methodology and by integrating different software programmes into the PLM system." Examples of this can be seen where aircraft geometry held in Microsoft Excel can be changed in that programme to affect the CATIA model or where kinematics, for functional tolerancing and clash detection, are driven from SIMULIA and ABAQUS FE test data.

### SAFE LANDINGS

Messier-Dowty aims for perfection of its design and manufacturing processes and methodologies and, as the engineering challenges develop, so does the company's PLM infrastructure. "We have developed systems at Messier-Dowty that allow us to take full control over the business of making aircraft landing gear" says Dave Smith. "Dassault Systèmes V5 PLM is the key to our engineering innovation and control because it allows us to use our engineering skills to maximum effect through concurrent engineering" • }

For further information:  
www.messier-dowty.com  
www.incat.com



Nimrod Main Landing Gear Test Rig.