

EADS SPACE TRANSPORTATION

Ariane 5 Electrical Data Production Information System Overhauled

In 2001, EADS Space Transportation chose MDTVISION to help develop the Magellan project in order to ensure the durability of its systems and processes, improve traceability and harmonize configuration management for its Ariane 5 launchers.



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Franck Calvet

‘Avionics, system qualification and ground facilities’ unit manager

Shared data repositories that are commonly accessible are essential both before and after a rocket launch. EADS Space Transportation’s Magellan project concerns all internal data from launchers’ on-board electrical systems as well as data exchanged with ground facilities. These systems are particularly important not only during the actual flight, but also for last-minute checks before the flight (they are the only interface with ground facilities) and for exploiting data after the flight.

ENSURING SYSTEM DURABILITY

EADS Space Transportation manages its current processes and tools successfully, but they are based on fairly old technology and spread over several databases. “The Magellan project was launched with the aim of cutting costs and ensuring the durability of tools and processes,” explains Franck Calvet, ‘Avionics, system qualification and ground facilities’ unit manager at EADS SPACE Transportation. The company thus decided to build a single system based on Windchill software that is shared by all the experts, who are responsible for defining and exploiting the data. “Another objective concerns electrical configuration management: the features of the launcher differ for each launch according to the load it has to transport. As production times are relatively short, Magellan was designed to simplify this aspect.”

RIGOROUS MANAGEMENT

In order to implement such a complex project, it is necessary to work in stages and carry out numerous checks and fine-tuning operations in each phase. After producing an alpha version of Magellan on Windchill in 2001/2002, MDTVISION developed Magellan 1. The EADS SPACE Transportation Magellan project team took charge of additional developments up and downstream of the product. “The main difficulty with the project was matching the experts’ operational needs and the company’s highly complex processes with the IT tool specifications.” A series of theme-based workshops were set up, attended by the experts, the EADS



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SPACE Transportation project team and MDTVISION. At the end of this period, a repository of requirements approved by everyone was drawn up and used as a basis for developments. “The flexibility demonstrated by each party combined with rigorous management created a relationship of reciprocal trust. In addition to its technical skills, MDTVISION now has a good understanding of our operational needs.”

TESTS IN REAL CONDITIONS

Accepted in March 2004, the project is currently being validated. However, due to the sensitive nature of the field, there is still work to be done before declaring Magellan fully operational. In 2005, two actual flights will be prepared using Magellan and current systems. If these two tests are conclusive, Magellan could replace existing tools in 2006. “Given the extent of the challenges, we must take proper precautions to meet quality standards and the stringent requirements in the space industry.”

RESULTS:

- ***Creation of a single electronic data repository***
- ***Durability of systems and processes***
- ***Cost control***
- ***Improved traceability of flight information***
- ***Harmonization of electrical configuration management***