

comprehensive PLM in aerospace

driving efficiency and reducing risk

For Cassidian, the adoption and continual refinement of Product Lifecycle Management (PLM) has become integral to their manufacturing culture

As a division of EADS, Cassidian is one of three collaborating partners producing the Eurofighter. Every aircraft produced by the consortium is a 'custom build': each commissioning country, for example, has different special requirements. Cassidian's responsibility does not finish with production: the history of every Eurofighter must be tracked through to decommissioning.

Military hardware production is a byword for stringent specification, and fighter aircraft are at the very top end of this demanding manufacturing culture. The Eurofighter is unique in the history of military aircraft manufacture because of its distributed and collaborative production model. Construction takes place in Germany, Italy, Spain and the UK and is shared between three companies: EADS (Cassidian's parent company), Alenia and British Aerospace. Although each national production facility is responsible for the assembly of complete aircraft, individual consortium members produce different major components, which must be shipped between national facilities.



PLM is critical

The complexities of Eurofighter manufacture and ongoing service have made the quality and integration of production data critical from the start. For this reason, Cassidian put Product Lifecycle Management (PLM) at the top of their systems agenda in 1996, at the very beginning of their project participation.

Cassidian had always been aware of the importance of timely and accurate production data, and before the adoption of PLM they relied on multiple discrete systems with rudimentary data interfaces between them. What they required for the Eurofighter, however, was a holistic vision. They needed a means of integrating complex data from across the production cycle. With the emergence of PLM as a viable discipline, this became achievable.

Cassidian knew that the adoption of PLM was not just about taking a new suite of applications on board. They understood that adoption would lead to fundamental changes in behavior, and for this reason were keen to engage with specialists who understood not just the technologies, but who also knew how to help manage the changes which would accompany them.

Cassidian were also aware that full PLM adoption would not be an instant, one-off event. Defense contractors are naturally cautious and risk-averse, and as a result, evolution and refinement would be continuous and prudent. Indeed, recent developments in PLM for Cassidian are very much part of a planned and strategic continuum lasting over fifteen years.

Why Atos?

In 1996, Cassidian ran its first architecture workshops for the PLM initiative and soon afterwards began the bid phase to identify the most suitable partner. Having decided that they wanted to use the Teamcenter PLM solution from Siemens, technical expertise on the platform was essential.

For Thomas Müller, Head of Product Lifecycle Management, these technology skills were just the entry point, "Even more importantly, we needed a partner capable of optimizing the associated processes and

handling the ongoing change management. This was to be a core requirement throughout the Eurofighter program."

Not only could Atos demonstrate this required breadth of skill in PLM technology and change management: they could also show significant sector knowledge in military air systems.

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By creating a unified product data management backbone, Cassidian gains actionable, real-time production views for each aircraft, from multiple planning, production and service viewpoints



Phased evolution

Cassidian understood that embedding PLM across their entire chain of production and service would affect the way in which people worked. Every member of the company would gain near-instant access to information via a common data management backbone, and this was a distinct contrast to the previous reality in which discrete systems were, at best, loosely interfaced.

As a strategically important project, it was phased to ensure that each stage of development could be fully optimized and accepted before progressing.

From 1998 to the present, there have been four phases in all

1998 - 2000

Concept development and pilot release

2000 - 2003

First full development with focus on engineering and production functions

2003 - 2005

Extended development with all product data management functions needed for Eurofighter shipping, handover and ongoing service

2005 - present

Ongoing evolution, with special focus on integrated logistics

Atos has been Cassidian's PLM partner since the start, and has provided a range of consultancy, development, integration and support services. These include:

Development and implementation

- ▶ Process definition
- ▶ IT specification and implementation
- ▶ Testing and roll-out

Ongoing support

- ▶ System administration and release management
- ▶ Operational documentation
- ▶ Business and user support

Because the Eurofighter is designed, built and serviced via an international consortium, the Cassidian PLM solution also had to interface securely with the corresponding systems of other members, and the combined Atos/Cassidian team also delivered these operationally critical and complex elements.

Tangible operational benefit

The fully operational Cassidian PLM solution has made a real difference to the manufacture of the Eurofighter. Benefits can best be illustrated with practical examples taken from the day-to-day activity of the company.

Before the PLM system was in place, the transfer and acceptance of Bills of Material from planning to production regularly took between two and three weeks. Transfer and acceptance can now be completed, without risk of error, in one day or less. This is made possible because shop floor and planning systems now share access to common, consistent and coordinated data.

Another very clear illustration of the benefits gained through PLM can be seen in the management of the Waiver Deviation Process which must precede every test flight undertaken by every aircraft. Before PLM, it was not unusual for an aircraft test flight to wait for days while this essential check took place. Now with PLM, the Waiver Deviation Process is automatically tagged throughout the lifecycle, allowing a foolproof log of all approval instances to be produced with one click.

In addition to these operational benefits, Thomas Müller is also keen to point out the organizational benefit of working with Atos. "We keep a framework agreement in place with Atos, and this makes it much easier for us to get the job done. I don't have to worry about how things such as patches and release management happen inside the Atos domain. Clearly, this peace of mind is only possible with a stable and well-established relationship."

Critical security

In all defense contracts, security is critical. Atos keeps a team of around twenty PLM specialists permanently on the secure Cassidian site in Bavaria, and each member of the team has been fully vetted by the German security forces.



Looking forwards

The development and deployment of Cassidian's PLM system continues to build on its success to date. Having made the investment for the Eurofighter, Cassidian is keen to extend adoption into other defense and aerospace projects.

At the Cassidian mother company EADS, there is a strong desire to rationalize the adoption of strategic business and production tools across the company, and PLM is naturally high on the agenda. The Windchill PLM suite from PTC will become the preferred platform.

As a vendor-independent PLM specialist, Atos has a strategic partnership with PTC and is keen to be involved in migration planning at the earliest opportunity. The relationship between Atos and Cassidian has been growing for over fifteen years, and Atos' operational knowledge of Cassidian and experience of ongoing change management within the company, positions them well for the future.

Key numbers

- ▶ Eurofighter parts managed - 172,000
- ▶ 2D models - 2.43 million
- ▶ 3D models - 274,000
- ▶ Product data related documents - 245,000
- ▶ Eurofighter change requests managed - 40,000
- ▶ System users - 2,150
- ▶ Sites where PLM is used - 9



For more information:
Please contact
dialogue@atos.net