



# *ENOVIA<sub>VPM</sub> for the Eurofighter AdCoMS project*

*Innovation breakthrough, in configuration management,  
for business advantage*



Men  
Working

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DEFINING NEW PROCESSES DEFINING NEW PROCESSES DEFINING NEW PROCESSES DEFINING NEW PROCESSES

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### The Challenge for Configuration Management

Industrial companies face a common challenge when it comes to designing and building, say, a modern military or commercial aircraft, a high-speed train, state-of-the art truck, transatlantic liner, or even complicated heavy plant and machinery.

All of these products tend to be highly complex systems, made up of multiple subsystems and thousands of precision components. So painstaking collaboration between multiple partners and their suppliers, and rigorous configuration management during every project phase is absolutely critical.

It's the only way to keep concurrent engineering projects on track, accommodating customer requirements and changes, without costs spiralling out of control or incompatibilities arising.

Naturally, information technology has a critical role to play in helping companies to speed up and control production cycles. Developments such as CAD/CAM and Product Data Management (PDM) applications have helped to a great extent. But until now, no single software application provides a comprehensive solution to the challenge of managing complex configuration projects over all product lifecycle steps.

In other words a new generation of Product Lifecycle Management (PLM) solution is requested to leverage e-business technologies and to allow a company's product content to be developed and integrated with all company business processes (i.e. ERP, CRM, SCM.) through the extended enterprise. This will provide the ability to make business decisions with full understanding of the product and product portfolio.

### Defining new processes to cross the e-line

Now, however, this situation is changing, following the success of a recent initiative within the European Aerospace industry – the Advanced Configuration Management System (AdCoMS) project.

As a key partner in this proof-of-concept project, IBM has worked in partnership with leading aerospace companies, as well as academics and industry consultants.

Together they have devised a generic e-business process model for successfully managing, tracking and controlling the multiple changes usually required for complex equipment development. The processes identified have been enabled in ENOVIA<sup>VPM</sup> embodying the full scope of the configuration management issues identified by the experienced users involved in AdCoMS.

#### Companies typically progress through several levels of e-business

- 1 *Establish a web presence.*
- 2 *Conduct business transactions over the web – e-commerce.*
- 3 *Collaboration via e-mail or conferencing.*
- 4 **“Cross the e-line”**  
*Companies below the e-line automate tasks within existing processes, while companies above the e-line change fundamental business processes, and ways in which they interact with other companies. This leads a significant competitive advantage. Above the e-line the richness of communication is greatly enhanced. 3D product content can be shared throughout a company, and among its suppliers, partners and customers to greatly enhance communication and innovation.*

#### The AdCoMS project: Collaborative process innovation

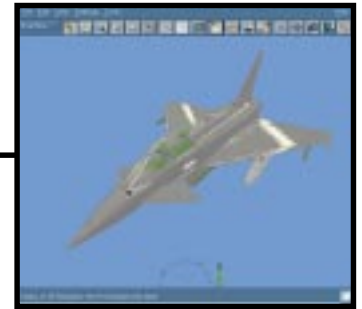
- *Tighter schedules*
- *Fixed price contracts*
- *Remote partners*
- *Complex products*
- *Multiple customised versions*

#### Innovation in a demanding context

Sponsored by the European Union, AdCoMS was launched in September 1996 as an Esprit project – part of the Advanced Information Technology (AIT) initiative aimed at addressing key industrial business problems prioritised by leading European Aerospace and Automotive firms.

### Key partners for AdCoMS:

- **Major European aircraft manufacturers – Alenia, British Aerospace, CASA and Dasa – all of them already working collaboratively on the international Eurofighter project, to deliver this new generation of combat planes to their national airforces;**
- **IBM as the strategic IT vendor;**
- **Computer Sciences Corporation (CSC) and System Consult (formerly Kaschewski and Partners – K&P) as service providers;**
- **Leeds University – contributing its results on advanced configuration management research.**



Solving the issues arising when multiple companies, located at various different sites, work together on complex product developments using different processes and IT systems, was the rationale for launching AdCoMS.

The Eurofighter partnership was an ideal proving ground, as each of the aircraft manufacturers involved will ultimately assemble different versions of the same aircraft based on the unique specifications of their national airforce, having collaborated on individual sub-system design and development.

Through AdCoMS, the project partners were able to evaluate in detail complex configuration management needs as experienced by the Eurofighter consortium. This enabled them to formulate a set of innovative best practices that can be implemented to overcome the shortcomings of current working methods and existing systems, when collaborating on such complex configuration projects.

By targeting every step of the product life cycle – from the initial concept through to the in-service phase – ways of improving control over configuration management processes were clearly defined.

A generic e-business process model was defined and a proof-of-concept system based on ENOVIA<sub>VPM</sub> from IBM was used to validate the key innovations identified by AdCoMS

### Advanced configuration management innovations

AdCoMS identified the main process areas essential for successful configuration management and came up with four ENOVIA<sub>VPM</sub> innovations to tackle these issues:

#### • *Requirements management*

For any complex product, adhering closely and permanently to ever-changing customer requirements is paramount. But this can be problematic especially when there are multiple versions, numerous partners, or permanent changes to synchronise and track. Here even small mistakes can ultimately cause serious project failures and generate additional costs, because of the unforeseen effects.

To avoid this situation, AdCoMS proposed a solution that could ensure engineering teams had online access to real-time requirements information for more effective and accurate reviews.

The ENOVIA<sub>VPM</sub> proof-of-concept enables design and development engineering teams to manage customer requirements rigorously – effectively gathering, documenting, analysing, verifying and updating requirement information at every project phase.

#### • *Functional interface management*

For any complex engineering project, where disparate components or subsystems are eventually assembled to create the main product, there are interface issues. But because interfaces don't actually exist as tangible components, few PLM systems have the in-built functionality to enable close monitoring of the information that characterises the inter-dependencies between product items.

The ENOVIA<sub>VPM</sub> proof-of-concept manages the inherent physical, functional, compatibility and interchangeable components of interfaces throughout a complex engineering project.

#### • *Impact assessment*

When there are multiple versions of a complex product or even minute changes to a single component or subsystem, engineering teams need to understand the full impact during design reviews, to avoid creating further problems. AdCoMS therefore defined ways of navigating through the ENOVIA<sub>VPM</sub> information relating to different structures of a product, giving engineering teams the power to appraise the impact of a change on all dependent items and, thus speed up the development process by performing real-time assessments and allowing instant decisions whenever needed.

#### • *Virtual change board*

Another configuration management breakthrough identified by AdCoMS was the concept of e-collaboration – enabling remotely-located partners to share and discuss digital product information, accessing it via standard web browsers and secure extranet or intranet. By web-enabling this process through ENOVIA<sub>VPM</sub> and ENOVIA Portal, project delays can be minimised and informed decisions can be made by engineers using accurate and comprehensive product information available in a few simple clicks.

## Helping companies achieve business benefits

Following the successful completion of AdCoMS, IBM is now using the results of the project and the proof-of-concept to assist other customers in different industrial areas who face similar issues. An additional proof-of-concept, based on the launch of a new IBM ThinkPad model, serves to illustrate the versatility of both the AdCoMS business process model and ENOVIA<sup>VPM</sup>.

## “We chose ENOVIA<sup>VPM</sup> after an extensive evaluation of product’s functions, and of the capabilities of IBM Engineering Services to implement new AdCoMS concepts very quickly.”

*Dr. Bernardino Chiavola, Alenia, AdCoMS project manager.*

Using the pilot demonstrator and experience gained through AdCoMS, IBM Global Services consultants are able to help customers in similar circumstances to address their own unique complex development, collaboration and configuration management issues, to find ways of increasing their competitiveness and generate greater returns on investment.

As well as helping customers to define the innovative best practices they need to meet their business targets, IBM Global Services consultants can also rapidly customise the existing proof-of-concept demonstrators to allow companies to implement and evaluate a pilot ENOVIA<sup>VPM</sup> environment for their own needs.

With IBM’s Product Life Cycle solutions and services, companies can quickly turn advanced configuration management into e-collaboration operational processes, to cross the e-line with minimum risks.

## An integrated approach

IBM’s Product Lifecycle Management solutions leverage e-business technologies to optimise the product process and to integrate it with all other business processes (i.e. ERP, CRM, SCM) throughout the extended enterprise, thus improving the way all processes work together. It covers the complete product lifecycle from requirement through in-service support and disposal.

IBM’s Product Lifecycle Management solutions offer companies a full range of integrated products and services. These include core application software from Dassault Systemes to support and manage the collaborative creation, simulation, visualisation and knowledge of products, processes and resources. They also include a comprehensive range of e-business middleware, hardware and services. In addition, Product Lifecycle Management solutions comprise IBM consulting, services and methodologies for the most effective use and integration of all software and hardware components

## For more information

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