

Collaborative Product Development: EADS Pilot based on ATHENA results

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ATHENA research program proposes innovative approach to address needs for interoperability of enterprise applications. It addresses in particular the area of Collaborative Product Design, for Aerospace but also other manufacturing sectors. Innovation comes from a holistic approach of the problem at enterprise, knowledge, ICT and semantic levels. It implies simultaneous advanced usage of technologies coming from various domains like enterprise modeling, Model Driven software engineering, Service Oriented Architecture, Collaborative Executable Business Process engineering and Semantic reconciliation. In the Aerospace sector, but also for numerous other industrial sectors (as automotive, furniture, ships, building...), current trend is to develop Product Life Cycle Management approaches across the virtual enterprise, with earlier consideration of downstream phases when designing product system, and important role of "Product Data Management", "Product Data Exchange and Sharing" and "Change and Configuration Management processes". This paper describes the used way to define accurate Aerospace Collaborative Product Development pilots, in order to reach ATHENA objectives in term of scientific achievement and business impact, and with as a result definition of a first set of pilots and a proposal for Networked Enterprise Collaborative Product Definition infrastructure.

INTRODUCTION

In manufacturing area, increased collaboration among enterprises during the entire product life cycle is a global trend; organizations are transforming themselves into "networked organizations" dedicated to Collaborative Product Development. To achieve this, enterprise systems and applications need to be interoperable in order to achieve seamless business interaction and product data sharing and exchange (SAVE, 1999) across organizational, discipline and computational boundaries (IDEAS, 2003).

Currently, enterprises face many difficulties related to lack of interoperability. Interoperability, defined as "the ability of two or more systems or components to exchange information and to use the information that has been exchanged", needs to be addressed in respect of all layers of an enterprise (including ICT Systems, Knowledge, Business and Semantics). It needs to be tackled using a holistic perspective, a multi-disciplinary approach, and by bringing together the best research teams, industry expertise and ICT suppliers (IDEAS, 2003).

ATHENA aims to be the most comprehensive and systematic European research initiative in IT to remove barriers to interoperability, to transfer and apply the research results in industrial sectors, and to foster a new networked business culture. Building on its vision statement, "by 2010, enterprises will be able to seamlessly interoperate with others", ATHENA aims to enable interoperability by providing a comprehensive Interoperability Framework.

In ATHENA, Research and Development is executed in synergy and collaboration with Community Building: research is guided by business requirements defined by a broad range of industrial sectors and integrated into Piloting and Training.

EADS Research Centre is the representative of the Aerospace and Defense sector in ATHENA research program, and by extension of the manufacturing community. In ATHENA, EADS Research Centre is involved on several projects (Dynamic Requirement Definition, Pilots, ATHENA Interoperability Framework) and groups (Technological group and End-User Watching dog group), with as objectives to identify interoperability needs, to product requirements and finally to evaluate, test and benchmark the ATHENA results.

In order to achieve objectives of ATHENA in term of impact and representation, the **business needs** were collected from EADS Research Network (constituted by several Business Units of EADS like Airbus, EADS Launcher vehicles, Astrium, Eurocopter...), major Aeronautic Research Programs (VIVACE) but also from the manufacturing community through ISO SC4 TC184, OMG Mantis Technological Group, AFNOR, MICADO, AFNET.

The **requirements** were derived from these needs. They were elaborated on the basis of anterior Research Projects results (what is working, what is not satisfying) related to "Product Data Exchange and Sharing" for "Collaborative Product Development" within a Virtual Organization (AIT, RISESTEP, SAVE). They were analyzed and generalized with other requirements coming from other communities (Enterprise Modeling,