

SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE
ACTIVITIES (D5)

Knowledge Management and Collaboration in Space Activities (2)

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KNOWLEDGE CAPITALIZATION IN A CONCURRENT ENGINEERING ENVIRONMENT

Abstract

The present paper gives an insight in the creation of the Knowledge Management (KM) architecture and tool development that was implemented in the Concurrent Design Facility (CDF) at ESTEC, ESA. The paper presents the final results of the Knowledge Capitalization initiative at the CDF and concludes the previous presented paper at the ICA Korea, 2009 (IAC-09.D5.2.12).

A tailored KM system for the specific needs of the CE design process is essential to boost the design and concept development process. While an in-depth investigation of the KM awareness within the CE-environment and its participants marked the beginning of the research, the paper furthermore gives information about how the KM tool was adapted by the engineers and experts.

The developed KM software tool is divided into four major sections: Capturing, Organization, Distribution and Development of knowledge. Every section has several interface modules that are interacting with each other. In addition to these, the Knowledge Unit (KU) is introduced, where its different contents (e.g. documents, trade-off tables, mass summaries) are stored and linked with so-called metadata.

The challenging task to transfer tacit knowledge elements of CE studies, which are usually created during Round-Tables or Splinter-Meetings, requires new approaches in soft- and hardware support. The developed Tacit Information Capture (TIC) module records presentation and discussions during a session and combines different media sources (e.g. PowerPoint file with the oral presentation). Another highlight of the KM system is the Domain Advancement Diagram (DAD) module, which allows to document the design iterations during studies by capturing the decision making process.

Furthermore, the implementation of innovations like tag-clouds, search widgets, active linkage and the so-called 'Amazon-list' form essential elements within the developed architecture. The described methods, comprised in the overall architecture, require a minimum of time effort and are therefore optimal to improve the already well established Concurrent Engineering process.