

IAF SPACE SYSTEMS SYMPOSIUM (D1)
Space Systems Engineering - Methods, Processes and Tools (1) (4A)

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CONCURRENT ENGINEERING IN LATER PROJECT PHASES: CURRENT METHODS AND
FUTURE DEMANDS

Abstract

The department of System Analysis Space Segment of DLR's Institute of Space Systems in Bremen has successfully demonstrated the benefit of Concurrent Engineering (CE) in more than 60 studies since the implementation of the Concurrent Engineering Facility (CEF) in 2008. The core competence developed and optimized during these years is mainly the execution of early project phase studies (0 / A) to prove the feasibility of the mission and system design. The research objective of the CE team is to further develop the well-proven process for early phase studies towards an application of the CEF and the CE concepts in later phases, with a special focus on preliminary design activities (Phase B).

The team's underlying hypothesis is that this endeavour can only be successful through an efficient combination of software (i.e. the data model) and a tailored process. A critical aspect for peak productivity that needs to be controlled by the process is that the right people and all currently required information are available for collocated work, e.g. using the CEF. The process must furthermore foresee an effective approach to work concurrently on the data model during CE sessions but also to continue to do so in a collaborative manner outside the CEF. Thus, the final aim is to streamline the development process and to achieve an optimized result in a reduced period of time.

After a short overview on the current state of the art, this paper presents DLR's activities in this field. It and summarizes the results and take-away messages from a conducted survey with key personnel from spaceflight projects concerning their demands and requirements. Finally, based on this survey, a first set of recommendations and actions are sketched to finally enable the support of ongoing design projects through an optimized usage of CE in later phases.