

SPACE SYSTEMS SYMPOSIUM (D1)
System Engineering - Methods, Processes and Tools (2) (6)

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USER-CENTRED, LOW-COST, CONTINUOUSLY IMPROVED – EXPERIENCE FROM
IMPLEMENTING CONCURRENT ENGINEERING IN INDUSTRY FOR EARLY PHASE SATELLITE
DESIGN

Abstract

The idea of concurrent engineering (CE) dates back many years and it is applied in different ways world-wide on agency and research level. This paper describes the philosophy behind OHB's concurrent engineering facility and highlights the differences to existing CE centres in the space sector. The implemented concept is justified by comparing experience from first studies to examples of traditional satellite design methodologies. With its Concurrent Engineering Facility OHB pursues three concepts distinguishing it from others – a user-centred approach to CE processes, a low-cost investment into infrastructure and continuous improvements through feedback from all stakeholders. Furthermore, the range of use for the CE facility within OHB is wide. Besides being used in classical system design CE studies, there is the possibility to perform very short and spontaneous brainstorming sessions with small teams benefitting from the CE infrastructure. Intermediate versions, like a coordinated brainstorming over several days are also possible and examples will be presented in the paper.

The biggest challenge in implementing CE in a space sector private company is the acceptance by the users. The results of their effort majorly depend on the comfort they take. Therefore, many decisions taken during the implementation of the facility and during the definition of the related procedures had the usability as a major criterion. These aspects will be highlighted and justified in the paper.

The hardware and software infrastructure typically making up a large fraction of the heads-up investment is considered a support tool. This tool facilitates the novel concept itself being the concurrency of formerly sequential work. For an initial implementation of CE within a company structure the investment into the infrastructure is kept low, but not too low to not meet the goal. Instead, the main focus is put on the related processes. This paves the way for future investments into customized solutions meeting the needs of users and project management and respecting company interests.

The novelty of the CE process within OHB leaves room for improvement after the initial implementation. In order to continuously develop CE into a process as efficient as possible the feedback of all stakeholders is permanently requested. The major stakeholders are the users as in engineers and project management. A standardized feedback evaluation based on questionnaires before and after each CE study is put into place. The paper will highlight developments based on the received feedback and demonstrate the visible consequences in subsequent feedback.