45th SYMPOSIUM ON SAFETY AND QUALITY IN SPACE ACTIVITIES (D5)
Insuring Quality and Safety in a Cost Constrained Environment: Which Trade-Off? (1)

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HOW TO MANAGE COMPLEXITY AND QUALITY IN SPACE APPLICATIONS

Abstract

Products in space business are characterized by high complexity, on-the-edge technologies and strict dependability requirements within tight cost constraints. Experience from past programs shows that schedule delays and cost increase did only to a small extent result out of lack of technical capabilities, but mainly due to late identification of critical issues and under-estimation of program surveillance. The latter may occur both on customer and supplier side. The paper presents an approach to handle complexity in such programs which proved to be successful within the German SAR-Lupe Program and is currently implemented in the Kazakhstan Space Program. For the AIT Center, which is currently being procured within the Kazakhstan Space Program, a project surveillance organization based on ECSS standards has been established at the procurement organization. Within this surveillance organization, all ECSS branches such as Project Management, Product Assurance and System Engineering are represented and have been trained to control all supplier activities. On the one hand, this approach enables the procurement organization – which also contains future AIT Center operators and managers – to gain more knowledge out of the design, manufacturing and installation activities. On the other hand, supplier independent project surveillance does help the supplier to identify discrepancies and risks early in the schedule, minimizing discrepancies at the end of the project. Objective of the presentation is to sensitise the community for the necessity and the benefits of a vital programme, quality and system engineering management culture for a successful space program. Specific focus will be set on the Requirement Traceability and Verification Control approach of the procurement organization, as well as on the Observation Process as formal operative communication process between procurement organization and supplier. Besides operation of a recognized space test center, IABG has a long heritage in space quality management and program support, e.g. in the design and implementation of the national SAR-Lupe earth observation program or in its role as German national surveillance organization (NSO) for ARIANE and VEGA launcher manufacturing.