

SPACE OPERATIONS SYMPOSIUM (B6)  
New Operations Concepts (2)

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AN INNOVATIVE OVERALL APPROACH FOR MISSION OPERATIONS – FROM REALITY TO  
NEW CONCEPTS AND MODELS

**Abstract**

The success of space missions, as general criteria, can be determined by the achievement of commercial and scientific goals after the execution of the mission operations and exploitation phase.

The small missions are normally constrained by a limitation on the available resources for operations execution (due to low revenues or reduced budget). In these situations the concept of operations becomes even more critical and consequently deserves more emphasis along the entire mission lifetime.

The importance of stakeholder involvement in the process from requirements to mission exploitation is evidenced as the way to fulfil user needs while obtaining the adequate resources. The goal is to meet user needs while providing sustainable services with an agreed portfolio of products and service levels such as time-to-deliver and service availability.

Several concepts such as mission automation, synergies with the rest of existing operated missions, components harmonisation, usage of off-the-shelf products and well-developed market technologies and standards need to be developed in detail as means to achieve operations costs reductions.

The engineering processes are fundamental in order to achieve reduced running costs during operations execution. This paper will make evidence the importance of mission operations engineering stream of activities starting from mission and feasibility analysis and continuing along the project phases.

The additional advantage of the close involvement of operations along the entire process is the optimisation of the time-to-market, meaning the mission can reduce the overall commissioning time. Furthermore a staggered service approach is also motivated to start sooner producing the expected benefits.

The structure and dimensioning of the operations teams during operations execution phase is also analysed. The needs of the overall mission, operations preparation and stabilisation of the infrastructure supporting the mission services are some of the factors influencing the composition of the teams along the mission lifetime.

This paper derives concepts from current mission operations, defines an innovative mission operations model based on those concepts and applies such model to a mission case.