HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3)
Human Space Endeavour: Overview (1)

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ESA ANALYSIS OF ARCHITECTURES FOR HUMAN SPACEFLIGHT AND EXPLORATION

Abstract

In view of the evolving European and international context, ESA is analyzing and defining the potential role of Europe in an international space exploration program through the study and development of long-term scenarios and supporting architectures for space exploration. One objective of these studies is to inform the program proposals for future Human spaceflight activities in Europe.

High-level objectives and requirements for the Exploration Architecture have been defined through consultation with representatives of the relevant stakeholder communities including industrialists, politicians and scientists together with consultations with the relevant ESA advisory structure.

The analysis of the space exploration architecture has been performed in collaboration with European space industry. A phased approach has been derived for the Exploration Architecture, which ensures fulfillment of the requirements, while also incorporating the incremental build up of the architecture in terms of time, technology development, political and financial constraints.

The Exploration architecture work ultimately results in an updated integrated roadmap of European space exploration activities which shows European priority exploration activities over time. This includes the identification of near-term exploration capability developments and missions. The elements, identified as European priorities are studied in more details in order to inform the needed technology development.

Furthermore, based on the defined European reference architecture, potential collaboration scenarios for future exploration with international partners will be derived such as to create benefits to all actors (such as increased safety, re-use of common capabilities, cost reduction, additional exploration opportunities). The identification of synergies and interfaces with different international actors constitutes a first step toward the definition of an international reference architecture for space exploration.