

SPACE EXPLORATION SYMPOSIUM (A3)
Space Exploration Overview (1)

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ESA APPROACH AND PLANNING FOR PREPARING THE EUROPEAN ENGAGEMENT IN
HUMAN SPACEFLIGHT AND EXPLORATION POST 2020**Abstract**

ESA's human spaceflight programme is currently focusing on the exploitation of ISS. Significant technological and research achievements have been realised within this programme at the level of the ISS partnerships and within Europe. Important decisions regarding ISS have been taken at the last ESA Meeting at Ministerial level held in November 2012 paving the way for European participation in ISS Exploitation up to 2020. The approval of the European development of the Service Module for the NASA Crew Exploration Vehicle (MPCV), within the framework of an ISS barter agreement, creates for the first time a role for Europe in human transportation. This decision does not only contribute to stabilising the ESA ISS Exploitation Programme up to 2020, but also opens up new perspectives for ESA's role in human missions targeting destinations beyond LEO. The ESA Long Term Plan outlines two programmatic lines for human spaceflight post 2020:

- Continuation of the exploitation of user-driven LEO infrastructures beyond 2020 at sustainable cost levels;
- Participation in international human mission scenarios beyond LEO leveraging on and further evolving European capabilities.

Important preparatory work is underway to define specific implementation options for both of the programmatic lines identified above with the goal to propose first concrete steps at the two upcoming ESA Council Meeting at Ministerial level planned for 2014 and 2015. International cooperation has always been the basis and the stabilising factor for the European human spaceflight programme. The future role of Europe in human spaceflight will also be strongly shaped by international cooperation and the strategic partnerships which ESA will establish with its international Partners. The cooperation with NASA on the MPCV may open up other opportunities in the area of space transportation. The partnership with Roscosmos for robotic exploration of Mars opens additional opportunities for cooperation in the field of lunar exploration. Finally, the focus of the Chinese space programme on future exploitation of LEO may open up opportunities for cooperation in this field. This paper provides an overview of the current strategic planning of ESA in the field of human spaceflight and exploration, integrated into a broader ESA strategy for space exploration addressing also robotic exploration of Mars and the step-wise development of critical enabling technologies. It describes on going preparatory activities and includes a critical assessment of the roles Europe can play in future international human mission scenarios currently defined and discussed within the international community.