

SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE EXPLORATION AND  
DEVELOPMENT (D3)Strategies & Architectures as the Framework for Future Building Blocks in Space Exploration and  
Development (1)

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## POTENTIAL EUROPEAN CONTRIBUTIONS TO INTERNATIONAL EXPLORATION SCENARIOS

**Abstract**

ASTRIUM Space Transportation has conducted a study for the European Space Agency related to possible contributions to international space exploration scenarios. As part of this activity, a number of possible scenarios have been identified and their building block elements have been analysed. Within these scenarios the programmatic as well as technical aspects for items of special interest have been investigated.

Europe has created in the past 3 main assets with its technologies, the Ariane5 launcher, the Columbus Module and the Automated Transfer Vehicle (ATV) as core elements for future exploration scenarios. Based on these elements and its technologies further exploration elements could be developed like an Earth Departure Stage based on an Ariane 5 upper stage, a Man-Tended Orbital Module based on Columbus or a Lunar Logistic Vehicle based on ATV.

The paper will present possible European contributions to international space exploration scenarios as outlined within the Global Exploration roadmap, i.e. the "Moon first" and "Near Earth Objects first" scenarios.

These elements could be developed either by Europe alone or in cooperation with other agencies also using already existing technologies from them. Important European contributions and building block elements will be presented in this paper as well as a critical assessment of the ISECG mission scenarios and included Design Reference Missions