

HUMAN SPACEFLIGHT SYMPOSIUM (B3)  
Utilization & Exploitation of Human Spaceflight Systems (3)

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CONCEPTUAL DESIGN OF A HUMAN SPACEFLIGHT PLATFORM AS ISS SUCCESSOR

**Abstract**

With the end of operation of the International Space Station ISS coming up within the next twelve years it is time to think about a successor space station to preserve long-duration human presence in space. According to the global exploration roadmap, opportunities for commercial or international platforms are an option to be considered for low-earth orbit. Looking at the lunar vicinity, “human-Scale, human-Enabled” platforms are suggested starting from 2020. In order to evaluate different possibilities, the Stuttgart Space Station Design Workshop 2016 will be held at the Institute of Space Systems (IRS) at the University of Stuttgart. Within the one-week challenge, two teams composed of international students and young space professionals, supported by experts coming from industries and universities, will develop a conceptual design for a next space station, based on a mission statement aligning with the exploration roadmaps of ISECG and ESA. During the workshop the students will pursue the design approach of concurrent engineering in an interdisciplinary manner, discussing not only space engineering issues but also including e.g. financial, programmatic and interior design aspects. The resulting conceptual designs will include project management, cost and risk analysis, mission planning and specifications of all subsystems relevant for the next space station. The results of the competing teams participating in the workshop are evaluated, concluded and presented in this paper. Amongst others, public-private partnerships, space tourism and risk reduction will be emphasized topics, in order to ensure long term sustainable and financially feasible outcomes. While the workshop on the one hand serves for educational purposes to all participants, it is on the other hand also intended to bring new ideas up for discussion or evaluate which objectives of a future manned platform in space might have synergetic potential.