

IAF HUMAN SPACEFLIGHT SYMPOSIUM (B3)
Commercial Human Spaceflight Programmes (2)

Author: Mrs. Donya Naz Divsalar
Airbus Defence & Space, Germany

Mr. Thierry Coursac
Airbus Defence and Space, Germany

Mr. Bradley Henderson
United States

Mrs. Annabelle Albrecht
Airbus Defence and Space, Germany

STARLAB'S HUMAN-CENTERED APPROACH TO DESIGN A NEXT GENERATION SPACE
STATION FOR THE UPCOMING ERA OF COMMERCIAL SPACEFLIGHT**Abstract**

With the launch of the new era of commercial human spaceflight and exploration, the necessity of human-related factors of spaceflight is rapidly becoming the highlight of many design considerations. Starlab, a joint venture between Voyager Space and Airbus, is actively establishing future-looking perspectives for designing space station for human users. These efforts have been inspired by the already existing human factors standards and optimization of crew health and performance implemented by global space agencies and the evolution of world-wide population anthropometric and demographic trends. Despite being a contemporary development, the field of spacecraft Human Systems Integration (HSI) is far from a standalone system. Built on the core principles of systems engineering, HSI is one of the most widely interfacing systems of the spacecraft. The crew onboard Starlab will come in contact and operate multiple aspects of the station, which include but are not limited to all station systems, various science payloads, items for leisurely and personal task, and medical procedures essentials. To enable optimal user experience and minimal physical and psychological workload, Starlab HSI team interfaces with various domains such as safety, ground and station mission operations, design, station and crew systems, crew health and performance, structure and layout, and training to ensure the implementation and execution of HSI requirements. This paper outlines the detailed interface and collaboration of HSI with the above-mentioned disciplines in a joint effort of developing the next generation commercial space station. We will elaborate on how Starlab achieves the fresh concept of application of human-centred design requirements in a commercial setting and in conjugation with traditionally established subsystems that are often utilized for uncrewed spacecraft design. Lastly, we will shine light on the challenges, solution implementation, and roadmap implementation for the current and upcoming professionals interested in pursuing a human-centred focus in commercial spacecraft design.