

IAF SPACE SYSTEMS SYMPOSIUM (D1)
Cooperative and Robotic Space Systems (6)

Author: Mr. Markus Thiel

OHB System AG - Oberpfaffenhofen, Germany, markus.thiel@ohb.de

Mrs. Christiane Bergemann Mecucci

OHB System AG - Oberpfaffenhofen, Germany, christiane.bergemann@ohb.de

Ms. Andrea Jaime

OHB System AG - Munich, Germany, andrea.jaime@ohb.de

Mr. Quirin Mühlbauer

OHB System AG - Oberpfaffenhofen, Germany, quirin.muehlbauer@ohb.de

Mr. Samuel Senese

OHB System AG - Oberpfaffenhofen, Germany, samuel.senese@ohb.de

Mr. Tim Tattusch

OHB System AG - Oberpfaffenhofen, Germany, tim.tattusch@ohb.de

Mr. Egbert Jan van der Veen

OHB System, Germany, egbert.jan.vanderveen@ohb.de

Mr. Adam Tvaruzka

ESA - European Space Agency, The Netherlands, adam.tvaruzka@esa.int

Mrs. Cristina Ortega

Added Value Solutions (AVS), Spain, space@a-v-s.es

Mr. Iñigo Sard

Added Value Solutions (AVS), Spain, isard@a-v-s.es

THE OHB ROADMAP FOR AUTOMATION AND ROBOTICS IN SPACE – KEY TECHNOLOGIES
FOR FUTURE EXPLORATION AND ORBITAL SYSTEMS**Abstract**

OHB System AG has been involved in a leading role in the development of high-precision robotic and mechatronic systems for more than two decades and built up strong expertise in the design and development of robotic systems for planetary exploration, orbital servicing and de-orbiting.

A robotic arm has been brought to space more than ten years ago and successfully operated on an external platform of the ISS. Sound concepts for robotic missions for orbital servicing and de-orbiting have been established. More recently, OHB has finalized the flight-model acceptance test campaign of three out of four subunits of the Sample Preparation and Distribution System (SPDS) developed for the ExoMars 2020 Rover. The first part of the paper is presenting an overview and some highlights of OHBs heritage in the field of space robotics.

Ambitious future exploration missions, manned or un-manned, are expected to strongly benefit from further advancements in space robotics and automation, opening new opportunities for science and economy. In a general sense, every step forward in automation of space systems (thus reducing ground command efforts) should be understood as a chance for increasing the overall efficiency of space missions, hence automation and robotics are among the main keys to improve the return on investment in all fields of astronautics.

In 2017 OHB System has established a Robotics Working Group (RWG) in order to evaluate the potential of different approaches, select the most relevant development fields and define a roadmap for

development of space automation and robotic technologies for planetary exploration, orbital servicing and de-orbiting for OHB System and other OHB companies. The second part of the paper presents some intermediate findings of the RWG and a first sketch of OHBs roadmap for space automation and robotics.