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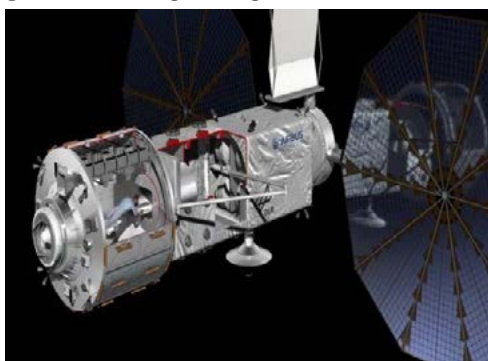


Oliver Romberg

German Aerospace Center, Germany

Post-ISS concept for 2025 and beyond

The International Space Station (ISS) demonstrates successful international cooperation between many partners regarding engineering as well as programmatic aspects. There are more and more ideas in the development of new markets by shifting responsibilities to private entities and broadening research disciplines, demanding faster access by users and including new launcher and experiment facilitator companies. A review of worldwide activities shows that all spacefaring nations are developing their individual programs for the time after ISS. Europe is interested in LEO and human spaceflight as discussed by the ISECG, depending on funding commitments. ISS follow-on activities should comprise clear scientific and technological objectives combined with commercial application and the long term view on space exploration. This includes key competences like robotics, internal and external space structures, module/facility and experiment operations as well as supply systems. Based on concurrent engineering (CE) processes, DLR started to investigate future low cost options by evaluating various LEO infrastructure concepts including opportunities for national realization and international cooperation based on feasible budgets. Using the concurrent engineering facility (CEF) of DLR Bremen, scientists and users from various disciplines are involved in assessing the feasibility of various Post-ISS options. Resulting payloads are based on Mir and ISS experience with respect to future scientific and technological research questions. Further, together with US and European industry, NASA and ESA astronauts, operation specialists, current ISS users and scientists, DLR conducted extensive CE studies for Post-ISS concepts. This work converged into a phase A design called Orbital-Hub based on a small low cost manned LEO platform including free flyer. The first flying hardware components could be realized in the frame of moderate budgets in the next eight years. The Orbital-Hub would guarantee a smooth transition between ISS and further space activities beyond LEO and would represent an important step towards long term human space exploration.



DLR free flyer as part of the orbital hub post-ISS concept

Biography

Oliver Romberg studied Mechanical Engineering with specialization in Mechanics, completed his PhD at Institute of Mechanics, University of Hannover in 1998 and worked since then in the field of Space Technology. In the year 1998, he started working in the company OHB System in Bremen, Germany as a Systems Engineer, Project Manager and later as Deputy Department Head. He has been working as Head of the DLR department System Analysis Space Segment for the German Aerospace Centre since 2007. He is an Assistant Professor at University of Bremen.

oliver.romberg@dlr.de