

ORU-BOAS

newsletter

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FIRST SEMESTER



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"Welcome, Readers!"

We're excited to bring you the very first edition of the ORU-BOAS Newsletter, Issue 1#. Join us on a thrilling journey into the world of the ORU-BOAS project, where we're reshaping space systems through an innovative concept: the Orbital Replacement Unit - based on Building Blocks for Advanced Assembly of Space Systems.

Our dedicated researchers are focused on an ambitious goal: enabling the assembly, repair, and deployment of space infrastructures right in orbit. With a strong focus on in-orbit services, we're striving to develop an advanced ORU-BOAS standard module, taking it up to an impressive TRL5/6 level.

This versatile plug-in module will be compatible with a wide range of payloads and will feature standard interfaces to seamlessly interact with other ORUs, satellite platforms, robotics elements, and the elements outlined in the "Plan European Roadmap and Activities for Space Exploitation of Robotics and Autonomy" (PERASPERA) roadmap.

Our vision encompasses a multitude of services, from life extension and refueling to repairs and station-keeping missions, all working towards bolstering European strategic autonomy and enhancing robotic missions.

As we wrap up the first six months of the project, this newsletter presents the initial findings from our Technology Review/System Requirements (SRR). It's an exciting peek into the progress we've made so far.

We invite you to delve into the articles, insights, and discoveries shared in this newsletter. Stay connected with us through our website and join our lively social media community to stay updated on the latest developments of the ORU-BOAS project.

Happy reading and let the future of space systems unfold!"

WP2 – Technology Review/ System Requirements

Looking at SRR

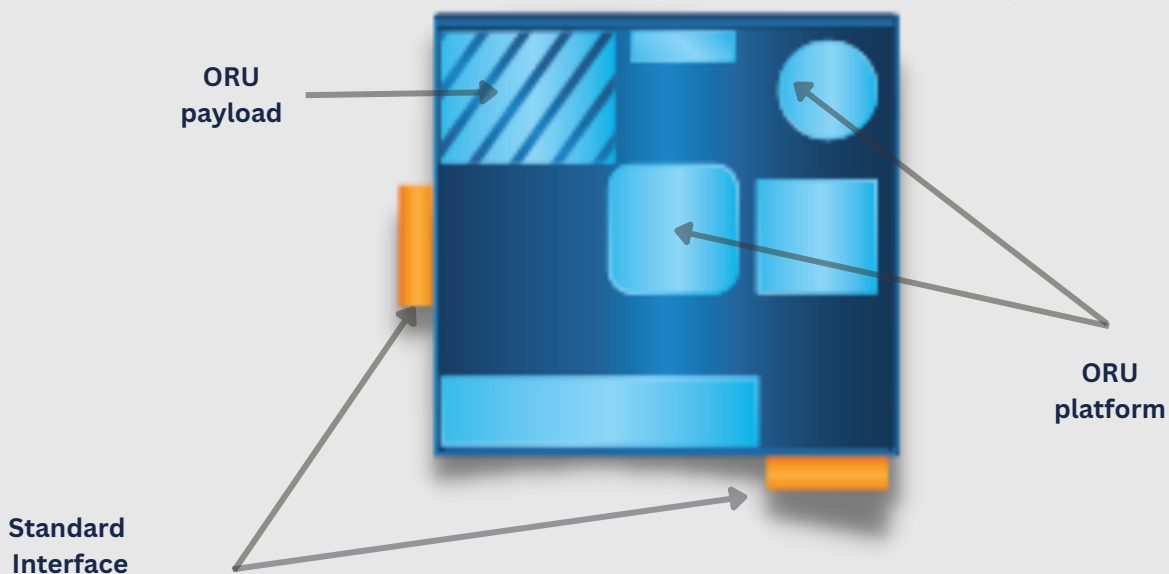
Wrapping up the 3rd month, our primary focus was on getting ready for the SRR. During this phase, we engaged in various activities to ensure we had a solid foundation to build upon. We gathered valuable insights for market analysis and examined both short- and long-term perspectives on potential application cases, comparing them to the current level of technological maturity.

Through careful market and economic analysis, we were able to explore applications in Low, Medium, and Geostationary Earth Orbits, ultimately identifying the most promising targets in the market for the near and distant future.

We defined a system concept and prepared detailed technical specifications for the development process to provide a clearer picture of the application cases. This enabled us to establish a plan for the development phase.

By dedicating ourselves to SRR, we are taking significant steps towards a brighter future, laying the groundwork for innovation and advancement in our field.

Figure 1: elaboration of the IOD mission requirement list that will be used as guideline for ORU-BOAS design.



WP2 – Technology Review/ System Requirements

Shaping the Future: SRR's Impact on the ORU-BOAS Project"

In the ORU-BOAS project, SRR plays a vital role. Through our Market & Economic Studies activities, we actively sought out new market opportunities for On-Orbit Services and In-Space Manufacturing and Assembly. The insights gained from these studies will guide our future developments in the project.

Taking a system view, we were able to derive technical requirements that will facilitate the seamless integration of ORUs (Orbital Replacement Units) into upcoming missions. A dedicated subset of these requirements specifically focuses on what can be included in the forthcoming EROSS IOD (Earth Remote Observation System and Services) demonstration mission.

During this period, we obtained a comprehensive overview of various aspects related to the system concept, including functionalities, operations, interfaces, architecture, and verification plan. Additionally, we identified the hardware and resources required to execute the Demo Mission successfully.

As SRR ended up, we are excited to announce that its outputs will play a pivotal role in guiding the technology development in the upcoming phases of the project. The valuable knowledge and insights gained during this phase will shape our future endeavors.

Unveiling the Path to an Autonomous European Mission: An Exciting Expedition