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EU-RISE: Europe's open source workshop for space

Robotic technology is set to significantly change the space industry in the coming years. The EU-RISE project is helping to secure Europe's share of this important future market through an open source approach.

Satellites that are launched into space today are almost impossible to maintain, repair or expand. And space transport capacities are limited. Even the new European Ariane 6 launcher, for example, has a maximum payload of 11.5 tonnes. Robotic space tools could solve this by carrying many tasks on orbit. In-space Servicing, Assembly and Manufacturing – ISAM for short – is the name of the approach that various space players are working on.

Marc Manz (Airbus) is the coordinator of the EU-funded project: *“We want to prepare a paradigm shift to change the ways space systems are designed, built and operated – moving from mission specific solutions to modular space crafts which are serviced, manufactured, assembled by robots in space.”*

The potential of the technology is huge – after all, it could drastically reduce the cost of space technology if space infrastructure consisted of different modules that could be serviced, replaced and repaired.

The workshop in space

The EU-RISE project is backed by a consortium of 8 European companies from 7 countries, coordinated by Airbus Defence and Space, the major European systems integrator in the space sector. The project partners are jointly developing the interaction of components required to perform mechanical tasks in space. In addition to the complex control software, this also includes modules such as a robot arm, a space workbench to fix parts that are being processed, and a material dispenser in which components and tools can be transported and stored. In the course of the project, all components are to be brought together and tested in an end-2-end demonstrator at the Airbus site in Bremen – under the conditions of realistic missions scenarios.

Open source: shared interfaces and standards

With this project, Europe's space sector is setting the course for future space ecosystems in which ISAM technologies play a key role. EU-RISE is focusing on an open source strategy. Open interfaces and technical standards should enable as many players as possible from research and the development departments of companies of all sizes to develop components for ISAM systems.

Marc Manz: *“It makes sense to join forces and follow an open source strategy that enables the academic world as well as SMEs and large industry players to work hand in hand in the development of building blocks.”*

The European Union, the European Space Agency (ESA) and Airbus as a system integrator hope that this will create an innovative market environment in which as many products and services as possible can be developed.

The EU-RISE Consortium:

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