

## Augmented Reality AIT/AIV Support

**An effective and efficient Augmented Reality (AR) assistance system, as a smart service for planning, execution, communication and documentation of assembly, integration and test processes in satellite production.**

It is not uncommon to generate paper documents with tens of thousands of pages for the construction of a small satellite. Collaboration in the space industry is often still based on the exchange of documents. Digital continuity or even interoperability of data rarely exists. As a result, there are inefficiencies in data usage, reactive services, increased project costs, and unnecessary barriers to entry for innovative digital data services. To solve this problem, large and medium-sized aerospace companies, SMEs, start-ups and research institutes have joined forces to form the COOPERANTS development project, which is funded by the German Federal Ministry of Economics and Climate. COOPERANTS aims to solve pressing problems in digital collaboration by linking heterogeneous system landscapes on the basis of a common data space and providing transversal, collaborative smart services. One goal is to enable low-barrier exchange and sharing of data and services across the international industry.

One example is HOLOWORK Assist, a smart service for dynamic, visual process support for AIT/AIV procedures in space mission manufacturing. The goal of the augmented reality application, which is completely designed for decentralized operation, is to achieve measurable increases in productivity, a reduction in sources of error and savings in resources, in addition to higher and permeable digitization. For this purpose, detailed part and process information is digitized with a workflow editor system and linked to CAD or 3D data to form work steps. With the AR data glasses HoloLens or pad computers, these are made available to the executor as information, parts and process representation in the real workspace, where they are controlled interactively and "hands-free". The data structure is designed to be bidirectional, so that documentation and revision data are digitally recorded and quickly available. With the switchable multi-user mode HOLOCONNECT, several people can work together simultaneously in augmented reality, independent of location and device.



**Testing HOLOWORK Assist at DLR, Bremen**