

End-to-End Software Engineering for Space

About Us

Ateleris GmbH is a Swiss, privately owned software engineering company, founded in 2016 and headquartered in Brugg, Switzerland, with **core competencies in developing comprehensive software solutions** for space and research.

What started as a spin-off from the University of Applied Sciences Northwestern Switzerland FHNW has grown into **a team of 16 engineers and specialists**, bringing experience from collaborating on major scientific endeavors like RHESSI, Euclid, SKA, SDO, and e-CALLISTO. Our team is serving a growing number of clients and projects in **space and other industries**, including energy, logistics, MEM, and the public sector. Through GSTP, ARTES, and other ESA-funded programs and industry collaborations, we have built deep expertise in mission-critical software.

We are proud to have our code in space today, onboard the STIX instrument on ESA's operational Solar Orbiter mission.

	2016	2020	2022	2025	2026
Team	1	8	10	16	16+
Clients	2	6	10	25	25+
Projects Space		7		3	1+
Industries	<ul style="list-style-type: none"> ▪ Space, Science & Research (½) ▪ Logistics, Energy & Sustainability (½) ▪ MEM and Public Sector (½) 				
Quality	QMS and ISMS implementation planned for 2026				
Flight Heritage	1 operational instrument in orbit (STIX on SolO)				

Services & Products

Our team of engineers and specialists builds **software along the data chain**, enabling acquisition, processing, transmission, and exploitation from observation to end user. We engineer solutions **end-to-end in three dimensions**: across the **software lifecycle**, from vision to operation; **along the data flow**, from onboard processing to multi-source analysis; and **through the technology stack**, from low-level embedded C to Python for machine learning pipelines. Our capabilities span four areas:



Flight Segment

- Flight & Instrument Software
- Payload & Edge Computing
- Onboard AI/ML



Cross-Functional Services

- TMTC & PUS-C Stacks
- Quantum-Safe Cryptography
- Formal Software Verification



Ground Segment

- Pipelines & HPC
- Platforms & Integration
- Advanced Analytics

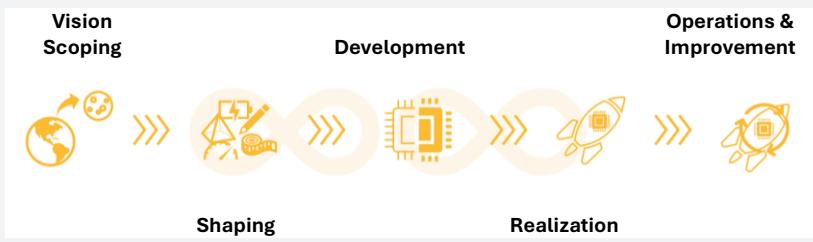


(Co-) Engineering Process

- ECSS/CCSDS Compliance
- V&V & Test Automation
- DevOps + MLOps

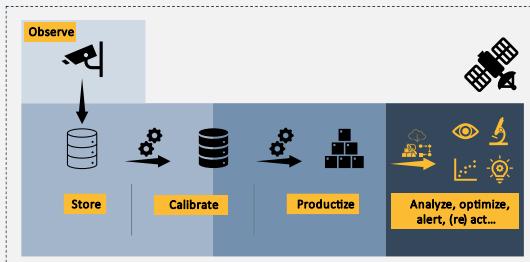
Software Lifecycle

Our work spans the **complete software lifecycle**, from vision to operation. In early phases, we help shape requirements and architecture. Through development and realization, we build, integrate, automate, and verify. And we stay engaged into operations, maintaining, improving, and supporting systems for years after delivery. We **combine agile iteration with the rigor of ECSS processes**, adapting our approach to what each project demands.



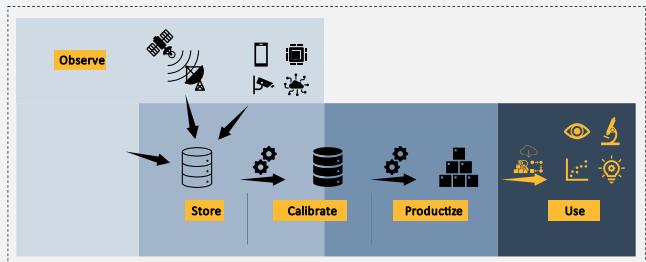
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Software Engineering Along the Data Flow



Edge Computing

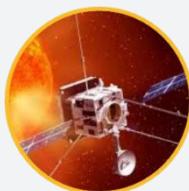
Not all data needs to reach the ground. We engineer onboard processing that stores, calibrates, and productizes at the edge, enabling real-time analysis, autonomous alerting, and bandwidth-efficient operations where latency and downlink matter.



Space-to-Ground

From observation to insight: we build software that follows your data through every stage, acquisition in orbit, transmission to ground, calibration, productization, and exploitation. Single-vendor accountability across the entire chain.

Recent Key Activities



STIX Flight & Ground Software

End-to-end software delivery for the STIX X-ray telescope aboard ESA's Solar Orbiter. From onboard application software, developed and qualified for flight, to the ground pipeline that turns raw telemetry into calibrated science products. We have supported the mission since 2020, through its extended operations phase.



End-to-End Quantum-Safe Satellite Links

Within ESA's ARTES programme, we are developing post-quantum cryptography solutions that integrate with CCSDS standards, ensuring space infrastructure remains protected as the threat landscape evolves. The work bridges cryptographic research and flight-ready implementation based on the NASA Core Flight System.



End-to-End Embedded Object Detection

Real-time object detection on resource-constrained platforms for armasuisse S+T. We achieved 10.5 mpx inference per second at approximately 26 W on dedicated hardware, using quantization-aware YOLOX training. Demonstrated on drone platforms, the system enables onboard decision-making and autonomous alerting.



EGSE Engineering Support

We extended the University of Bern's EGSE software with a scripting engine for automated mass spectrometer testing. Integrated with TM/TC systems, the solution enables predictable, repeatable, and safe instrument verification, from early lab testing through flight acceptance.

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