



PRESS RELEASE

ION-X, Space Inventor, Aldoria and AIKO Consortium Selected for ESA's Zero Debris Approach Study

The consortium's goal is to develop the first autonomous debris avoidance system for CubeSat

Paris, March 18th 2025 - The consortium of ION-X, Space Inventor, Aldoria, and AIKO is proud to announce its selection for ESA's Open Space Innovation Platform (OSIP) campaign, "Pre-Phase A System Study for Zero Debris CubeSat Platforms", as part of ESA's Zero Debris approach. This campaign is funded by the Preparation element of ESA's Basic Activities under the Sysnova initiative.

The integration of autonomous collision avoidance systems represents a major leap forward in satellite operations, enabling CubeSats to navigate the growing risks of space debris without human intervention. This breakthrough will enhance the resilience of space traffic management, ensuring the safe and sustainable operation of future missions.

A CONSORTIUM OF SPACE INDUSTRY LEADERS

Bringing together four leading players in the space industry, the consortium combines cutting-edge expertise in CubeSat propulsion, system integration, automation, and space surveillance :

- **ION-X** provides high-precision propulsion to execute orbital maneuvers with agility.
- **Aldoria** enhances space situational awareness (SSA) with real-time data and predictive analytics, ensuring accurate tracking of potential collision threats.
- **AIKO** develops AI-driven decision-making algorithms, processing onboard SSA data, satellite status, and propulsion system performance to enable autonomous maneuvering in real-time.
- **Space Inventor** delivers a state-of-the-art CubeSat platform that seamlessly integrates all components.

This fusion of AI, propulsion, and space surveillance will provide CubeSats with the ability to react dynamically to collision threats, reducing reliance on ground control and establishing a new benchmark for operational autonomy in space.

Thomas Hiriart, CEO of ION-X, commented, *“We are honored to contribute to ESA's Zero Debris approach alongside Space Inventor, Aldoria, and AIKO. This project perfectly embodies the essential synergies between space industry players to build a more sustainable orbital environment. By combining our expertise, we are paving the way for smarter and more autonomous space traffic management, ensuring the safety and longevity of orbital operations.”*

Astrid Kjeldal, Sales Manager and Team Lead of Space Inventor, states *“With the increasing number of satellites in both Low Earth Orbit and Geostationary Orbit, satellite manufacturers must prepare their systems for the challenges of tomorrow's space environment. At Space Inventor, we are dedicated to designing and manufacturing cutting-edge satellites that push the boundaries of technology—whether for defense missions, GEO communications, or advancing Zero Debris and Space Situational Awareness (SSA). Our commitment is to build satellites that not only endure the challenges of tomorrow but remain reliable and operational for years to come.”*

Mylène BOSIO, VP Sales & Marketing of Aldoria, commented *“The Zero Debris Approach is not just about sustainability—it's about sovereignty, resilience, and the ability to shape the future of space operations. At Aldoria, we provide the critical space situational awareness that enables satellites to anticipate, decide, and maneuver in an increasingly congested orbit. Mastering real-time information flow is no longer optional it's the key to operational supremacy in space. With this project, we are taking another step toward making autonomous decision-making a reality, ensuring that future missions are not only safer but also fully self-reliant in a ever-changing orbital environment.”*

Aurélié BAKER, France Country Manager of AIKO, added, *“With over 8,000 satellites currently in orbit and thousands more set to launch in the coming years, space traffic management is becoming an increasingly urgent challenge. Autonomous solutions like those developed in this ambitious mission are essential to ensuring safe and sustainable operations in an ever-more crowded orbital environment. AIKO, through its French branch is proud to contribute to this effort, developing advanced autonomous decision-making technologies to make the space sector more resilient and efficient. We are thrilled to start this project which is perfectly in line with AIKO strategy to develop autonomous solutions for collision avoidance through its French branch”.*

Tiago Soares, Clean Space lead engineer of ESA commented, *“ESA wants to develop zero-debris satellites to get to Zero Debris by 2030 to ensure a safe and sustainable future in space. Collision avoidance is an essential part of that, and as orbits are getting increasingly crowded, automation is key. Developing CubeSats with AI-based automation on board will allow them to avoid debris and other spacecraft autonomously. Together with Ion-X, Aldoria, AIKO and Space Inventor we are preventing the creation of new debris by building more self-reliant CubeSats for smarter, safer and more affordable space traffic management.”*

TOWARDS A NEW ERA OF SUSTAINABLE SPACE OPERATIONS

The increasing volume of space debris poses a growing threat to operations in Low Earth Orbit (LEO), especially as CubeSat deployments and large satellite constellations expand. Today,

collision avoidance maneuvers rely heavily on ground-based operators, requiring manual assessments of conjunction warnings and pre-planned trajectory adjustments. This approach disrupts mission continuity and proves highly inefficient for large fleets, where real-time coordination is crucial.

By embedding intelligence directly onboard satellites, this project will enable CubeSats to:

- Autonomously assess and execute last-minute maneuvers to optimize their limited propulsion.
- Reduce mission downtime, ensuring continuous data collection even during orbital adjustments.
- Improve constellation-wide coordination, mitigating risks in high-density orbits.

This initiative aligns with ESA's Zero Debris vision, which aims to drastically reduce the creation of new space debris by 2030. By integrating real-time AI-driven decision-making with advanced propulsion and SSA, this project sets a new standard for the next generation of space operations — one where sustainability and autonomy are at the core of every mission.

About ION-X

ION-X is a startup founded in May 2021 by Jacques Giérak, a world-renowned expert in ion sources for nanoelectronics and Research Engineer at C2N (Nanoscience and Nanotechnology Laboratory of CNRS, Palaiseau). Giérak was awarded the CNRS Innovation Medal in 2023. The company was co-founded with Yves Matton, Partner at the venture builder Technofounders. ION-X develops a new electric propulsion system based on the ejection of ultra-fine, fully ionized particles, primarily designed for small satellites. This system is based on patented technology jointly developed by CNRS and CNES.

For more information, visit <https://ion-x.space>

About Space Inventor

Space Inventor is a second-generation New Space company, founded in 2015, specializing in the design, manufacturing, and delivery of advanced micro and nanosatellites. Headquartered in Aalborg, Denmark, with an office in Copenhagen dedicated to development and project management, Space Inventor is also expanding with a new office in Toulouse, France, to strengthen its role in the European space sector. A deeply vertically integrated company, Space Inventor manufactures 95% of its satellite subsystems in-house. This allows for superior control over production quality and rapid customization, ensuring that platforms can be tailored to meet the stringent demands of modern missions.

For more information, visit <https://space-inventor.com/>

About Aldoria

Aldoria is a French company founded in 2017 to tackle the critical challenges of space safety and security. From designing and assembling optical sensors to operating a global sensor network, processing and fusing data, managing space object catalogs, and delivering high-value services like collision avoidance and maneuver detection, Aldoria covers the entire spectrum of space surveillance for both civilian and military applications.

To power these services, Aldoria is deploying a proprietary optical sensor network across four continents, with 15 fully operational telescopes across six stations in January 2025. Backed by a €10 million Series A funding round in early 2024, and with key contracts from EU SST and CNES, Aldoria is scaling rapidly to secure space operations.

For more information, visit <https://www.aldoria.com>

About AIKOSPACE

AIKO was founded in Turin in 2017 by Giorgio Albano, lawyer, and Lorenzo Feruglio, aerospace engineering researcher from the Politecnico di Torino and now the company's CEO. A deep-tech scaleup specializing in artificial intelligence technologies for automation in space applications, AIKO stands out for developing cutting-edge onboard and ground software solutions designed to enable mission autonomy across all phases, from design and deployment to onboard system autonomy and ground operator support. In 2019, AIKO became the first company to demonstrate an artificial intelligence algorithm in orbit for an Earth observation mission. Today, the team spans Italy and France, with over 50 experts specializing in AI and software development, automation algorithms, and commercial strategy, working across its offices in Turin and Toulouse.

With a track record of both public and private investments, AIKO currently holds active contracts with leading space agencies, including the French Space Agency (CNES), the Italian Space Agency (ASI), and the European Space Agency (ESA), as well as major players in the European space industry. Since 2020, AIKO has undertaken a capital-raising effort, securing a total of €7 million in funding.

For more information, visit <https://aikospace.com/>

About ESA's Zero Debris Approach

ESA introduced the 'Zero Debris approach' as the goal to significantly limit the production of debris in Earth and Lunar orbits by 2030 for all future missions, programmes and activities.

For more information, visit

https://www.esa.int/Space_Safety/Clean_Space/ESA_s_Zero_Debris_approach

About ESA OSIP

The Open Space Innovation Platform (OSIP) of the European Space Agency was launched in 2019 to better serve the emerging needs of the modern space sector. For more information, visit

https://www.esa.int/Enabling_Support/Preparing_for_the_Future/Discovery_and_Preparation/The_Open_Space_Innovation_Platform_OSIP

ESA's preparation element of ESA's Basic Activities

The call is funded by the Preparation element of ESA's Basic Activities under the SysNova initiative, which promotes joint studies by academic and industrial institutions across ESA Member States in the exploratory phase of new topics. It uses technology challenges and competition to survey a comparatively large number of alternative solutions to a proposed topic. For more information, visit

https://www.esa.int/ESA_Multimedia/Images/2021/05/ESA_Preparation

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