

May 12, 2026

ACSL Ltd.

ACSL and SpaceData Launch Joint Study to Advance Drone Operations Using Digital Twin Technology and Physical AI

- ACSL and SpaceData have launched a joint study integrating digital twin technology and physical AI, with the aim of advancing unmanned system operations required in the fields of defense, disaster response, and social infrastructure maintenance.
- Drone-acquired image data and other sensor data will be incorporated into a digital twin platform to recreate target environments in virtual space, enabling studies on operational and mission planning through simulation, as well as research on the learning and optimization of physical AI.
- As part of ACSL's mid-term plan, "ACSL Accelerate FY26," which includes the strategic priority of "drone evolution with advanced technologies," the initiative is expected to further accelerate the development of Japan-made drones by incorporating cutting-edge technologies.

ACSL Ltd. ("ACSL") announces the launch of a joint study with SpaceData Inc. (Headquarters: Minato-ku, Tokyo; CEO: Koyo Sato; "SpaceData"), a provider of integrated technology platforms centered on AI and digital twin technologies.

The collaboration aims to advance unmanned system operations required in the fields of defense, disaster response, and the maintenance of social infrastructure by integrating AI and digital twin technologies with autonomous drone control technologies.

■Background

In recent years, changes in the defense and security environment, the increasing frequency and severity of natural disasters, and the aging of social infrastructure have created an urgent need for unmanned systems. These systems must enable rapid, high-accuracy situational awareness and decision-making, even in environments that are difficult or dangerous for humans to access.

As a core technology addressing these challenges, digital twins—which recreate real-world environments in virtual space and enable AI-based validation and simulation in advance—are gaining increasing importance.

ACSL develops and manufactures Japan-made industrial drones leveraging its proprietary autonomous control technology and has accumulated extensive operational experience across a wide range of applications, including disaster response, infrastructure inspection, and defense.

Meanwhile, SpaceData has developed an integrated technology platform, "PROVIDENCE," that combines digital twin technology and physical AI. The platform uses satellite and sensor data to accurately reproduce terrestrial, urban, and infrastructure environments, enabling AI-based verification and learning.

By combining their respective strengths, the two companies share the view that it is possible to significantly advance unmanned system operations by linking drone-acquired real-world data with digital twin simulation, pre-operational validation, and behavioral learning. On this basis, ACSL and SpaceData

have initiated this joint study.

■Key Areas of Joint Study

1. Development of Digital Twin Environments Using Drone-Acquired Data

The study will examine technologies for incorporating image data and various sensor data acquired by ACSL's drones into SpaceData's integrated technology platform, PROVIDENCE, to recreate environments relevant to defense, disaster response, and social infrastructure maintenance within a digital twin.

2. Operational and Planning Studies Using Physical AI Through Simulation on Digital Twins

Within the digital twin environments, the companies will conduct simulations of flight paths and operational methods using physical AI. These simulations will support the examination of mission planning, disaster response planning, and infrastructure inspection planning.

3. Advancement of Real-World Operations Through the Use of Simulation Results

The study will also explore mechanisms for enhancing the safety and efficiency of unmanned system operations in the defense, disaster response, and social infrastructure fields by applying simulation results obtained from digital twins to the operation of actual drones.

Through this joint study, ACSL and SpaceData aim to contribute to the advancement of unmanned system operations in the defense, disaster response, and social infrastructure sectors. The companies will also advance this study with a view to deploying and adopting new solutions that integrate digital twins with actual drone operations.

This initiative aligns with ACSL's mid-term plan, "ACSL Accelerate FY26," and specifically supports one of its key strategic priorities: "drone evolution with advanced technologies." By exploring advanced drone operations utilizing digital twins and AI, ACSL seeks to connect these efforts to the development of future drone platforms and solutions, thereby strengthening the technological competitiveness of Japan-made drones and accelerating their adoption in society.

SpaceData Inc.

SpaceData Inc. is a technology startup founded on the vision of "Creating a society where space is accessible to everyone." By integrating space and digital technologies, the company is pioneering the creation of new industries and social infrastructure. Leveraging digital twin technology that precisely reproduces both terrestrial and space environments, SpaceData aims to build next-generation digital platforms to support the future of urban development, disaster prevention, and national security. Furthermore, through the development of space robotics and operational infrastructure for space stations, the company is taking concrete steps toward the realization of a sustainable space society.

For more information, please visit <https://en.spacedata.jp>.

ACSL Ltd.

ACSL is a manufacturer that develops and mass-produces industrial drones made in Japan under the mission, "Liberate humanity through technology." Leveraging proprietary autonomous control technologies and high reliability, ACSL's products contribute to the maintenance of social infrastructure and the enhancement of safety and security across a wide range of fields, including aerial photography, inspection, logistics, and disaster response.

For more information, please visit <https://www.acsl.co.jp/en/> .

Disclaimer

This document is an unofficial translation of the press release dated May 12, 2026, and is provided for reference purposes only. In the event of any discrepancy between the English and Japanese versions, the Japanese original shall prevail.