Press Release

SINGAPORE, 20 May 2026

Dassault Systèmes and iHawk Pioneer the use of Cloud-based Virtual Twin Technology for Autonomous Cargo Operations in Singapore

- **Autonomous drones and ground rovers operate live at an active 50,000 sqm container yard in Singapore, among the first cargo deployments of its kind in ASEAN**
- **Simulation-led development reduced drone prototyping time by four months, saved up to S$30,000 in estimated hardware costs, and improved energy efficiency by 30%**
- **Deployment supports Singapore's push toward smarter and more automated port operations under the Sea Transport Industry Transformation Map (ITM)**

Dassault Systèmes (Euronext Paris: FR0014003TT8, DSY.PA) today announced the real-world deployment of its virtual twin technology for autonomous cargo operations with Singapore-based deep-tech startup iHawk Global.

The system is currently being piloted at an active 50,000 sqm container yard in Singapore, where autonomous aerial drones and ground rovers work together to capture live inventory data and provide operators with real-time asset visibility. The deployment is among the first of its kind in ASEAN for cargo operations in dense, GPS-denied container environments.

As Singapore advances its transformation into a next-generation port and logistics hub, the maritime sector is moving toward leaner and more automated operations under the Sea Transport Industry Transformation Map (ITM). However, dense stacks of steel containers in port yards often disrupt GPS and communications signals, making autonomous navigation difficult and limiting the reliability of conventional autonomous systems.

To address this challenge, iHawk developed a system that pairs an aerial drone with a ground rover acting as a precision navigation anchor, enabling sub-decimeter positioning accuracy in complex container yard environments. The system allows operators to improve inventory visibility while reducing reliance on manual inspections and on-ground operations.

Before deployment, the entire system was designed and validated virtually using Dassault Systèmes' 3DEXPERIENCE platform. iHawk simulated airflow conditions, mapped signal dead zones, and stress-tested operational scenarios digitally before hardware was deployed in the field.

This simulation-led approach enabled iHawk to identify critical design flaws early, eliminating two full rounds of physical prototyping and saving up to S$30,000 in estimated hardware costs and four months of development time. Mission energy efficiency also improved by 30%, while time spent preparing regulatory safety documentation was reduced by approximately 50%.

The deployment reflects a broader shift across Singapore and ASEAN toward more automated and manpower-lean logistics operations. As ports face increasing pressure to improve yard productivity and operational visibility, technologies that combine autonomous systems with real-time digital twins are becoming increasingly important in helping operators manage dense, high-volume cargo environments more efficiently.

Developed by the 3DEXPERIENCE Platform on the cloud

At the core of the deployment is Dassault Systèmes' cloud-based 3DEXPERIENCE platform, which enables AI-powered, science-based virtual twins. It provided iHawk with a unified environment to design, test and connect real-world data. Using applications such as CATIA for rapid AI-assisted design iterations, and SIMULIA to simulate airflow and signal interference in complex environments, iHawk was able to validate its system virtually before deployment. Dynamic Systems Specifier was used to test coordination between drones and ground rovers across more than 50 scenarios in a cloud-enabled environment. Together, these capabilities enabled iHawk to move from concept to live deployment faster, with greater confidence and accuracy.

"As a startup operating in one of the most technically demanding environments imaginable, we needed technology that could give us certainty before deploying hardware in the field," said Alexis Prakash, Chief Technology Officer, iHawk Global. "Container yards are one of the hardest environments for autonomous systems to operate in reliably. The 3DEXPERIENCE platform allowed us to simulate real-world operating conditions, validate our system logic, and significantly reduce development risk before deployment."

"This deployment shows how virtual twin technology can fundamentally change how complex industrial systems are built and operated," said Sharon Toh, Vice President, Asia-Pacific South, Dassault Systèmes. "As Singapore advances as a leading digital logistics hub, our AI-powered platform is helping scale engineering knowledge and operational know-how for deep tech startups and industry partners, enabling faster innovation. By connecting the virtual and real worlds, we are improving today's operations while laying the foundation for future autonomous and sustainable port ecosystems across the region."

With commercial deployment targeted for October 2026, iHawk is advancing its system through phased development, beginning with live deployment of autonomous drones for real-time cargo data capture, and now progressing toward integrating ground rover coordination and real-time virtual twin synchronisation within the 3DEXPERIENCE platform. The company is initially focused on supporting cargo operations in Singapore's port and marine sectors, with plans to explore expansion opportunities across ASEAN.

###

FOR MORE INFORMTION

Dassault Systèmes' 3DEXPERIENCE platform, 3D design software, 3D Digital Mock Up and Product Lifecycle Management (PLM) solutions: http://www.3ds.com

Connect with Dassault Systèmes on

ABOUT DASSAULT SYSTÈMES

Dassault Systèmes is a catalyst for human progress. Since 1981, the company has pioneered virtual worlds to improve real life for consumers, patients and citizens. Through the 3DEXPERIENCE platform, AI-powered, science-based virtual twins help 390,000 customers of all sizes, in all industries, collaborate, imagine and create sustainable innovations that drive meaningful impact. For more information, visit: www.3ds.com

Dassault Systèmes Press Contacts

AP South	Hazel FOO	hazel.foo@3ds.com	+65 8333 3484