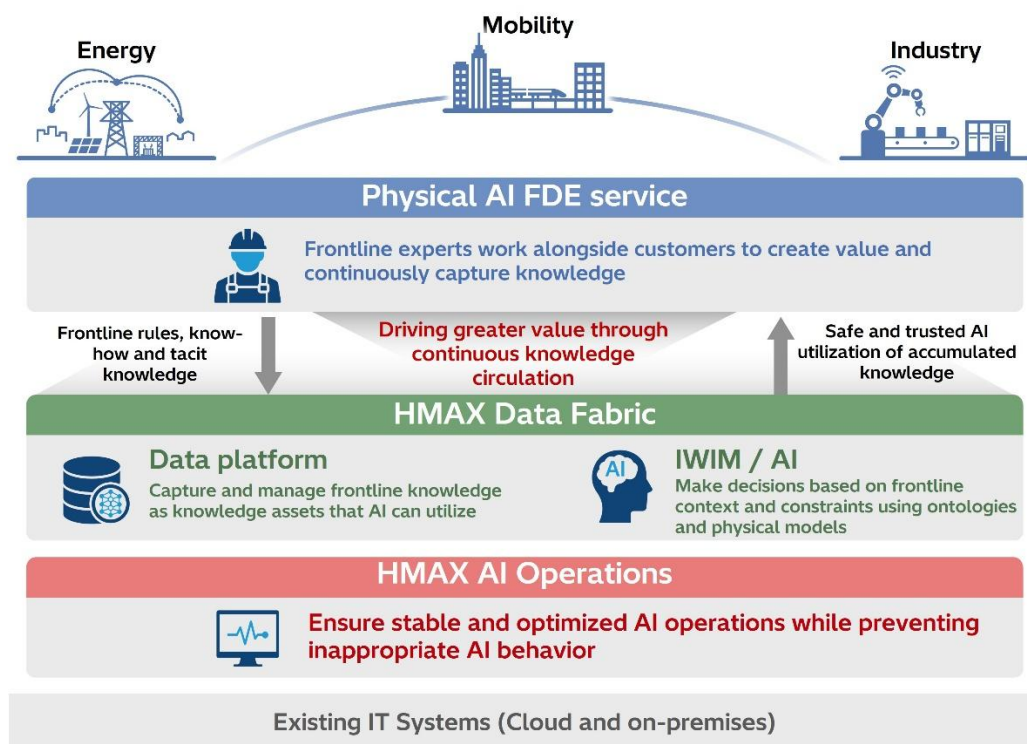


## Hitachi launches new platform and operations management solutions, including HMAX Data Fabric

- Three new solutions to collectively enable autonomous optimization across entire frontline operations
- Physical AI Forward Deployed Engineers to transform tacit frontline knowledge into digital assets, providing end-to-end support from identifying business challenges to implementing and operating AI solutions



Conceptual image of HMAX's new solutions for accelerating the social implementation of Physical AI

**Tokyo, September 3, 2026** – Hitachi, Ltd. (TSE:6501, "Hitachi"), today launched foundry solutions supporting “HMAX by Hitachi” (“HMAX”), a next-generation suite of solutions that brings the power of AI to social infrastructure. They are the “Physical AI FDE (Forward Deployed Engineer) Service,” in which the “Physical AI FDE Team,” an expert team connecting IT and OT (Operational Technology) through AI, is embedded at customer sites; “HMAX Data Fabric,” a data platform that integrates tacit frontline knowledge and data; and “HMAX AI Operations,” which supports safe autonomous operations. With these new offerings, Hitachi aims to enable autonomous optimization across entire frontline operations and eliminate organizational and system silos in social infrastructure and industrial fields.

By seamlessly linking these solutions, Hitachi will accumulate tacit knowledge and data as digital assets and circulate them across the organization for use, thereby providing end-to-end support ranging from the identification of management challenges to AI development and operations.

As its approach to frontline operations, Hitachi’s Physical AI FDE Team brings together diverse experts with world-leading AI capabilities and deep domain expertise cultivated through more than 110 years of manufacturing experience and infrastructure development and operations. The

team works side by side with customers, starting with the identification of business challenges and supporting their transformation journey. In addition, the team performs high-quality cleansing and structuring of diverse and heterogeneous frontline data, while capturing the experience, know-how, and decision-making criteria of skilled workers that have traditionally remained undocumented.

This frontline data and tacit knowledge are systematically contextualized based on an ontology<sup>\*1</sup> and accumulated in HMAX Data Fabric as knowledge graphs<sup>\*2</sup> that AI can utilize. The platform also connects with environments for training AI models that control robots and other equipment using the accumulated data, as well as environments for developing and operating Agentic AI, providing AI-ready data.

Furthermore, by linking this data and these AI models with IWIM (Integrated World Infrastructure Model)<sup>\*3</sup>, Hitachi's social infrastructure intelligence foundation model, AI will be able to accurately interpret contexts such as physical operational limits and frontline control rules. This enables advanced orchestration in which AI balances operations across different systems and optimizes operations across the entire frontline while considering complex constraints such as utilization rates and power consumption. Additionally, HMAX AI Operations continuously monitors and reduces AI-specific risks and hallucinations, supporting safe autonomous operations even in mission-critical environments.

By integrating these advanced digital platforms with expert support and connecting the extracted frontline knowledge to AI utilization and operation, Hitachi will enable rapid AI implementation tailored to each customer's unique data environment and frontline rules, while ensuring high adaptability to environmental changes. Through enhanced decision-making by management, accelerated enterprise-wide AI adoption led by digital transformation teams, Hitachi will contribute to the continuous evolution of companies and entire industries.

<sup>\*1</sup> Ontology: A systematic definition of the meanings and concepts of data, as well as the relationships among them. Today, it is also being redefined as a common language that connects enterprise data platforms and AI agents.

<sup>\*2</sup> Knowledge graph: A database structured by connecting diverse data and their relationships in a network, or graph structure, based on ontology. It serves as a foundation that enables AI to trace connections among pieces of information and conduct advanced contextual understanding and reasoning toward overall optimization.

<sup>\*3</sup> An intelligence foundation model announced by Hitachi in November 2025. It was developed based on Hitachi's multilayered OT knowledge accumulated over many years, as well as its deep understanding of physical phenomena, to safely and reliably implement Physical AI in mission-critical social infrastructure

## Background

Mission-critical frontline operations in social infrastructure and industrial fields, including energy, railways and manufacturing, have faced increasingly serious challenges in recent years due to labor shortages and the loss of tacit frontline knowledge as skilled engineers retire. While expectations are growing for the social implementation of Physical AI as a means of addressing these challenges, simply introducing AI models is not enough in actual frontline environments. It is essential to properly prepare noisy frontline data, convert site-specific constraints and safety rules into forms that AI can handle, and continuously monitor data quality, AI model performance, security and other factors after implementation to ensure safe, railways and manufacturing, have faced increasingly serious challenges ongoing operations.

Through its Lumada business, Hitachi has built a strong track record of delivering mission-critical systems, operations, and data-driven solutions in collaboration with customers and partners. Hitachi's unique expertise in systematizing frontline knowledge as ontologies and making it reusable across industries, together with its strong capabilities in secure system governance, underpins HMAX Data Fabric as a key strength. Building on this long-standing track record and deep OT expertise, Hitachi is strengthening collaboration with the global AI ecosystem to

further accelerate autonomous operations across frontline environments through HMAX. As part of these efforts, Hitachi announced the development of multi-agent orchestration technology using NVIDIA technology in July 2026\*4.

\*4 Hitachi press release issued on July 16, 2026. [Hitachi and NVIDIA collaborate to advance HMAX and enable end-to-end autonomous operations through the integrated control of physical AI](#)

### **Comment from Yoshitomo Hosoya, Vice President and Executive Officer, CEO of the AI & Software Services Business Unit, Hitachi, Ltd.**

“To maximize the value of AI in mission-critical environments such as social infrastructure, it is essential to convert frontline-specific tacit knowledge into a form that AI can interpret and to establish mechanisms to safely utilize and operate it on an ongoing basis. These new solutions build on Hitachi’s extensive track record in supporting approximately 15,000 mission-critical core systems in collaboration with customers and partners, as well as its expertise in the platform software that supports them. They are also grounded in expertise cultivated over many years in integrating and contextualizing distributed frontline data to support advanced analysis and decision-making across areas such as railway operations management, power transmission and distribution, and manufacturing production and maintenance. In addition, by leveraging advanced AI technologies developed through collaboration with global partners, combined with the hands-on support of our Physical AI FDE Team, we will help customers optimize their frontline operations and achieve sustainable growth.”

### **Features of the Newly Launched Solutions**

#### **(1) Physical AI FDE service: Turning tacit frontline knowledge into assets and supporting value creation**

Hitachi has established the Frontier AI Deployment Center as a global organization promoting value creation and Customer Zero initiatives through technical support, talent development and the accumulation of use cases. Backed by this organization, Hitachi’s Physical AI FDE Team—composed of IT, OT and product experts, including AI specialists and domain experts—will support customers with consulting and delivery services ranging from management challenge identification to AI development, implementation, and autonomous evolution.

Specifically, leveraging decades of domain expertise and AI interview techniques, in which AI engages skilled workers through interactive questioning, the team accurately extracts tacit knowledge, adaptive troubleshooting practices, and judgment criteria that have traditionally remained undocumented. The team also performs high-quality cleansing and structuring of noisy frontline data and converts and maps it into ontologies, which are knowledge systems that AI can utilize, thereby turning frontline knowledge into digital assets.

Furthermore, Hitachi will provide a workshop-style program that uses its extensive proof-of-concept patterns to rapidly conduct everything from deep dives into customer-specific frontline challenges to validation of AI model effectiveness in short timeframes. As a result, customers can rapidly translate challenges that were previously difficult to clearly define into concrete projects. By identifying the most suitable AI technologies for their frontline operations and visualizing implementation outcomes, customers can achieve dramatic improvements in operational efficiency while creating new business value.

#### **(2) HMAX Data Fabric: Structuring complex frontline data for AI readiness and overall optimization**

As part of its Customer Zero approach, Hitachi has accumulated extensive expertise in advanced data structuring through initiatives such as improving manufacturing processes at Hitachi High-Tech by integrating physical data from material production and measurement operations. In

frontline environments, effectively leveraging distributed business, control, and equipment data requires more than simply linking information. It is also necessary to develop ontologies that define data meaning and structures based on the relationships among assets, including their physical connections and the sequence of manufacturing processes. Building on technologies developed through these internal practices, Hitachi has developed HMAX Data Fabric, which structures data into a format that AI can reference and use for reasoning, accumulating it as knowledge graphs.

By providing AI-ready data, HMAX Data Fabric connects with environments for training AI models that control robots and equipment, as well as environments for developing and operating Agentic AI. Furthermore, by linking these AI models and structured knowledge graphs with IWIM, Hitachi’s social infrastructure intelligence foundation model equipped with physical laws and skilled workers’ domain knowledge, AI can accurately predict and interpret frontline-specific contexts, such as how a change in the operation of a particular asset may affect downstream power consumption or overall operational efficiency. As a result, AI can derive optimal operations across multiple systems while satisfying complex constraints, enabling advanced orchestration across entire frontline operations.

For example, in the railway sector, when signs of a potential issue in rolling stock or railway infrastructure are detected, HMAX Data Fabric can correlate condition data from multiple sources with historical asset performance trends. This enables AI to rapidly identify the root cause of the anomaly, allowing operators and maintenance engineers to take the right corrective and preventive actions, such as operational adjustments and targeted maintenance interventions, before the issue escalates into service disruption or asset failure. Through these initiatives, Hitachi will support the evolution of system platforms that enable customers to use AI with confidence.

**(3) HMAX AI Operations: Supporting continuous and safe AI operations**

As frontline Physical AI repeatedly executes and learns in the real world, HMAX AI Operations conducts safety control and monitoring, including AI model performance monitoring and advanced security monitoring. Specifically, it leverages proven assets such as HARC (Hitachi Application Reliability Centers) for AI\*5, which supports companies in safely and effectively using AI agents in production environments, to continuously observe and improve performance, governance, security, costs and other factors.

Based on Hitachi’s experience in developing and using numerous AI agents internally and its operational know-how for proprietary generative AI platforms, HMAX AI Operations continuously maintains data governance, access control, auditing and other measures to respond to missing data, the effects of noise, changes in threats and other factors that continue to evolve after implementation. It reduces AI-specific risks, including hallucinations, while supporting the safe, continuous improvement of AI models and frontline operations. In this way, it strongly supports reliable continuous operations while ensuring safety even in mission-critical environments.

\*5 A service that optimizes AI system performance, governance, security, and cost based on Hitachi’s AI operations framework and Site Reliability Engineering methodologies

**Main Services**

| Category         | Service Contents      | Overview                                                                                                                                                                                                  | Price                  | Availability |
|------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------|
| HMAX Data Fabric | Data platform service | Provides a data platform that integrates IT/OT data and manages it with high quality and high security. Ontology systematizes the meanings and relationships of data, enhancing the use of generative AI. | Quotation upon request | 2026/09/03   |

|                      |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |
|----------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|                      | Physical AI development, operations and environment provision service | Provides an environment for training models that use Agentic AI to control robots and other equipment, and for developing and operating agents that utilize those models.                                                                                                                                                                                                                                     |  |  |
| HMAX AI Operations   | HARC for AI                                                           | Enables stable AI operations, reduction of AI-specific risks and ROI visualization for trustworthy AI. Newly supports comprehensive governance for AI agent platforms.                                                                                                                                                                                                                                        |  |  |
|                      | Operations AI agent                                                   | Reduces the workload for incident response, shortens recovery time and eliminates dependence on individual expertise. Automates analysis and investigation using data from various operations tools.                                                                                                                                                                                                          |  |  |
|                      | Agent management system                                               | Centrally manages AI agents and ensures reliability, safety, observability and performance. Supports cost visualization, troubleshooting and security risk assessment.                                                                                                                                                                                                                                        |  |  |
| Physical AI FDE Team | Physical AI FDE service                                               | Hitachi's Physical AI FDE Team, consisting of IT, OT and product specialists, works alongside customers on various efforts ranging from issue clarification to AI development and operations. By also using proprietary AI interview technology, the team converts knowledge into AI-ready data aligned with frontline contexts and builds a highly reliable knowledge base, supporting early value creation. |  |  |

## Introduction at Hitachi Social Innovation Forum 2026 JAPAN

HMAX Data Fabric, HMAX AI Operations, and Physical AI FDE Service will be showcased at "Hitachi Social Innovation Forum 2026 JAPAN" held from September 3rd (Thu) to 4th (Fri) in Tokyo.

website at: <https://www.service.event.hitachi/en/regist/>

### 【Session】

September 4 (Fri.), 1:20pm –

BS02-04: Pioneering the Social Implementation of Physical AI with HMAX Data Fabric and FDE

### 【Exhibition】

EX02: See It, Experience It, Believe It: The Frontlines of Infrastructure Transformed by Physical AI

EX10: AI-Ready Data Management for Turning Data into Business Value

EX12: Taking Operations to the Next Level with HMAX: Next-Generation AI Operations Powered by JP1 and HARC

### Related websites

Lumada: [Hitachi Global](#)

HMAX: [Hitachi Global](#)

### Trademark Notice

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### About Hitachi, Ltd.

Through its Social Innovation Business (SIB) that brings together IT, OT(Operational Technology) and products, Hitachi aims to be a global leader in continuously transforming social infrastructure through digital, contributing to a harmonized society where the environment, wellbeing, and economic growth are in balance.

Hitachi operates worldwide across four sectors – Digital Systems & Services, Energy, Mobility, and Connective

Industries – as well as a Strategic SIB Business Unit focused on new growth areas. With Lumada at its core, Hitachi creates value by combining data, technology and domain knowledge to solve customer and social challenges. Revenues for FY2025 (ended March 31, 2026) totaled 10,586.7 billion yen, with 606 consolidated subsidiaries and approximately 290,000 employees worldwide. Visit us at [www.hitachi.com](http://www.hitachi.com).