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**No. 3773**

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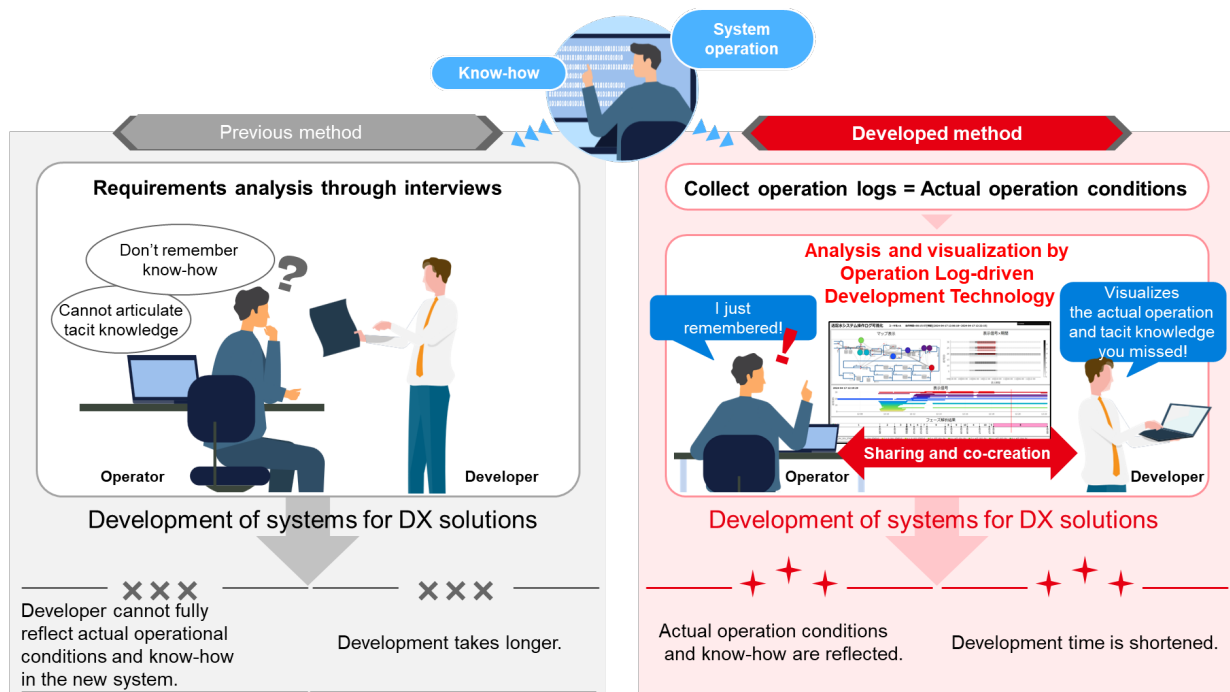
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## Mitsubishi Electric Develops World’s First Technology that Provides Visualization of Operator Know-How from System Operation Logs

*Will significantly shorten digital transformation development period*



Development of systems for DX solutions using operation logs

**TOKYO, February 25, 2025** – [Mitsubishi Electric Corporation](https://www.mitsubishielectric.com) (TOKYO: 6503) announced today that it has developed the world’s first\* “Operation Log-driven Development Technology” for the development of systems that facilitate and accelerate digital transformation (DX). The new technology enhances system operation management and maintenance by visualizing and sharing know-how derived from operator experience and knowledge stored in system operation logs.

\* According to Mitsubishi Electric research as of February 25, 2025.

In modern society, the labor shortage resulting from the declining birthrate and aging population and the passing down of technology know-how have become major issues. In particular, in the management and maintenance of public infrastructure, daily operation is maintained by monitoring and controlling large amounts of signals from various sensors. However, when an abnormality occurs due to equipment failure or abnormal weather, it is necessary to identify the cause at an early stage and implement countermeasures.

However, deciding which measures to deploy often depends on the judgment of experienced operators and experts. As the number of extreme weather events resulting from climate change increases, and with a declining population and aging facilities, there is an urgent need to provide systems for DX solutions that enhance operational and maintenance capabilities by leveraging the experience and knowledge accumulated by such veteran operators and experts.

In the early stages of developing these kinds of systems, interviews with operators and experts are conducted and requirements are analyzed to clarify the requirements and conditions that the new systems must meet. However, interviews alone make it difficult to grasp the detail of operations that may have been forgotten or overlooked, or tacit knowledge that the operators themselves are not conscious of. In addition, since it may take an enormous amount of time to interview all operators of a particular system, the number of interviews has to be limited, making it difficult to gather comprehensive information.

The Operation Log-driven Development Technology Mitsubishi Electric has now developed can visualize system operation logs and can automatically extract and visualize multiple operation activities that have an identical objective by analyzing the relationship between signals monitored by different operators. The use of this technology makes it easier to share among related parties the kinds of know-how that cannot be ascertained by interviews alone, for example by determining and analyzing the actual state of operations and providing a visualization of tacit knowledge. This allows the transfer of technology more efficiently and requirements to be analyzed more accurately.

In addition, by building an early prototype of the systems for DX solutions on the basis of the requirements analysis and using this technology to repeatedly improve these through the accessing of operation logs, the time required to develop these systems can be significantly shortened.

Details of the development results will be announced on March 3 at INTERACTION 2025 being held in Japan from March 2 to March 4.

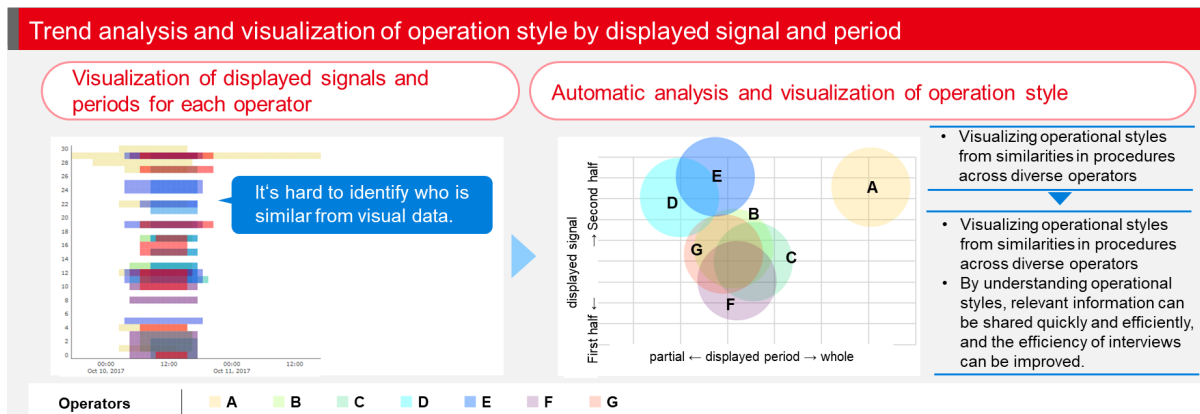
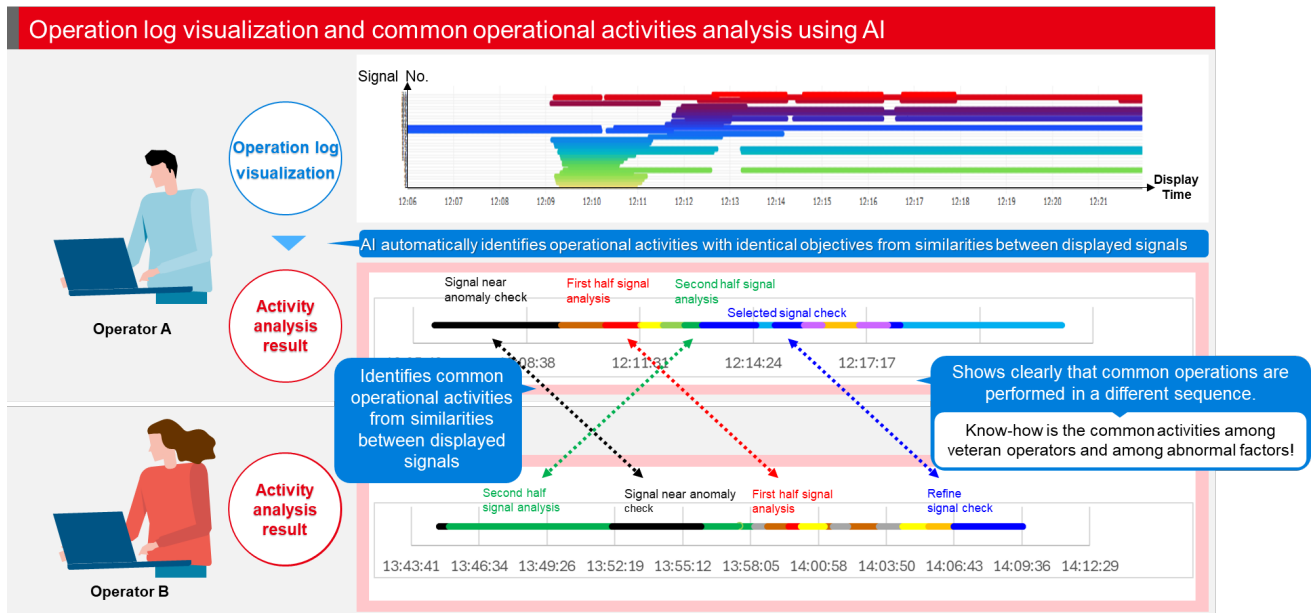
## **Features**

### ***1) World's first visualization of operator know-how from system operation logs***

- Of the potentially many hundreds of signals obtained from facility sensors, the signals having been displayed by the operator on the system screen are extracted in time series from the system operation log.

Making no use of training data,\*\* the AI functionality automatically identifies and extracts multiple operational activities that have an identical objective based on the relationship between signals being viewed at the same time and their order, and, in a world-first,\* visualizes these.

- Using this data, differences in operational procedures and styles are compared and analyzed using Mitsubishi Electric's own AI capabilities and visualized; another world-first.\* A comparison of the operational activities of experienced and novice operators clarifies the operational know-how of the former and allows the transfer of technology to be achieved more efficiently.



Examples of operator know-how visualization from system operation logs

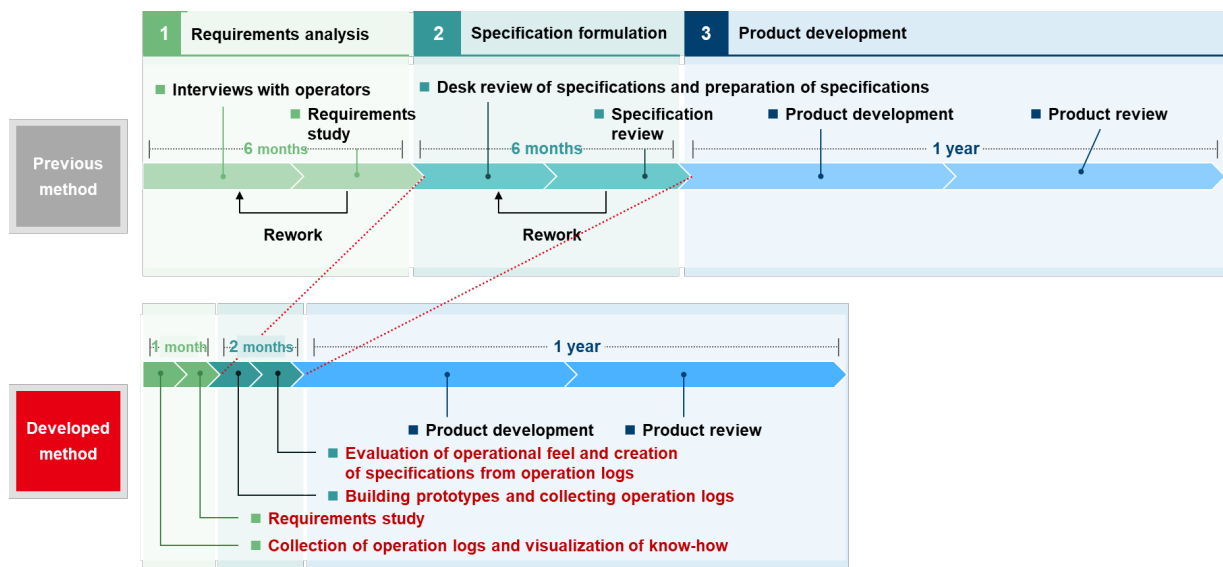
## 2) Visualization of know-how helps significantly reduce development time for systems for DX solutions

- Until now, requirements analysis for system improvements and DX implementation has relied solely on interviews with operators, but the utilization of this technology facilitates the specification of actual operating conditions and the accrual of tacit knowledge that cannot be fully grasped through interviews.

\*\* A set of examples and correct answers used for AI machine learning.

The new technology collects operation logs and minimizes the number of interviews required, dramatically reducing the time of requirements analysis from six months to one month.\*\*\*

- It allows a prototype of systems for DX solutions to be built at an early stage based on requirements analysis, and uses this technology to collect and visualize operation logs to efficiently evaluate the usability and functionality of the system.
- Repeated improvements based on the evaluation results greatly reduce the need for reworking in specification formulation. This significantly shortens the time required for this formulation from six months to two months,\*\*\* helping to develop systems for DX solutions more efficiently and early commercialization of them.



Comparison of system development processes

### Future Developments

Mitsubishi Electric will conduct test demonstrations of its Operation Log-driven Development Technology starting in FY2026, aiming for practical implementation in public infrastructure systems from FY2028. Additionally, by developing systems for DX solutions that allow for the sharing and mutual utilization of know-how derived from system operation logs and from the various professionals with public infrastructure expertise, such as those with operations, maintenance, the company will help realize advanced operation and maintenance management across the entire scope of public infrastructure.

In the future, Mitsubishi Electric plans to apply the new technology not only to public infrastructure but also to industries such as manufacturing, healthcare, logistics, and construction, aiming to create solutions to enhance various operations integrated with its unique digital platform “Serendie®.”

“Serendie” is a pending trademark of Mitsubishi Electric Corporation.

\*\*\* Assume handling hundreds to thousands of signals with a scale of a few to a dozen people.

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**About Mitsubishi Electric Corporation**

With more than 100 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Mitsubishi Electric enriches society with technology in the spirit of its “Changes for the Better.” The company recorded a revenue of 5,257.9 billion yen (U.S.\$ 34.8 billion\*) in the fiscal year ended March 31, 2024. For more information, please visit [www.MitsubishiElectric.com](http://www.MitsubishiElectric.com)

\*U.S. dollar amounts are translated from yen at the rate of ¥151=U.S.\$1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2024