

# News Release

FOR IMMEDIATE RELEASE

## **Hitachi Power Solutions Launches Knowledge Base Analytic Solution for Prescriptive Maintenance**

*With effective maintenance planning and contributing to prompt rapid decision making undergoing maintenance*

**Tokyo, April 17, 2018** – Hitachi Power Solutions Co. Ltd., (“Hitachi Power Solutions”) a wholly owned subsidiary of Hitachi, Ltd. (TSE:6501, “Hitachi”), today announced that it applies Structure Identifier Management Technology (SIMT<sup>\*1</sup>) developed by Hitachi. “Knowledge Base<sup>\*2</sup> Analytic Solution for Prescriptive Maintenance” strengthens highly developed and speed-up operations on assets and equipment maintenance and it will be launched in Japan and worldwide in May, 2018. The core technology of the solution: SIMT provides an identifier to all data from various assets, equipment or management systems. By providing and structuring identifiers, required data and all related information to maintenance management can be correlation with using the same communication channel<sup>\*3</sup>. Furthermore, the knowledge base allows accumulate, share and reuse maintenance information. With this functionality, it is possible to check and perform a causal correlation with failure occurred from the equipment diagnosis results, similar from events in the past, inspection record etc. during maintenance activities. As a result, Hitachi Power Solutions will implement highly developed and speed-up maintenance operations by providing useful information for prompt decision making during event management.

As for assets and equipment maintenance operations, failure risk has been increasing over recent years due to deterioration of components with long term operations on assets or equipment where increased downtime and maintenance costs are often brought up as a major challenge to us. Furthermore, the aging population of maintenance workers is increasing an alarm rate, which leads to the challenge that technical know-how has to be handed down on to the next generation for quality management in maintenance. There are growing needs for solutions that offer comprehensive judgement considering an appropriate direction or real-time information to maintenance works that are aiming to minimize maintenance costs.

Hitachi Power Solutions enjoys a long experience and an established track record with respect to maintenance in the industry and provides rapid maintenance services by placing service engineers and replacement parts at 40 service bases in Japan. Since

June 2013, Hitachi Power Solutions has launched and continuously improved a predictive analytic system “HiPAMPS” which was integrated know-how in various industrial assets and equipment and data mining technology<sup>\*4</sup>. As one of the analytic solutions of Hitachi IoT platform “Lumada”, it has been strengthening predictive analytic, such as the decrease in maintenance costs through avoiding a critical event and inspecting or changing components or equipment at a better time by further integrating prognostic analytic and RUL (Remain useful lifetime) to “HiPAMPS.”

Now Hitachi Power Solutions launches “Knowledge Base Analytic Solution for Prescriptive Maintenance” that is fully integrated SIMT and prognostic solutions. As a result, these functionalities integrated, procedures, inspection records for maintenance will be accumulated, shared and reused as a knowledge base, and provide a structural correlation to all data. Necessary information is distributed among those who need it, thereby improving quick decision making and speed-up equipment maintenance services. “SIMT” provides a simplified system and decreasing on risk of loss and damage data. In addition, “Microsoft Azure<sup>\*5</sup>” provided by Microsoft, such as cloud services is integrated, which leads to improvement for scalability and aims to make an efficient use of customer’s existing system.

This solution will be introduced at Microsoft’s booth in Hannover Messe 2018, which is to be held in Germany from April 23 to 27. Hitachi Power Solutions will expand solutions going forward by receiving sales support from Microsoft.

Notes:

\*1 SIMT: Structured Identifier Management Technology (Patent No. 4758214)

All data provided an identifier and by systematically structured toward structural systems and various systems data will be identifiable with in the same communication channel. Furthermore, by redefining as a huge layered structure to the provided identifiers, a unified management of data will be implemented.

\*2 Knowledge base: A data base that is accumulated knowledge on a computer.

\*3 Communication channel: A communication channel that is logically structured on a computer.

\*4 Data mining technology: the process of analyzing big data mathematically and of finding (mining) new knowledge based on multivariate data analysis.

\*5 Microsoft Azure is the trademark of Microsoft Corporation of the United States of America and its affiliates.

**Katsuyoshi Murakami, Executive Managing Director and General Manager of Public Industrial I & C Business Management Division, Hitachi Power Solutions Co., Ltd., said:**

“Hitachi Power Solutions is pleased to introduce “Knowledge Based Analytic Solution for Prescriptive Maintenance” at Microsoft Booth Hannover Messe 2018 and would like to express our gratitude to Microsoft for this opportunity. Hitachi Power Solutions provides solutions to customers in Japan and worldwide and promote each other business to extend opportunities with “Microsoft Azure.”

**Jon Robottom, Managing Executive Officer, Global Group, Microsoft Co., Ltd., said:**

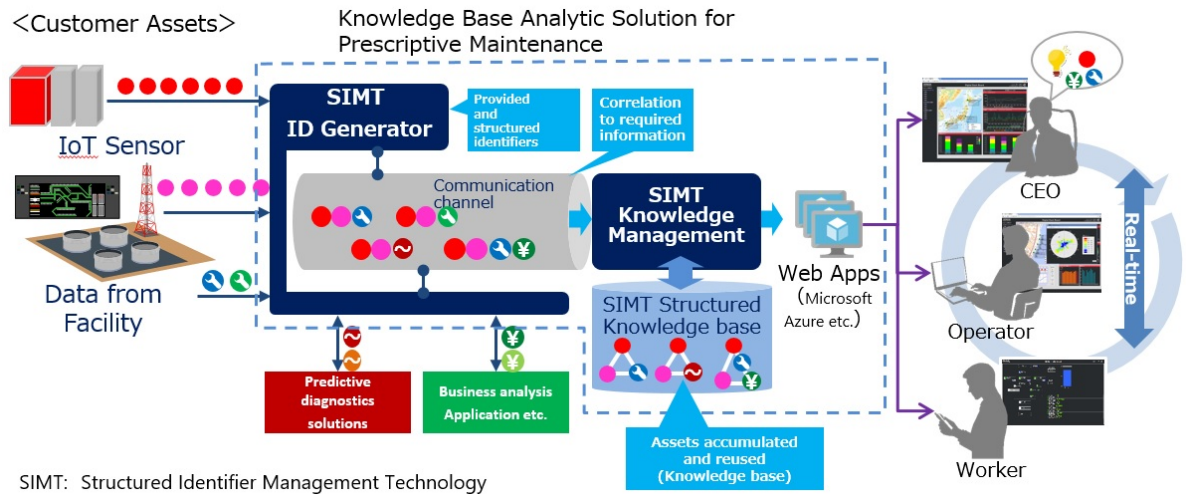
“Microsoft is pleased to announce the "Knowledge Base Analytic Solution for Prescriptive Maintenance" leveraging the Microsoft Azure platform as part of our "Lumada" business partnership with Hitachi to expand to the global market. "Microsoft Azure" provides AI and IoT technologies providing a digital transformation framework for customers globally. In the field of manufacturing, the “Digital Twin” is currently an area of focus and I expect that this solution developed together with Hitachi Power Solutions will have an impact on digital transformation in this field.

We are excited to be able to hold a joint exhibition together with Hitachi for this solution at the International Industry Trade Fair “HANNOVER MESSE 2018”.

**The features of Knowledge Base Analytic Solution for Prescriptive Maintenance**

- Predictive analytics and a causal correlation with failure event in the past can be checked and verified with a structured knowledge base that puts together information using “SMT.” Therefore this solution provides services for quick decision making and specifying a recovery period, costs and required maintenance work during the maintenance response.
  
- Necessary CAD data, procedures, inspection record etc. to response maintenance can be accumulated, shared and reused by a knowledge base, and this solution provides an optimal communication environment to CEOs, operators and maintenance workers. By using this technology of the knowledge base, counter measures against failure will be performed and know-how can be handed down on to the next generation.

- “Microsoft Azure” provided by Microsoft, cloud services or the others can be integrated, so that improvement for scalability applies to customer’s particular requirements.



### About Hitachi, Ltd.

Hitachi, Ltd. (TSE: 6501), headquartered in Tokyo, Japan, delivers innovations that answer society’s challenges. The company’s consolidated revenues for fiscal 2016 (ended March 31, 2017) totaled 9,162.2 billion yen (\$81.8 billion). The Hitachi Group is a global leader in the Social Innovation Business, and it has approximately 304,000 employees worldwide. Through collaborative creation, Hitachi is providing solutions to customers in a broad range of sectors, including Power / Energy, Industry / Distribution / Water, Urban Development, and Finance / Government & Public / Healthcare. For more information on Hitachi, please visit the company's website at <http://www.hitachi.com>.

### About Hitachi Power Solutions Co., Ltd.

Since its establishment in 1960 as a member of the Hitachi Group, Hitachi Power Solutions Co., Ltd. has been providing various technologies, products, systems, and services to meet customer requests and the demands of society in such social infrastructure fields as energy, industry, and information systems. Fiscal 2016 revenues totaled 146.0 billion yen. For more information on Hitachi Power Solutions Co., Ltd., please visit the company's website at <http://www.hitachi-power-solutions.com/en/index.html>

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Information contained in this news release is current as of the date of the press announcement, but may be subject to change without prior notice.

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