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Toyota and Hitachi Embark on Collaborative Creation Aiming to Build a High-Efficiency Production Model Using IoT Platform

Improving productivity and quality using advanced IoT
to accelerate the PDCA cycle at manufacturing sites

Tokyo, October 4, 2017 --- Toyota Motor Corporation (Toyota) and Hitachi, Ltd. (Hitachi) today announced that they will embark on a collaborative creation to build a high-efficiency production model using an IoT platform. These two companies will conduct verification at Toyota's model plants (Toyota, Aichi Prefecture) starting from this October. Through this verification, they intend to establish a platform using Hitachi's IoT platform "Lumada", which utilizes the latest digital technologies such as AI and big data analysis. Using this platform to solve various issues at manufacturing sites allows the PDCA cycle to be accelerated and new issues to be identified and solved from the viewpoint of total optimization, resulting in further improvement in quality and productivity.

The operating environment surrounding the manufacturing industry has been changing rapidly in recent years due to diversified customer needs and advanced digitalization; thus, there has been increasing demand to establish a high-efficiency production system using IoT that can immediately respond to such situations. In such circumstances, Toyota, which has improved productivity based on the fundamental concepts of automation and its Just-in-Time philosophy, and Hitachi, which offers the IoT platform "Lumada" created by integrating its OT (operational technology) and IT, developed over many years as a manufacturer, intend to conduct collaborative verification by making use of their respective technologies and know-how.

Through this verification, a plant IoT platform using "Lumada" will be established in each of the model plants for vehicles and units. The platform mainly consists of a data acquisition and integration layer, a data accumulation layer, and a data utilization layer. The facilities, devices, and related systems at various manufacturing sites in the model plant will be connected to the platform so that data acquired from them can be consolidated and analyzed. This allows both companies to swiftly use IoT in various manufacturing processes for improvement actions and to share the improvement cases with other manufacturing processes, resulting in an accelerated PDCA cycle. In addition,

by analyzing not only the data residing in a single process but also the data that extends across multiple processes, the overall plant can be visualized and new findings provided, which can lead to further improvement in production efficiency from the viewpoint of total optimization.

As a specific theme of this verification, Toyota and Hitachi plan to establish a system that prevents unexpected facility failures through big data analysis and extend the system to other processes to further improve the efficiency of maintenance work. They also plan to acquire and analyze product data that spreads across multiple processes to conduct verifications to further stabilize quality. Toyota and Hitachi aim to utilize this IoT platform, establish a high-efficiency production model with an accelerated PDCA cycle, and conduct verifications throughout various processes and themes to verify the effects so that quality and productivity can be improved.

Toyota and Hitachi intend to make further use of the data, new technologies, and know-how that will be obtained in this verification, and strive to cultivate human resources in the IoT field, and create new value to offer business solutions for manufacturing sites and business operations.

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

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