



August 8, 2019

JGC Begins Study on Demonstration and Business Creation with DOCOMO to Enhance Safety and Reduce Costs of Plant Facility Inspection and Construction Management

– Agreement Concluded to Utilize Drones and IoT in Business Activities –

Yokohama, Japan - JGC Corporation announced that it has agreed with NTT DOCOMO, INC., Japan's largest mobile operator, to jointly undertake the study of demonstration and business creation for facility inspection and construction management for oil refining, chemical, and other large-scale plants by using drones, IoT, and other new technologies.

1. Background for the Study

Many domestic oil refineries and chemical plants have been in operation for more than 30 years. The growing need for maintenance and inspection is raising inspection costs and the safety of the inspection personnel at tall facilities as issues.

Sharing information between field supervisors and headquarters is important in the construction of large-scale plants. Efficiency enhancement and digitalization are required for large-scale overseas projects, etc. because of the complexity of their detailed inspection and management of project progress information.

2. Content of the Study

JGC and DOCOMO will utilize their assets and knowhow to study the resolution of issues and the creation of business activities as follows.

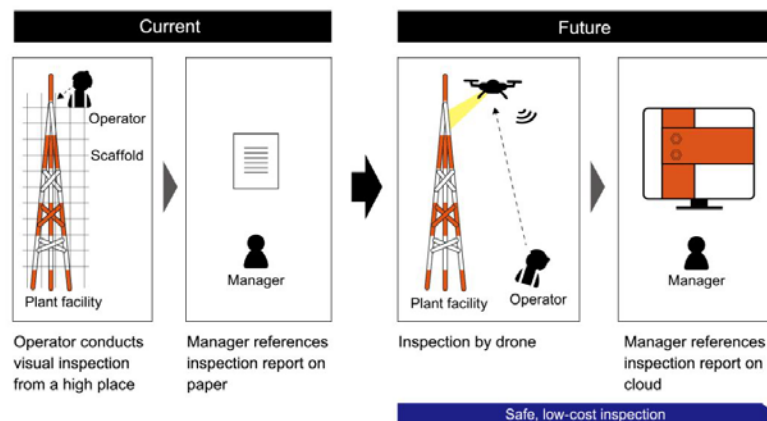
<Plant maintenance and inspection using drones, etc.>

In this undertaking, drones will be used to capture images of plant facilities, and inspectors will draft maintenance reports on the cloud, where the inspection information will also be managed.

Plant maintenance and inspection up till now has been conducted at intervals of several years or a dozen years or more on a large scale at the expense of enormous cost and time. It is expected that drones will enable this to be conducted at high frequency and low cost. Inspection is currently conducted visually from scaffolding erected around the plant. Using drones means that work at high places will no longer be necessary, making it possible to ensure the safety of inspectors and to conduct inspections quickly.

The two companies will utilize "docomo skyTM," the drone-operation platform developed by DOCOMO, and "INTEGNANCESM," the integrated maintenance service provided by the JGC group, as well as the latter's knowhow regarding plant maintenance and inspection to conduct

technology development and on-site demonstrations with the aim of commercially launching the service in FY 2019.

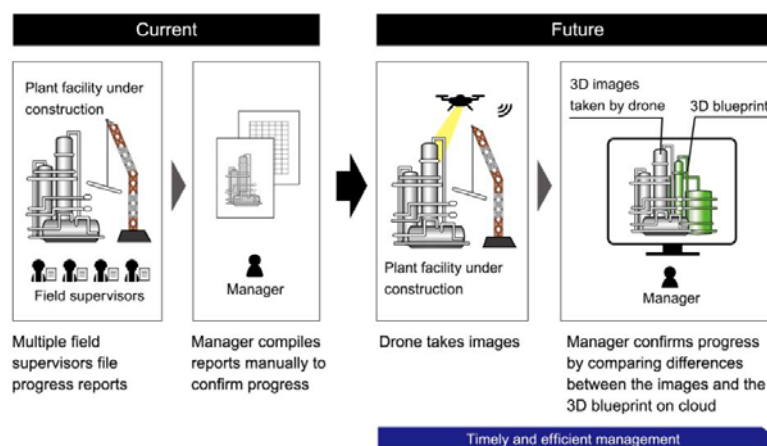


<Image of screening inspection services for facilities>

<Developing technology for business that automates progress management for plant construction>

In this undertaking, on-site images of the construction site are taken with drones, and the structure is recreated as a 3D image. This 3D image is compared on the cloud with the 3D blueprint of the plant, and progress of the construction is managed by confirming the difference.

Progress management for plant construction is currently conducted by sight and through documented reports. Automating progress management by utilizing drones and other means makes timely and efficient management possible. Our aim is to conduct the development and demonstration of the technology in FY 2019.



< Image of technology development aimed at digitalizing construction management>

The two companies have been conducting consultations and demonstration tests aimed at utilizing drones and IoT for oil companies, chemicals companies and other clients. JGC has also undertaken business reform that makes aggressive use of AI, IoT, and other digital technology based on the JGC group’s new IT strategy “IT Grand Plan 2030.”

Under this latest agreement, JGC aims to enhance efficiency in plant construction and operation.

- * “docomo sky” is a trademark of NTT DOCOMO, INC.
- * “INTEGNANCE” is a trademark of JGC Corporation.
- * “IT Grand Plan 2030” is the new IT strategy of the JGC group, for which EPC is the core business.

Reference URL <https://www.jgc.com/jp/news/2018/20181218.html>

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