

Promotion of i-Construction

i-Construction Promotion Headquarters

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1. Introduction

i-Construction is a part of the productivity revolution, which has been promoted by the Ministry of Land, Infrastructure, Transport and Tourism ("MLIT"). It is an activity to improve productivity in construction sites and realize an attractive construction site by optimizing the entire process including research and design, construction and test, and maintenance. The productivity improvement aims to improve productivity by 20% no later than 2025.

NILIM launched the promotion headquarters of i-Construction in March 2016 and has been working for research, development, and dissemination of productivity improvement in construction sites using ICT, 3D data, etc.

In FY2018, promotion of i-Construction was positioned as an add-on measure of "Public/Private R&D Investment Strategic Expansion Program (PRISM)" to accelerate R&D activity.

2. Expansion of ICT construction

ICT construction uses 3D data consistently in the processes of research, survey, design, construction, and inspection and aims to improve productivity with efficient construction and quality control using ICT-based construction machines and surveying instruments. Starting with the introduction into ICT earthwork in FY2016, i-Construction was introduced into pavement works in FY2017 and into dredging works in FY2018. NILIM has been conducting a research on actual use of i-Construction in construction sites and studying methods for increasing applicable types of works and use of new measurement technology. In FY2018, we prepared the draft of work progress control procedures using ICT for soil improvement works, slope works, earthwork surrounding works (curbstones, gutters, revetment), and the MLIT released new standards based on the draft in March 2019.

3. Promotion of the use of BIM/CIM

BIM/CIM (Building Information Modeling / Construction Information Modeling/Management) aims to increase efficiency in the processes of design, construction, and maintenance and to advance information linkage between processes, based on 3D

models added by attribution information, and NILIM has been studying on development and use of procedures and standards (see Fig.). In FY2018, NILIM studied on standard specifications for using CIM model for contract documents, standards for quantity calculation with CIM model, CIM utilization in the maintenance stage, etc.

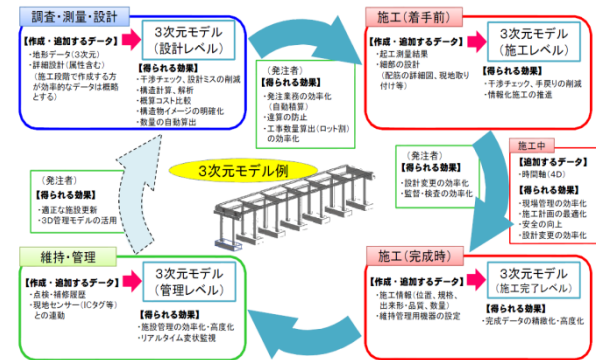


Fig.: Utilization of 3D model

4. Future development

In FY2018, as the "Project for introduction / utilization of innovative technologies for drastic improvement of productivity in construction site," the MLIT solicited from the public for new technologies expected to contribute to productivity improvement, quality improvement, or efficiency increase in check inspection, which were tried in construction sites under the control of Regional Development Bureaus, etc. While following up on the situation of trial use, NILIM intends to continue studies aiming to realize productivity improvement, including studies on use of up-to-date technologies such as AI, IoT, and robots, and formulation of procedures and standards for implementation.