

# Promotion of i-Construction

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## 1. Introduction

Labor shortages have been a concern over a mid-to-long-term perspective in construction sites due to the aging of workers and the decreased young population in the industry. i-Construction is a part of the productivity reform that the Ministry of Land, Infrastructure, Transport and Tourism has been promoting. It aims to create attractive construction sites by improving the productivity of construction sites by optimizing the entire process from investigation and design to construction, inspection, and maintenance and management. In the Growth Strategy Council – Investing for the Future in September 2016, Prime Minister Abe, the chairperson, issued instructions to improve the productivity of construction sites by 20% by 2025.

The National Institute for Land and Infrastructure Management launched the i-Construction Promotion Headquarters in March 2016 to promote the research and development of the use of ICT and three-dimensional data and the improvement of the productivity of construction using concrete to promote their uses.

## 2. ICT construction

ICT construction can improve productivity through the integrated use of three-dimensional data in the investigation, survey, design, construction, and inspection processes. ICT earthwork was first introduced as one of top-runner projects of i-Construction in FY 2016, followed by the additional use of ICT pavement work in FY 2017. The National Institute for Land and Infrastructure Management is examining ways to expand applicable construction types and methods to use new survey technologies while investigating the implementation status at construction sites. It prepared a draft of work-done management using ICT in river dredging work in FY 2017. Based on the outcomes of these activities, the Ministry of Land, Infrastructure, Transport and Tourism released new standards for construction using ICT in March 2018 [planned].

## 3. Promotion of the use of CIM

CIM is the abbreviation of Construction Information Modeling/Management. It aims to improve the efficiency of the individual processes of design, construction, and maintenance and management and advance the coordination of information among these processes based on a three-dimensional model to which attribution

information is added (figure). The National Institute for Land and Infrastructure Management is conducting research related to the use of the procedures and standards to promote the use of CIM. In FY 2017, it conducted research concerning the standards and specifications to be used for the contracts of CIM models, standards for quantitative calculations using CIM models, and the use of CIM in the maintenance and management phase.

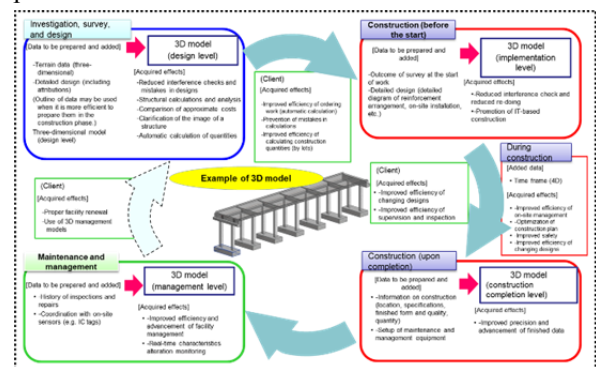


Figure: Use of three-dimensional models

## 4. Productivity improvement for concrete constructions (introduction of overall optimization)

Research is being conducted to realize overall optimization in the entire country rather than being limited to individual construction projects by improving the productivity of all concrete construction projects through the spread of technologies to improve construction depending on the individual characteristics of on-site concrete casting and pre-casting. Overall optimization focusing on design methods was examined in FY 2017.

## 5. Future outlook

In FY 2018, too, the NILIM is going to conduct research to improve productivity through the use of i-Construction, such as research to establish the necessary procedures and standards to spread ICT construction and start the use of CIM and research related to the use of the latest technologies, including AI, IoT, and robots, while following up on the implementation status at actual construction sites.