

Research to Promote DX in the Infrastructure Field

(Research period: FY2021-)

Digital Transformation of Infrastructure Systems Research Committee

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(Keywords) digital transformation (DX), ICT construction, BIM/CIM, improvement of productivity

1. Introduction

Ministry for Land, Infrastructure, Transport and Tourism (MLIT) established the Infrastructure Sector DX Promotion Headquarters in July 2020, against the background of an increased need for responses to increasingly frequent and severe disasters and control measures for infrastructure deterioration, a serious lack of personnel in the construction industry, and the rise of COVID-19, among other factors. NILIM also launched its Digital Transformation of Infrastructure Systems Research Committee in March of the following year and is promoting research and development into DX in the infrastructure field. This article presents NILIM's main DX-related initiatives.

2. Development of the DX Data Center

DX Data Center stores BIM/CIM models, point group data, and other 3D data for searching, displaying, and providing. From January 2023, it is available not only to MLIT employees, but also over the Internet for private-sector companies that have been awarded contracts for MLIT operations and works (fig. 1).

This will enable us to promote the use of the BIM/CIM models created at the stages of surveying, investigation, design, and construction in other works and operations, as well as in maintenance.

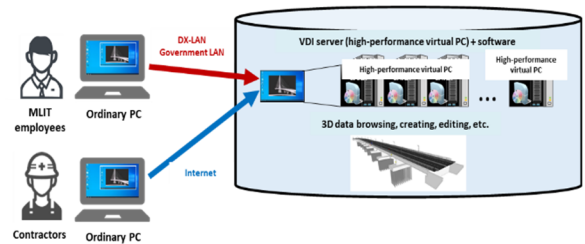


Fig. 1. Outline of DX Data Center system

3. Development of Construction DX experimental field

As a location for research and development on technology to support the promotion of infrastructure DX, construction DX experiment field was made progress in establishing and began operations in June 2021 to develop and test autonomous construction technology with construction equipment using 5G communications and as-built shape measurement and inspection technology for structures using three-dimensional data (fig. 2). We have also opened it to the private sector and others as a testing and demonstration field for new measuring technologies used in as-built shape management, as well as verifying the creation of ICT construction standards, and we hope that it will lead to further technical development aimed at improved accuracy and productivity and to the spread of technology that can easily be implemented in small-scale work sites and is cheap, versatile, and effective in introduction.

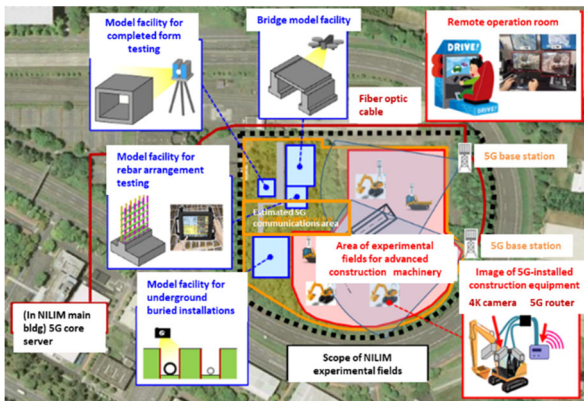


Fig. 2. Outline of Construction DX experimental field

4. Conclusion

MLIT has declared 2023 to be a “year to leap ahead,” when it will further accelerate innovations through DX, and in addition to conducting research and development with a view to improving productivity, reforming working styles, and realizing work-life balance across the entire construction industry through the effective use of a wide range of digital technologies, we hope to continue efforts in broadcasting information that leads to the spreading of outcomes of our efforts.