# Research for promoting DX in the infrastructure sector

(Research period: FY 2021 -)
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*Key words: DX (digital transformation), BIM/CIM, productivity improvement*

## 1. Introduction

Currently, digital technologies are progressing rapidly, such as the evolution and networking of ICT, and in the "Fundamental Plan for National Resilience" of which cabinet decision was made in July 2023 as well, the "advancement of national resilience measures by the utilization of new technologies such as digital technologies" is given the status of one of the fundamental policies.
The Ministry for Land, Infrastructure, Transport and Tourism is promoting efforts based on the "DX Action Plan in the Infrastructure Sector," and the NILIM also pursues the promotion of research and development by establishing the "Digital Transformation of Infrastructure Systems Research Committee." This paper presents the major efforts related to DX that are promoted by the NILIM.

## 2. Construction and operation of the DX Data Center

The DX Data Center is to store three-dimensional data such as BIM/CIM models and point group data for searching, displaying, and providing such data. From January 2023, it is available not only for MLIT employees, but also over the Internet for private businesses that have been awarded contracts for MLIT operations and works (Fig. 1).

We consider that this enables the promotion of utilization of the BIM/CIM models to be created at each of the stages of surveying, investigation, design, and construction in other works and operations as well as in maintenance and management.

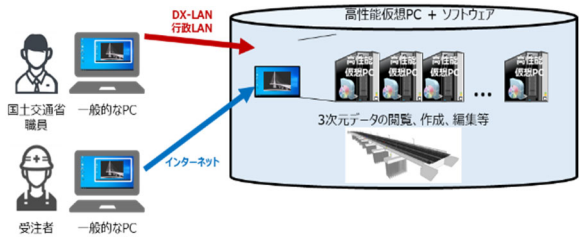


**Fig. 1: Overview of the systems of the DX Data Center**

## 3. Commercialization of the finished form measurement technologies in seaport works by utilizing ICT

In order to increase the efficiency and improve the safety in finished form management and supervision/inspection, we proceed with the development of technologies for finished form measurement utilizing ICT technologies.
For example, regarding the foundation works for seaport works, on-site testing is carried out for technologies to measure the finished form of the top end face of rubble rock that has been made flat by using multibeam echo sounding (Fig. 2). In addition, we also carry out on-site testing for technologies that utilize the construction history data of the foundation works flattening machine and of the grab dredger for bed digging works in the finished form measurement, thereby carrying out a study for commercialization.

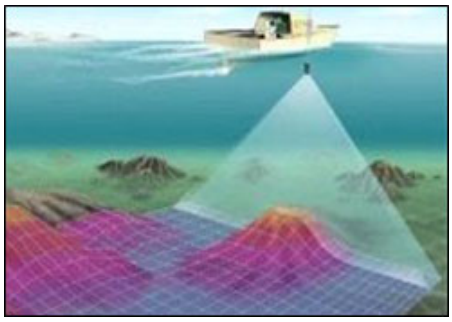

**Fig. 2: Finished form measurement of foundation works by means of multibeam echo sounding**

## 4. Conclusion

The MLIT has given the status of the "year of deployment" of infrastructure DX to 2024, and the NILIM also wishes to further proceed with the research and development related to infrastructure DX, at the same time making efforts to transmit information so that it will lead to the dissemination of the contents of such efforts in future as well.

**☞For detailed information, refer to the following:**

1) Technical Note of NILIM No. 1250 p. 26
https://www.nilim.go.jp/lab/bcg/siryou/tnn/tnn1250.htm