

Establishment of Support Center for Port and Harbor Advanced Information Technology

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1. Introduction

The Ports and Harbours Bureau of the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), has been promoting Cyber Port¹⁾ as one of its key policy measures. Cyber Port is an initiative that the government intends to improve and strengthen under government programs such as the comprehensive strategy for the Vision for a Digital Garden City Nation. Cyber Port is a data platform to integrally handle information by computerizing and linking data. Relevant information includes port logistics procedures between private entities; administrative procedures followed by port managers; investigation and statistical services; and information on infrastructure across every stage of its life, from port planning to maintenance and management. This platform is aimed at achieving a remarkable improvement in productivity for Japan's port sector, and the establishment of a business environment where information relevant to ports and

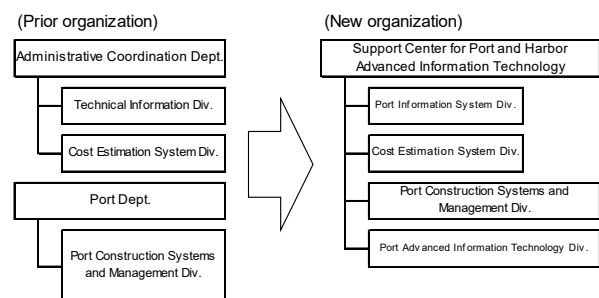


Fig. 2 Organization of Support Center for Port and Harbor

Advanced Information Technology

harbors is organically connected.

This platform particularly emphasizes the use of ICT technologies at port construction sites and the promotion of i-Construction²⁾ through the introduction of 3D data, etc., to enhance port productivity development programs. These efforts are being made as a way to accelerate infrastructure DX as established in the Basic Policy on Economic and Fiscal Management and Reform 2023.

As one of the initiatives to strengthen organizational

structures to implement these key measures, the Support Center for Port and Harbor Advanced Information Technology was established by the National Institute for Land and Infrastructure Management in April 2023. The Center was established by reorganizing part of the

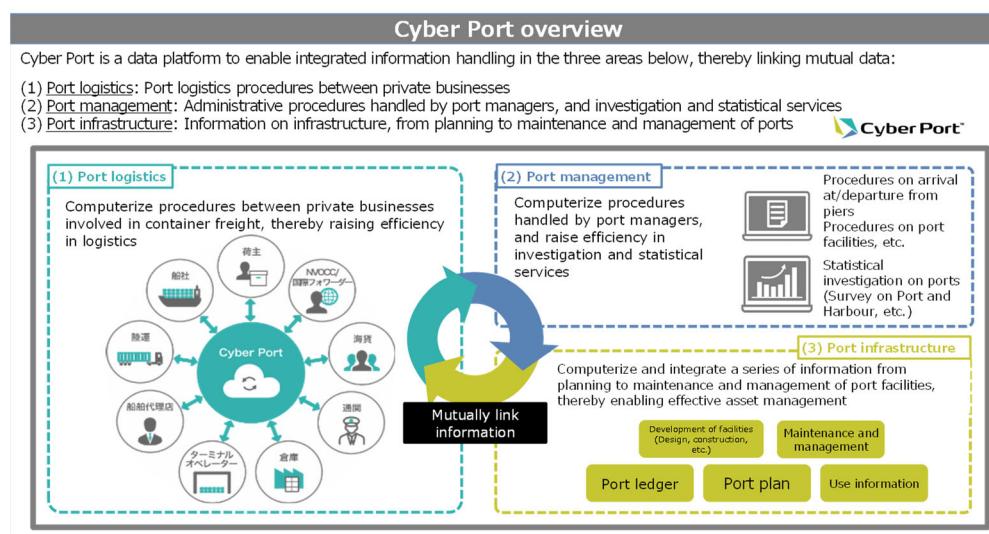


Fig. 1 Outline of the Cyber Port program

functions of the existing Administrative Coordination Department and Port Department. With a focus on specific areas of research and development policies based on key policy measures, the Center is operated in line with a business promotion policy that takes into consideration characteristics of the business support system to promote key policy measures.

Even though each division of the Center has taken over tasks from prior organizations to a certain extent, the Center has gradually begun to make its own achievements. These achievements include consideration and preparation of draft implementation plans for introducing new technologies; putting into operation a new business support system; enhancing functions and data thereof and other activities. The Center will remain engaged in research and development and supporting tasks in close cooperation with the MLIT and the Port and Airport Research Institute, as well as in collaboration with each Regional Development Bureau, port managers, business entities related to the port sector, and other stakeholders in order to pursue the goal of promoting key policy measures to improve productivity in the port sector, and of applying research results and business achievements to society.

This paper introduces the focal points of the aforementioned research and development policy, as well as an overview of the business promotion policy.

2. Focal points of research and development policy

(1) Infrastructure DX

In the field of infrastructure DX, intensive efforts have been made systematically to work on technological verification for the adoption of new technologies which are needed to enable the use of ICT technologies in the port sector. More specifically, based on a roadmap³⁾ created by the Ports and Harbours Bureau (MLIT), with the prerequisite of implementing testing work, on-site verification tests are being conducted to examine the effectiveness of new technologies. The results of these verification tests are being reflected in testing operating

plans in sequence⁴⁾.



Fig. 3 Cyber Port web portal

In addition, in considering ICT technologies in the port sector there is a need for access to 3D data at work sites in order to achieve automatic and independent construction by work vessels. Against this backdrop, we are implementing research and development into the latest technological trends in 3D data, including supporting the establishment and introduction of BIM/CIM in the port sector.

(2) Cyber Port

Cyber Port aims to upgrade asset management¹⁾ to ensure functional and efficient maintenance, management, and protection of port and coastal facilities through data linkage attained via the integrated operation of logistics, management, and infrastructure field in the port sector. We have been conducting research and development tasks to maintain, manage, and protect facilities using a more sophisticated methods than those used conventionally.

3. Business promotion policy

In collaboration with the Ports and Harbours Bureau of MLIT, NILIM has been engaged in the establishment, improvement, operation, and maintenance of Port CALS⁵⁾, a cost estimation support system, and other programs. We take these initiatives in response to the computerization and informatization of operations related to port and coastal facilities development projects undertaken by regional development bureaus of MLIT. NILIM has been continuously working on updating systems as needed and enhancing their functions to improve efficiency.

In addition, Port CALS has built and is operating a

maintenance management information database that adds maintenance and management information to an integrated port facility database as a measure for upgrading facility maintenance, management, and protection. In this manner, the Port CALS provides business support for relevant port managers and private entities.

Furthermore, on the premise that a systemic link will be established between these business support systems, NILIM has been focusing on the creation, operation, and maintenance of Cyber Port in collaboration with the Ports and Harbours Bureau of MLIT. In addition to MLIT officials, a wide variety of parties are expected as potential Cyber Port users, including port and facility managers, research institutes, construction companies, port logistics businesses, and the general public. NILIM therefore has been making efforts to further enhance the credibility and stability of the system, and to maintain and advance security measures.

4. Conclusion

We will be continuously engaged in research and development and undertake related tasks to steadily apply various technologies and methodologies to society. We intend to proceed with these tasks on the basis of the latest developments in information technology and practical business operation, thereby aiming to remain responsive to the requirements from organizations and business entities in the field of the infrastructure DX or related to the Cyber Port policies.

 **See here for detailed information**

- 1) Cyber Port
https://www.mlit.go.jp/kowan/kowan_00002.htm2
- 2) i-Construction in ports and harbors
https://www.mlit.go.jp/kowan/kowan_fr5_000061.html
- 3) A material from the 8th meeting of the i-Construction Promotion Committee for Ports, P8
https://www.mlit.go.jp/kowan/content/04_shiryou.pdf
- 4) Research on the advancement of infrastructure DX, NILIM report 2024, p*
- 5) Port CALS (Construction Acquisition Life-cycle Support)
<https://www.y.sk.nilim.go.jp/cals/index.htm>