

Digital Transformation of Busan Port ;

PCS Operations and Future Plans

Dec 4, 2025



What is transshipment?

Trans Shipment

The process of moving cargo at a transshipment port if there is no direct route to a desired destination

Intra-terminal transshipment

Transshipment within the same pier

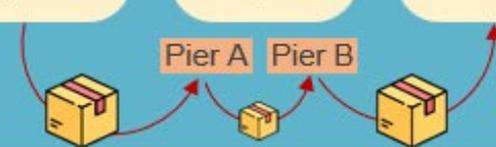
Port of departure TS port Destination



Inter-terminal transshipment

Off-loading and loading at different piers

Port of departure TS port Destination



What is ITT?

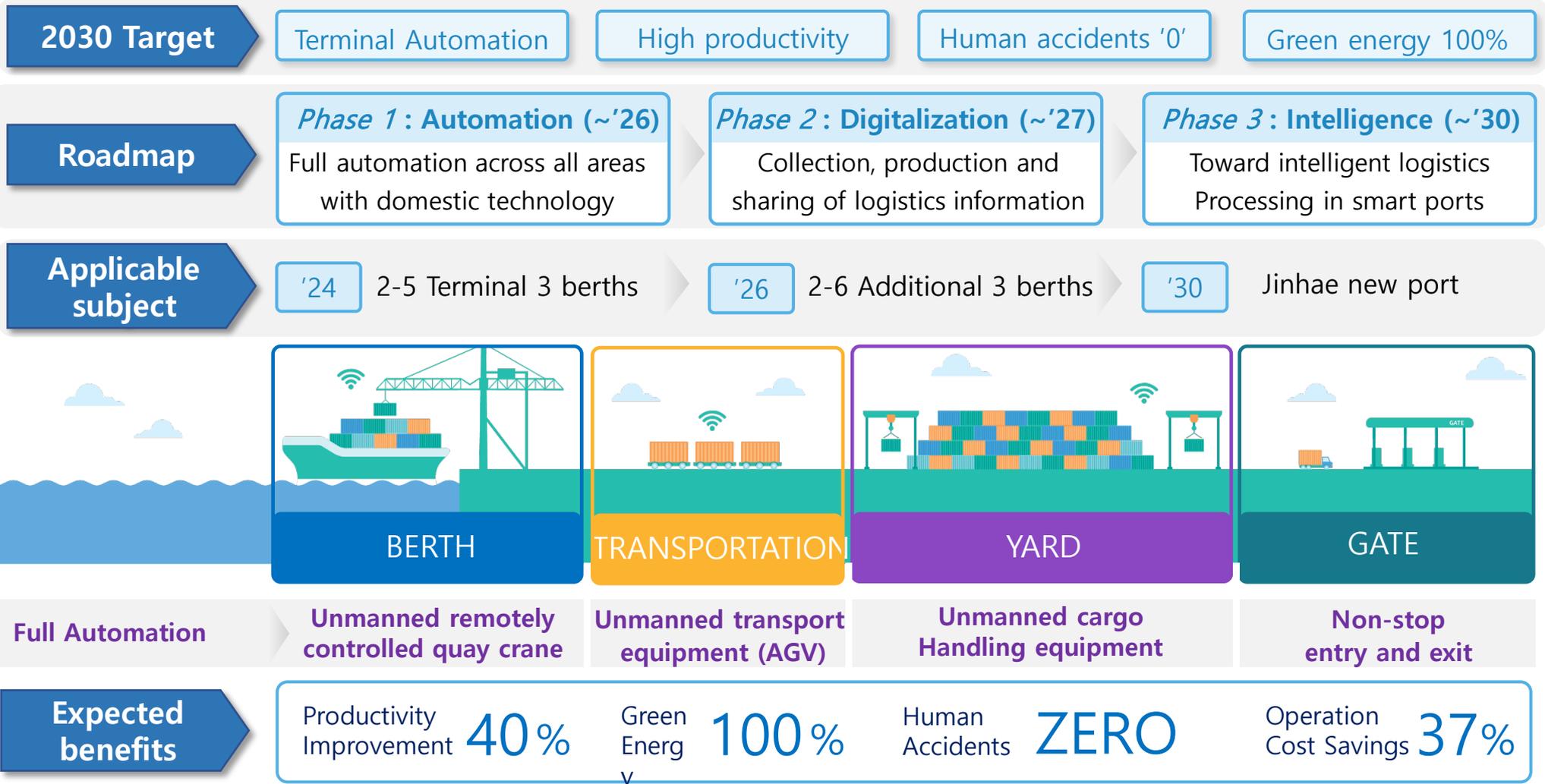
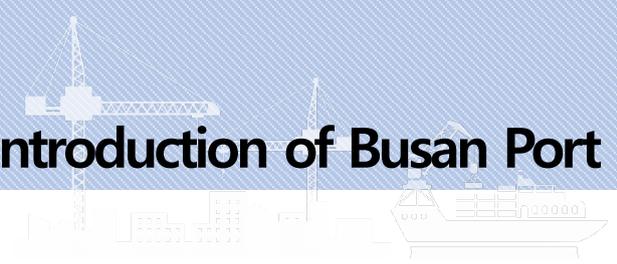
ITT refers to **Inter-terminal transportation**, where cargo is moved between vessels at a port of call that is not its final destination.

Transshipment \doteq Transfer

Transshipment can be compared to a passenger transferring flight in another country on their way to a destination overseas.

Smart Port Development Strategy

I. Introduction of Busan Port



Purpose of Busan Port Logistics Platform

II. Busan Port PCS



1 Terminal Operation Optimization

An isometric illustration of a port terminal. A large blue cargo ship is docked at a pier. Several yellow cranes are positioned along the pier, and stacks of colorful cargo containers (red, blue, yellow) are visible. A yellow forklift is also present. The background shows a building with a 'PK' logo.

Improvement of Port Efficiency

2 Cargo Transportation Optimization

An isometric illustration of a cargo transportation hub. A large blue warehouse with a 'WAREHOUSE' sign is on the left. A network of roads and paths leads to a fleet of trucks in various colors (orange, blue, white). A yellow forklift is also shown. Green Wi-Fi symbols indicate connectivity.

Reduction of Truck Waiting Time and Traffic Congestion

3 Boosting Related Industries

An isometric illustration of an industrial area. Several white and blue trucks are shown on roads, some with Wi-Fi symbols. There are various industrial buildings, including a large white warehouse and smaller structures. Stacks of brown boxes are also visible.

Data open and Enhancing of New Business Opportunities

Establishment of Port Logistics Platform

Optimizing port operations by integrating stakeholder data and sharing real-time information

An illustration of a data dashboard and people working. On the left, three people (two men and one woman) are standing around a large computer monitor. The monitor displays various charts and graphs. To the right, there are two smaller panels, each containing a collection of data visualizations including bar charts, line graphs, pie charts, and gauges. The overall scene is set against a light gray background with a grid pattern.

01 Level 1
02 Level 2
03 Level 3
04 Level 4

Overview of Progress

II. Busan Port PCS



Planning (2019)

- **Port logistics platform development plan**
- **Agreement for information sharing**
 - 40 Shipping companies
 - 9 Terminal Operators



Chain Portal Establishment (2020~2021)

- **Terminal information inquire service**
 - Integration of 21 information from 9 terminals
- **Transshipment transportation system**
- **Vehicle booking system**



On-site Promotion, Expansion (2022~2023)

- **MoU with stakeholders**
 - Shipping companies, Terminals, Cargo unions, etc.
- **Mobile App (Allcon-e) development and promotion, education for truck drivers**
- **Electronic transfer receipt development (e-Slip)**



Utilization Enhancement (2024~2025)

- **Full implementation of e-Slip**
 - All terminals at Busan Port
- **Blockchain-based transshipment monitoring system development**
 - Busan Port-i
- **Expansion of data integration an service scope for Chain Portal**

What is Challenge?



Regulatory Uncertainty & Rigidity



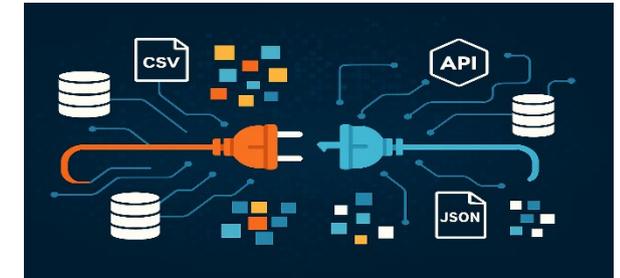
Data Security & Privacy Protection



Challenges



Stakeholder managements



Strategy and System Design

1. Clear objectives and the right internal experts
2. Aligning everyone from frontline operators to the CEO.
3. Today's challenges, but it would help long-term strategic value and the shared benefits (Win-Win / No party is asked to sacrifice.)
4. Even if the project doesn't deliver immediate result, it requires continuous attention & investment.

Key functions : e-Slip

II. Busan Port PCS

- ✓ As of July 2024, Paperless e-Slip has been fully applied to all terminals at Busan Port

Before(Paper Slip)



Paper Slips were issued
When trucks
Arrived at TML



After(e-Slip)



e-Slip
By Mobile App
(AllCon-e)



Key functions : TSS (Transshipment Shuttle System)

II. Busan Port PCS



[Before] Single shipping order: Mapping one truck for one cargo
→ Inefficiency and increased waiting time due to the location of cargoes



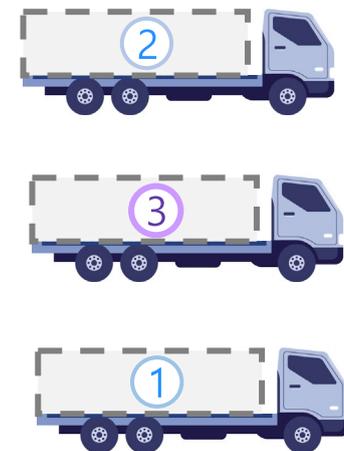
[Now] Group shipping order: Multiple trucks and cargoes are mapped for group order
→ Orders are automatically placed in the optimal order.



Group shipping orders



When trucks arrive at the gate, cargoes are assigned from the top load.



Key functions : Busan Port-i

II. Busan Port PCS

Transshipment Data Integration

Strengthening Data Security

Enhancing Transshipment Competitiveness

01 Real-time Integration of Terminal Data

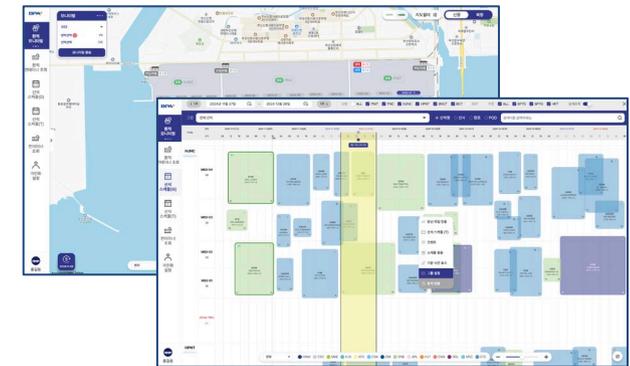
02 Utilization of Blockchain Technology

03 Development of Transshipment Monitoring system(Port -i)

Data Sharing with Stakeholders



Block Chain Platform(BaaS)



- 10 Terminals at Busan Port
- Data sharing among shipping companies, terminals, etc.

- Ensuring information integrity
- Guaranteeing the reliability of information

- Transshipment operations via a single platform
- Enhancing Transshipment efficiency

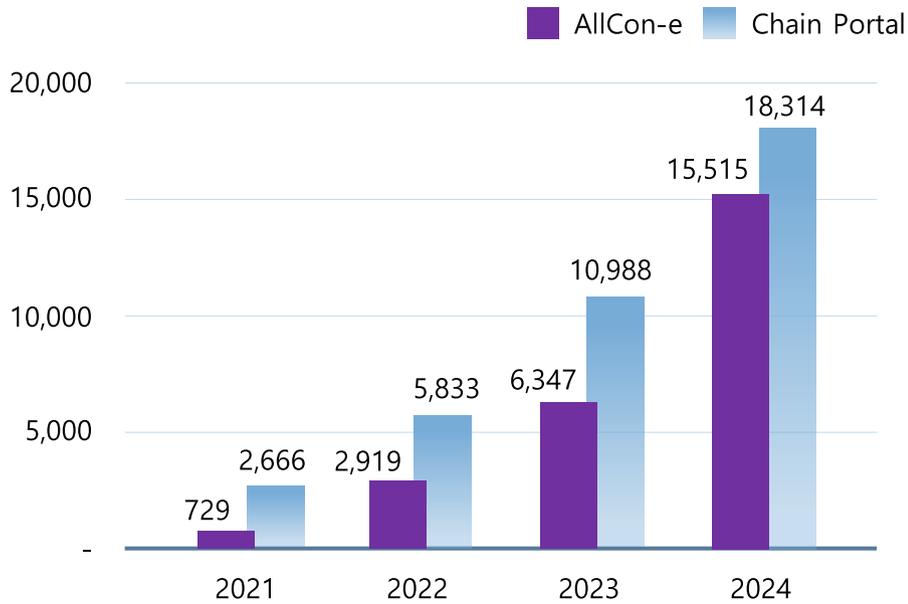
Utilization Status and Effects

II. Busan Port PCS



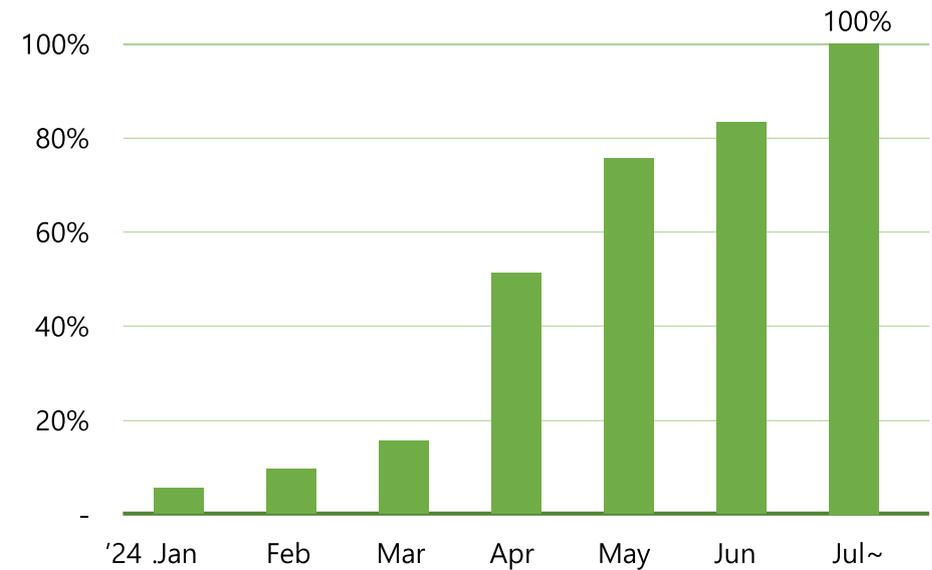
Number of Chain Portal Subscribers

(2021 ~ 2024)



e-Slip Usage Rate

(2024)



Utilization of Chain Portal

Chain Portal(Web) subscribers
19,000 people

AllCon-e(App) subscribers
16,000 people

Expected Effects

Prevention of accidents within the port by truck drivers avoiding unloading areas

Using TSS results ;
3x increase in backhaul rate
30% reduction in truck waiting time

100% conversion of paper slip to E-slip





THANK YOU

BPA | 부산항만공사
BUSAN PORT AUTHORITY

