Global Logistics IT Leader

KL-Net
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KL-Net was established by the Ministry of Lands, Transport, and Maritime Affairs (MLTM) in 1994 to computerize Korea's maritime logistics and to enhance national competitiveness. KL-Net has been about 23 years delivering the most advanced Maritime, Port & logistics IT solutions to satisfy our customer's needs and exceed their expectations.
2. History

- **1994**
  - Establishment of KL-Net

- **1996**
  - Port-MIS service open
  - Designated maritime logistics information exchange service provider by government
  - Logistics EDI service open

- **1998**
  - National wide Port-MIS System development

- **1999**
  - IT outsourcing business

- **2002**
  - Listed in KOSDAQ (2002)
  - Rail cargo EDI service open (2001)

- **2011**
  - Major share holder changed (Public Sector (PA) -> Private Sector) (2011)
  - TMS (Transportation Management System) service open (2011)
  - Port-MIS upgrade project (2009)
  - Development of RFID based gate automation system (2008)
  - Port logistics integrated service for maritime business (PLISM) (2007)
  - E-tax invoice service open (2004)

- **2018 ~**
  - Re-Designated maritime logistics information exchange service provider
  - Maritime Manifest Consolidation Service open (2016)
  - PLISM 3.0 Service open
3. Customers

“Built up network which is made up of 5,000 ++ Customers in logistics Company and public institution”

- Korea Customs
- Ministry of Maritime Affairs and Fisheries
- Korea immigration Center
- Korea Centers for Disease control
- Maritime D/G inspection center
- etc.

- Terminal (30) + CY(60)
  - All container terminals including about 60 CYs

- Government Department (7)

- Public institution/association (23)

- Carrier Freights Forwarder (2,000)
  - Maersk, MSC, CMA-CGM, APL, KMTC, Heung A ...

- Transporter (2,050)

- Etc (1,000+)
  - KCTC, Korea Express, Sebang Express

- Korea Terminal Authority
- Maritime Pilot’s association
- Korea Marine Pollution Response Corp
- Korea Ship Owner’s association
KL-Net was invested by Korean government and major logistics companies in 1994 to strengthen the national supply chain logistics through the use of ICT. The core business of KL-Net is Port Community System (PCS), e-Business, and logistics standardization.

<table>
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<tr>
<th>Products Line-up</th>
<th>Logistics Chain</th>
<th>Shipper</th>
<th>ICD/Warehouse</th>
<th>Terminals</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users</td>
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<tr>
<td>PA, CIQ</td>
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<tr>
<td>Terminal</td>
<td></td>
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<td></td>
<td>Port-MIS</td>
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<tr>
<td>PA, CIQ, Shipper/Forwarder</td>
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<td></td>
<td></td>
<td>Basic Systems</td>
</tr>
<tr>
<td>PA, Terminal, Warehouse</td>
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<tr>
<td>Terminal, Forwarder, Trucking Co.</td>
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<td>PLISM : e-Trans</td>
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<tr>
<td>Shipper/Forwarder, Shipping Line</td>
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<td>PLISM : e-Shipper</td>
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<tr>
<td>All Port Businesses</td>
<td></td>
<td>PLISM</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Terminal, Trucking Co.</td>
<td></td>
<td></td>
<td>RFID Gate</td>
<td></td>
<td>Advanced/High Value-Added Systems</td>
</tr>
<tr>
<td>PA</td>
<td></td>
<td></td>
<td>Smart Grid/LED</td>
<td></td>
<td>Vessel Monitoring</td>
</tr>
<tr>
<td>Shipper, Shipping Line</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA, Engineering Co.</td>
<td></td>
<td></td>
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<td>Port CALS</td>
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</tbody>
</table>
PCS Services of KL-Net contribute to reduction of logistics cost and enhancement of national logistics competitiveness by delivering export and import logistics services and declaration service via EDI (Electronic Data Interchange), Web, XML for automated processing.

**B2G Service (Single Window Service)**

B2G service facilitates the handling of various export and import declaration tasks through Single Window of EDI, Web, XML. Our customer can conveniently complete all of export and import declaration tasks with just a single declaration.

**B2B Service (Port Community System)**

B2B service contributes to reduction of logistics cost and enhancement of national logistics competitiveness by delivering and sharing booking, waybill, result of transport, shipping documents and inspection works via EDI (Electronic Data Interchange) among supplier and consumer of export and import logistics such as shippers, ocean carriers, forwarder, trucking companies and terminals, etc.
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B2G service facilitates the handling of various export and import declaration tasks through Single Window of EDI, Web, XML. Our customer can conveniently complete all of export and import declaration tasks with just a single declaration.

<table>
<thead>
<tr>
<th>Service Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single window for declaration of vessel entry/departure</td>
<td>For declaration of entry/departure of vessels, this service provides one-stop declaration system of entry and departure of vessels to export/import related government organizations such as “Port Authority”, “CIQ Organizations”, etc.</td>
</tr>
<tr>
<td>Manifest Consolidation Service</td>
<td>Consolidate Manifest from ocean carriers and forwarders, submit consolidated manifest to Korea Customs Service via EDI, and share it with related logistics entities.</td>
</tr>
<tr>
<td>Dangerous cargo consolidation and declaration service</td>
<td>Shippers can process ‘dangerous goods inspection’ from &quot;Korea Maritime Dangerous Goods Inspection Center&quot; via EDI. We also provide dangerous goods information sharing service with &quot;Ministry of Oceans and Fisheries&quot; for logistics efficiency.</td>
</tr>
<tr>
<td>Railroad transportation service</td>
<td>By interfacing with &quot;KROIS(Korea Railroad Operating Information System)&quot; service, Customers can apply to &quot;Korean Railroad Corporation&quot; about cargo transportation apply, allocation of freight car, notice of allocation results, etc.</td>
</tr>
<tr>
<td>Billing Service</td>
<td>Customers can pay a bill for using port facilities without visiting bank or government agency by automating billing and receipt process electronically.</td>
</tr>
<tr>
<td>Advance Foreign Cargo Declaration Service</td>
<td>24 hours before departure, customers can declare their cargos to Japan Customs.</td>
</tr>
</tbody>
</table>
2. Single Windows Service

※ Single Window service charge about **30% less**, compared to conventional reporting system.
Port-MIS is a comprehensive online port management system that provides e-port clearance service and real-time access to the operational information of a vessel from its arrival to departure.
- Realize fully electronic paperless port business and provide real-time e-port services to both domestic and global port community
- Integrate operational information of nation’s ports to support knowledge-based decision and systematic policy making

1. **System Concept**
To optimize port management, Port-MIS is built on four management fields: vessel management, cargo management, billing management and statistics management.

2. **Benefits**
   - **For the Port Community (Private)**
     - Minimize documentation time and cost
     - Link with relevant agencies involved in export/import (CIQ)
     - Minimize vessel waiting time in the port
     - Support non-stop stable civil service
   - **For the Port Operator (Public)**
     - Establish an unified port information network to become a logistics hub
     - Make an effective use of limited port facilities based on real-time facility occupancy
     - Devise systematic policies/decisions based on statistical data analysis
     - Prevent unexpected accidents by real-time monitoring of vessel / cargo traffic and facility status
4. MFCS (Manifest Consolidation Service)

Ⅱ. B2G Service

**Single Window KL-Net MFCS**

Shipper Forwarder A

① Manifest(H-B/L) (Include MRN)

Shipper Forwarder B

① Manifest(H-B/L) (Include MRN)

Main Carrier

① Manifest(M-B/L) (Include MRN)

Co-loader

① Manifest(M-B/L) (Include MRN)

② Consolidated Manifest(M-B/L, H-B/L)

Korea Customs


M-BL and H-BL transmitted in the same MRN are consolidated from MFCS and reported by the Main Carrier to Customs
PLISM integrates B2G, and B2B shipping data, and creates logistics information by using the integrated data from various logistics entities including shipping companies, carriers, terminals and auditing companies.

Major Function

- Container movement tracking
- Container inventory management
- Container gate in/out control
- Import/export documentation & notice
- Demurrage / Detention notice and control
- Undelivered container management
- Real-time schedule service
- Cargo arrival information service
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Traditional Communication Pattern in Maritime Business:

- Every party exchanges its information to each other, who wants or needs the information.
- Every party has its own bi-directional lines and sends the same information to the ones who need it.

Problems:
- **Duplication** of entry and storage of data formalities, and paper works.
- **Disparate sources** of information & bi-directional communication channel.
- **Complicated and non-standardized** formalities between the parties.

Development of PLISM service for quick and accurate business processing through sharing real-time information between logistics companies.
2. PLISM Overview

**PLISM : Port Logistics Integrated System for Maritime business**
- Provide Export/Import Shippers with **integrated one-stop e-SCM (Supply Chain Management) system**
- Support Shipping lines to manage field operations such as cargo, container, and cost management

![Diagram showing the connection between various entities in the logistics system](image-url)
3. PLISM Service Overview (Carrier/Trucking Company/Terminal)  Ⅲ. B2B Service

PLISM™ is basically PORT-SCM for carriers
- Controlling container carry in and out by carrier’s door-order
- Providing calculated free-time for each terminals base on contract
- Reducing needless phone calls and duplicated document processing

![Diagram showing PLISM™ service overview](image)
Types of services involved in Export process: e-Booking, e-Trans, shipment mgt. service

- **e-Booking Service** (for shipper)
  - Booking
  - Trucking order
  - MT Pick-up
  - Shipper’s warehouse (load)
  - Transport
  - Terminal delivery
  - Shipment

- **e-Trans Service** (for trucking co.)
  - Terminal/ICD/CY MT pickup

- **Shipment mgt. Service** (for shipping line)
  - Control
  - Full delivery

- **Ocean Carrier**
- **Trucking co.**
- **Shipper**
- **Terminal**
- **Tally Co.**

* MT: Empty Container
* FULL: Full Container
5. PLISM Service (Import)

Types of services involved in Import process: e-D/O, e-Trans, shipment mgt. service

- **Shipment mgt. Service (for shipping line)**
  - Shipping Line
  - Shipper / Forwarder
  - Trucking co.
  - Transport (bonded)
  - Shipper
  - Terminal / ICD/CY

- **e-D/O Service (for shipper)**
  - e-D/O Service (for shipper)

- **e-Trans Service (for trucking co.)**
  - e-Trans Service (for trucking co.)

- **Arrival Notice**
- **Receive B/L, Obtain D/O**
- **Trucking order**
- **Terminal pick-up**
- **Transport (bonded)**
- **Shipper’s Warehouse (delivery)**
- **MT Return**
6. PLISM Service (Control Logic Flowchart)

Ⅲ. B2B Service

- **Carrier**
  - ① VSL schedule
  - ③ BKG confirmation
  - ⑦ COPINO Verification

- **Shipper**
  - ② BKG requirement
  - ③ BKG confirmation
  - ⑩ Integrated CODECO Send
  - ⑤ BKG info (Pickup place)
  - ⑥ Pick-up COPINO
  - ⑪ MT DOOR delivery

- **Trucker**
  - ④ MT DOOR order
  - ⑦ COPINO Response Result Check

- **eTrans**
  - ① VSL schedule
  - ③ BKG confirmation

- **KL-Net**
  - ③ Door Order (= BKG) (Pick-UP DEPOT)
  - ⑥ Verified COPINO Send
  - ⑤ BKG info (Pickup place)
  - ⑥ Pick-up COPINO

- **TML/ODCY**
  - ⑥ Error COPINO Block
  - ⑦ Notify COPINO Response Process
  - ⑧ CNTR Carry out
  - ⑨ Gate log (CODECO) Send
  - ③ CNTR Terminals
  - ④ Conventional Wharf
  - ⑤ ODCY

- **Direct connection to Terminals prohibited**

- **COPINO Block**
  - ⑦ Notify COPINO Response Process
  - ⑧ CNTR Carry out

- **BOOKING NO**
  - Pick-up place
  - Pick-up deadline
  - CNTR quantity
Provide shipper with data exchange service data with carriers.
- e-Booking: booking, S/R, draft B/L, invoice, etc.

### Services

<table>
<thead>
<tr>
<th>Services</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>• e-schedule</td>
<td>Query schedules of the shipping lines by harbor, route, and period of transport</td>
</tr>
<tr>
<td>• e-Booking</td>
<td>Process booking and booking confirmation between shipper-shipping line via web or EDI</td>
</tr>
<tr>
<td>• e-S/R, B/L</td>
<td>Process shipping request(S/R) and B/L draft info. between shipper-shipping line via web or EDI</td>
</tr>
<tr>
<td>• Invoice</td>
<td>Process tax invoice among shipper-shipping line-Customs via web or EDI</td>
</tr>
<tr>
<td>• A/N</td>
<td>Shipping line sends Arrival Notice(A/N for imported cargo) to shipper/forwarder via web, FAX, or EDI</td>
</tr>
<tr>
<td>• D/O</td>
<td>Shipper/trucking company query e-D/O info. Issued by shipping line</td>
</tr>
</tbody>
</table>

* A/N: Arrival Notice  
* D/O: Delivery Order
e-Trans provides transport company with ASP service to query **basic information required to transport import/export cargo**, and to send **pre-notification messages for delivery/pick-up** to the terminal, ICD, and CY.

<table>
<thead>
<tr>
<th>Services</th>
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<tbody>
<tr>
<td>Export cargo transport info.</td>
<td>Query shipping line’s trucking order to apply for picking up MT and delivering FULL</td>
</tr>
<tr>
<td>Import cargo transport info.</td>
<td>Query shipping line’s manifest and D/O info. to pick up FULL</td>
</tr>
<tr>
<td>MT pick-up</td>
<td>Generate and exchange pre-notification for MT pick-up for export cargo delivery</td>
</tr>
<tr>
<td>Full delivery</td>
<td>Generate and exchange pre-notification for FULL delivery for import cargo delivery</td>
</tr>
<tr>
<td>MT Return</td>
<td>After import cargo has been delivered to the shipper, send message for the MT return location info. designated by shipping line</td>
</tr>
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Goal: Trusted Paperless Trade Offer

- Construction of various supplementary services on the data pipeline of export-import block-chain
  - Access various solution vendor applications as they are and share data with the block chain → Activating a service from a solution Company
  - AI/Big-data based Service: Each vendor develops the necessary services on a platform basis → Enable information-based services
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