Logistics Information System in the Republic of Korea - PORT-MIS

2015.12.10

Bangkok, Thailand
Introduction

II Review of PORT-MIS

III System Analysis
1. Introduction
1. INTRODUCTION

From early of '80's Republic of Korea Government has developed many logistics information system to improve logistics efficiency.

- Port
- Shipping
- Sea farer
- Inland
- Air
- Etc.
- Multi-Modal
- Safety & Security

Major Logistics Information Systems managed by MOF

- PORT-MIS
  - EDI
  - Web
  - Mobile

- SP-IDC
  - Web
  - Information Portal
  - NEAL-NET Cooperation

- GCTS
  - RFID
  - EDI

Ministry of Oceans and Fisheries (MOF)
1. INTRODUCTION

Basic Goal

**Seamless global Logistics system**

- Provide Logistics Statistics/Data
- Improve logistics Efficiency
- Secure logistics Security

Build Infrastructures

Integration of Related information system

Supply Chain Visibility

Factory of Manufacturer
- Information of Container Trailers
- Information of Logistics Node
- Productivity Improvement (Nonstop Gate)
- Productivity Improvement (RTLS Base Y/T Pooling)
- Tracking Information of a Ship

Manufacturer
- Freight tracking
- Property management
- Efficient management of warehouses
- Home and foreign customs efficiency
- Notice of dangerous freights

Forwarder
- Trailer tracking
- Property management
- Notice of dangerous freights
- Information of Container Trailers

Shipping Company
- Container tracking
- Property management
- Efficient Management of containers
- Home and foreign customs efficiency
- Notice of dangerous cargo

Customs
- Integrated management of customs declaration
- Effective Operation of Quarantine
- Collaboration with public institutions

Terminal
- Automatic port management
- Container security service
- Container identification
- Efficient container yard planning
- Notice of dangerous freights
1. INTRODUCTION

National Logistics Network Service
PORT - MIS
(Port - Management Information System)

1) Overview
2) History
3) Concept
4) Operation
5) Civil Applications
6) Process of Civil Affairs
7) Structure of PORT-MIS system
8) Future development plan
1. Overview

- **Name**
  - Abbreviation of Port - Management Information System

- **Legal basis**
  - Vessel In-Out Management of Act, article 50
  - Regulations on use of port facilities and usage costs
  - Regulations on establishment, operation and using process port logistics integrate information system

- **Definition**
  - The system was launched to deal with civil affairs through wired and wireless internet and port logistics information network, here civil affairs for all kinds of port operation work was included, such as port entry and departure, use of port facilities, control items, cargo in/out, tax collection, ship departure, and so on.
  - [Type of Civil Affairs]
    - Definition of Civil Affairs using Port-MIS
1. Overview

Port-MIS : Single Window for Port Authority & Government

- Covers all ports operation including management of vessel and cargo movement.
- Paperless job process through nationwide network linked with all ports utilizing electronic data interface/web/Mobile.

Main Functionality

- Vessel Clearance
  - Approval of Vessel Arrival/Departure Notice submitted by Shipping Line/Agent

- Cargo Clearance
  - Approval of Cargo/container Declaration submitted by customers

- Billing
  - Calculation of Port charges according to the tariff and issuance of Invoice to the customers

- Facility Control
  - Assignment of Berth for the vessel’s position submitted by Shipping Line/Agent

- Report System
  - Allows the planner to collect statistics to build up future plan for port promotion and optimal use of port resources.
2. History

- By Republic of Korea government, this system was initially invented in order to speed up export/import clearance and vessel control back in 1992.

- Along with shipping companies and logistics related companies, Ministry of Oceans and Fisheries (MOF) formed a fund and founded KL-Net by the promotional law on export/import.

- In 1994, working on EDI (Electronic Data Interface) system. Kicking off the EDI service.

- In 1996, MOF launched development plan for Port-MIS, utilizing EDI system, Nationwide Port-MIS operation in full scale, connecting Port-MIS with all the ports in Republic of Korea, covering all terminals, Port Authorities and local gov’t offices.

- MOF launched PORT-MIS 2.0 in 2010 and developed PORT-MIS mobile service in 2011.

- Full connectivity with Customs, Immigration and Quarantine offices, one electronic document submission gives instant approval/disapproval to applicant.

- Under the national brand name “Yes! u-Port”, MOF promotes the system to overseas.

- The one and only Single Window system in nationwide service.
3. Concept

Why Port-MIS and Electronic Process?

- Single submission. Trip to the offices are reduced as much as 95% with 97% less paper documents.
- Full visibility: PA’s and Gov’t have full and instant access to local terminals and ports.
- Integrated service among PA, customs, immigration and quarantine and other related government authorities.
- Perfectly complies to ‘Green Port’ by speeding up vessel in/out and much less traffic congestion in terminal area.
- Web service available.
- Mobile service available.
- The one and only field-proven 24x7 nationwide service!
4. Operation

MOF and Port Authority are responsible for PORT Operation & Management on 31 Int’l Port

<table>
<thead>
<tr>
<th>Use</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR Center</td>
<td>DR(Busan)</td>
</tr>
<tr>
<td>Gov’t Integrated Cn</td>
<td>Daejeon</td>
</tr>
<tr>
<td>YeongNam</td>
<td>Busan(MOF)</td>
</tr>
<tr>
<td>KeongIn &amp; YoungDong</td>
<td>Incheon(MOF)</td>
</tr>
<tr>
<td>Honam</td>
<td>Yeosu(MOF)</td>
</tr>
<tr>
<td>BPA</td>
<td>BPA</td>
</tr>
<tr>
<td>IPA</td>
<td>IPA</td>
</tr>
<tr>
<td>UPA</td>
<td>UPA</td>
</tr>
<tr>
<td>YGPA</td>
<td>YGPA</td>
</tr>
</tbody>
</table>

### Division

<table>
<thead>
<tr>
<th>Division</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>National port(14)</td>
<td>Busan, Incheon, Pyeongtaek, Dangjin, Daesan, Gunsan, Janghang, Mokpo, Gwangyang, Masan, Ulsan, Pohang, Donghae, Mukho</td>
</tr>
<tr>
<td>Local port(17)</td>
<td>Seoul, Taean, Boryeong, Wando, Samcheonpo, Tongyeong, Jangseungpo, Okpo, Gohyeon, Jinhae, Hadong, Samcheok, Okgye, Sokcho, Jeju, Seogwipo, Hosan</td>
</tr>
</tbody>
</table>
5. Civil Applications

Civil service for ship and cargo based on law

Ship-related
- Declare for port Entry (Domestics)
- Declare for port departure (Domestics)
- Declare for port Entry (Ocean)
- Declare for port departure (Ocean)
- Crew & passenger list
- Declare for ship M & R
- Report for result of ship M & R
- Declare for construction
- Report for mooring
- Declare for events in port area
- Notice for Ship security
- Apply for use of port facilities
- Etc. - CIQ

Cargo-related
- Declare for cargo
- Declare for inbound cargo
- Report for container in/out
- Declare for use of port facility
- Report for DG
- Billing

Manage and monitor all information for ship’s movement (by each ship’s calling)
6. Process of Civil Affairs

Strong Cooperation & connection between MOF and PA

Three regional hub for Port-MIS
- Port and ship security and safety (ISPS)
- Civil affairs for all ports except port under PA
- Port under local government still use PORT–MIS
- Build Websquare (UI tool) and eGovernment Standard Framework (JAVA)

Four PA’s Port-MIS
- All civil affairs except security and safety issues
- 4 PA constructed their own information which strongly linked regional PORT–MIS
- Use different UI development tool
  - IPA, YGPA: Myplatform, BPA, UPA: flex

Port-MIS 2.0
- Web base Port–MIS system
- Single window for all ports and CIQ Org.
- Free of charge

Smart Mobile Port-MIS
- Civil affairs using mobile phone
- Mobile web: Android, iPhone
- Limited usage due to small screen

EDI system
- Use EDI system (provided by KL–Net)
- Convenient for Legacy user
- Web base service (PLISM2.0)
7. Structure of PORT-MIS system

Three ways to handle civil affairs

<table>
<thead>
<tr>
<th>Division</th>
<th>Place</th>
<th>Way</th>
<th>Development environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOF</td>
<td>DR Center</td>
<td>WEB/Mobile</td>
<td>Websquire, Framework for e-Government</td>
</tr>
<tr>
<td>SP-IDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Regional offices (Busan, Incheon, Yesou)</td>
<td>3 Regional office</td>
<td>WEB/EDI</td>
<td></td>
</tr>
<tr>
<td>Busan Port Authority</td>
<td>BPA</td>
<td>WEB/EDI</td>
<td>FLEX, Framework for e-Government</td>
</tr>
<tr>
<td>Incheon Port Authority</td>
<td>IPA</td>
<td>WEB</td>
<td></td>
</tr>
<tr>
<td>Ulsan Port Authority</td>
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<td>WEB</td>
<td>Myplatform Framework for e-Government</td>
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System Analysis

1. Users/roles/key function
2. Data standards/type used
3. Institutional Arrangement
4. Cooperation mechanism
5. Connectivity
6. Financing
7. Other Issues
## 1) Users/roles/key functions

<table>
<thead>
<tr>
<th>Division</th>
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<tbody>
<tr>
<td><strong>System provider</strong></td>
<td>▪ MOF (Ministry of Oceans and Fisheries) &amp; PA</td>
</tr>
<tr>
<td><strong>System operator</strong></td>
<td>▪ KL-Net (as SM contractor)</td>
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<tr>
<td><strong>System user</strong></td>
<td>▪ Private sector: logistics companies including shipping line, terminal, shipper, trucking Co. and etc</td>
</tr>
<tr>
<td></td>
<td>▪ Public sector: Regional MOF, PA, CIQ and etc</td>
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</tbody>
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### Key function

▪ system provider - system development, system connection, budget  
  - public user (administrator): civil service, feedback, PR  
  - system operator: Non-stop service (24h*7), M&R, Quality service  
  - system user: declare and report for civil affairs (web service user, mobile user, legacy user)

<table>
<thead>
<tr>
<th>Region</th>
<th>No. of enterprise registration</th>
<th>No. of Civil affairs (daily average)</th>
<th>Ship entry/departure ('13. 1.~’13. 12.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YeongNam</td>
<td>7,992</td>
<td>About 15,600</td>
<td>206,552 ships</td>
</tr>
<tr>
<td>Keongin</td>
<td>5,099</td>
<td>About 3,900</td>
<td>88,009 ships</td>
</tr>
<tr>
<td>Honam</td>
<td>2,624</td>
<td>About 1,800</td>
<td>91,796 ships</td>
</tr>
<tr>
<td>Total</td>
<td>15,715</td>
<td>About 21,300</td>
<td>386,357 ships</td>
</tr>
</tbody>
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Regional system user situation ('13. 12)
### 2) Data standards/type used

<table>
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</table>
| National data standard | - Follow national standard (ex: KS)  
- Adopt and consider to apply international standard  
- (ex: Code set, EDI message and technical standard) |
| International standard | - Agreement: understand & communication  
- Patience (take long time)  
- Step by step approach  
- Involve and support from government  
- Expansion to other economy  
- Simplicity (follow int'l standard)  
- Cooperate int'l organization |
## 3) Institutional Arrangement

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| Government support | - Financing: PORT-MIS (annual operation cost)  
                    - 4 PA provide own budget to operate and manage PORT-MIS |
| Legal aspect     | - Port and Harbor Act  
                    - All user should use PORT-MIS for their civil service (Mandatory by Law) |
| Issues           | - BPR/ISP for development of integrated shipping & port information system based on Open Platform  
                    - Project period: 2014. 5- 2014.11  
                    - Rebuild PORT-MIS reflected changing environment |
### 4) Cooperation mechanism

<table>
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| Domestics | - Single Window for shipping and port community  
- One-stop service for user  
- Link to CIQ & so on  
- Cooperate with related government agency (e.g.: Ministry of Land, Infrastructure and Transport) |
| International | - Support developing country to support build up their logistics information system  
- Consulting service: Vietnam, Philippines, Guatemala, Tanzania  
- Love call from foreign country  
- Libya, Ecuador, Vietnam  
- e-Government project  
- Training & education program |

### 5) Connectivity

<table>
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</table>
| Domestic | - 3 regional PORT-MIS links to PA  
- 3 PORT-MIS and PA system links to SPIDC |
| International | - No link to foreign system due to security issues  
- cooperate through SP-IDC |
6) Financing

<table>
<thead>
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</tr>
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</table>
| Domestic   | • Financing by government : MOF & PA  
- Annual operating budget  
- Expansion and rebuild  |
| International | • Depends on Project Base  
- ODA with KOICA  
- Capacity Building for developing countries  |

7) Other issues

<table>
<thead>
<tr>
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</tr>
</thead>
</table>
| Security   | • Protect cargo information and personal data  
“Information Protection Act and Privacy Act”  |
| Integration | • 3 regional & 4 PA systems will be integrated with in 2015  
- PORT-MIS & SP-IDC will be integrated in 2016  |
Thank you for your attention