What is Next Generation Port System for the global supply chain

KL-Net
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- Goal
- What were doing until now in IMO FAL ?
- What are we doing for next ?
Goal

Electronic Means for the Port Clearance of Ships

EDI  XML  Single Window

GLOBAL SUPPLY CHAIN FOR MARITIME TRANSPORT

Ubiquitous Technology
Advanced communication protocol
Requirement

I want to know a correct status of my goods.

Whether my ship or goods is moving with safety?
Worry about some problems was occurred?

It is faster if Electronic means for the clearance of ships, cargo and passengers have to do from ship.

- difficult to check whole work or goods flow because of complex transportation structure
- Even though, most user want to know correct status information in real time
- But, it is difficult to provide real-time information only through electronic data

-> We need the next generation of Service Model
WHAT WERE DOING UNTIL NOW IN IMO FAL ??

- Initial Stage
- 2nd Stage by electronic means
- 3rd Stage by Single Window
Initial Stage

Manual & Paper Processing

- Visit PA
- Submit Paper Document to officer
- Go back to Office and Wait until confirm
- If something wrong, officer notify this to user.
  Then modify paper document and visit again and resubmit
- Receive approval for Arrival or departure
- Then inform approval to Master by radio frequency

Repeat until approval
2nd Stage by Electronic Means

- Make electronic message using by PC
- Submit electronic message to Port Authority through network
- If something wrong, officer notify this to user.
  Then modify electronic message and submit again
- Receive approval for Arrival or departure
- Then inform approval to Master by radio frequency

Repeat until approval

Port Authority

Destination Port

Origin Port

Network (or Internet)

EDI Or XML

Carrier Or Shipping Agency
## The Expected Effects

### Work Efficiency
- Remove unnecessary work process and paper document
- Reduce Manual Processing through work automation
- Increase Work productivity

### Improvement
- Enhance user convenience
- Reduce work duplication due to increase the ratio of Information Sharing between the relevant organizations

### Economic Effects
- Increase National level economic advantages
- Additionally, enhance global economic
WHAT ARE YOU DOING FOR NEXT ??

- Requirement
- Global Supply Chain
- To-BE Model
Future of port logistics system: Requirement

Next Port System

- Traceability
- Interoperability
- Visibility
- Safety
**Requirement**

### Business Aspect

**Needs**
- Strong Relationship between the participant entities
- Information sharing as connecting between information system
- Setup global supply chain for visibility and safety

**Simple Method**
- Co-work between IMO member states
- Discuss together to simplify work process

**Standard**
- Work efficiency
  - Simplified Work Process
  - Remove duplication

**Common**
- International Standard
  - Such as IMO, UN/CEFACT

### Technical Aspect

**Needs**
- New communication protocol that is a comfortable and low cost
- and easy accessible from vessel even though on sailing
- Common and general middleware in order to easily integrate between business entities

**Real time Service**
- Possible to provide real-time information, such as goods status or correct location, transport means location, etc.
- Detect automatically this status information without human resource

**To do this**
- Introduce Ubiquitous technology
- Develop the advance communication protocol used in maritime transport
Global Supply Chain

Road Transportation

Marine Transportation

Road Transportation

- Warehouse/Factory
- Container Schedule
- Container Terminal
- Cargo Tracking
- Warehouse
Until now, we only focused on work automation

- EDI, XML, single window and WEB, etc.

Now and Future, what is important thing to support **Trade Facilitation**

- Reduce loading/unloading time within Port or Terminal
- Reduce store period within depot or terminal
- Provide real-time tracking service to support **seamless logistics**

It must need new Technology to support above things.

- **Ubiquitous Technology, RFID, USN, GPS, etc.**
- **Advanced communication protocol used at maritime transportation**
What is u-Port?

- u-Port is an intelligent port that tracks and manages logistics flow in real time with the adoption of ubiquitous technology for the purpose of managing information on cargoes and ships.
- Utilizing RFID and Ubiquitous Sensor Network (USN) technologies to manage the movement and processing of goods in real time.

How to?

- Attaching tags to vehicles or containers and using antennae and communication networks.
TO-BE Model u-Port

What can we do?

- Reduce human resource, lead time and stop(or waiting) time in front of terminal gate as well as document checking time
- Now allow not permitted goods, vehicle, even though person
- Eventually, Port Security, cost effective

Where?

- Within the Port: Terminal Gate In/Out, Access Control, Dangerous Goods Control, etc.
- Outside the Port: Inland Depot, Highway, Bridge, Warehouse, etc.
TO-BE Model: u-Port

### Process Productiveness Enhancement

<table>
<thead>
<tr>
<th>Process Changing</th>
<th>Terminal In</th>
<th>Container Loading</th>
<th>Shipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive COPINO EDI</td>
<td>Cargo In</td>
<td>Indicate shipment</td>
<td>Indicate shipment</td>
</tr>
<tr>
<td>Check vehicle/Container</td>
<td>Indicate unloading work</td>
<td>Equipment</td>
<td>Equipment</td>
</tr>
<tr>
<td>Print assigned location</td>
<td>Yard Loading</td>
<td>Shipment work</td>
<td>Shipment work</td>
</tr>
<tr>
<td>Pass Gate</td>
<td>Check loading work</td>
<td>Indicate check process</td>
<td>Indicate check process</td>
</tr>
<tr>
<td>Move to assigned location</td>
<td></td>
<td>Arrange Inspector</td>
<td>Arrange Inspector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check error or not</td>
<td>Check error or not</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adjust shipment items</td>
<td>Adjust shipment items</td>
</tr>
</tbody>
</table>

### Quantitative Effects

- **Upgrade Process Productiveness**
  - 44%
  - Consider limitation of infra that come along side the pier

- **Upgrade Port Productiveness**
  - 20%
  - Contract to Based on sales of current traffics

- **Upgrade Annual Sales**
  - 8.4 Hundred Million USD

**Lead Time Reduction**
- 10 min → 5 min, (Reduce 50%)
- 1 H, 50 Min → 1 Hour, (Reduce 45%)
- 11.5 Hour → 9 Hour by 1,000 TEU, (Reduce 20%)

**The ratio of productiveness**
- +100%
- +83%
- +44%
Plan of Republic of Korea

<table>
<thead>
<tr>
<th>u-Port</th>
<th>FAL 39</th>
</tr>
</thead>
<tbody>
<tr>
<td>• u-Port can facilitate logistics through more efficient port operations, enhance logistics security and contribute to efficient and sustainable development of maritime industry, which is a mission of IMO.</td>
<td>• introduce ROK’s u-Port as a best practice case</td>
</tr>
<tr>
<td>• Now, ROK has developing the related technology.</td>
<td>• explain its necessary components and technologies</td>
</tr>
<tr>
<td>• Will submit the related document at next FAL</td>
<td>• Willing to share how to apply with IMO member state’s opinion</td>
</tr>
</tbody>
</table>
Q & A
Thank you!!