UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

Subregional Capacity Building Workshop on Business Process Re-engineering (BPR) for Trade Facilitation

Bangkok, Thailand, September 2018.

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I. Define Objectives

Goal of Single Window

Mission	**Single Window for Trade Facilitation!!**
Concept	**Collaboration & Framework of Global Trade**
Strategies	• Enhance the simplified electronic means of the trade facilitation in cross-border trade and transit • Standardization in activities, interface, and information in overall global SCM • Improve work efficiency and strengthen work competitiveness

Background and Goal

Single Window

Standard definition	Single Entry Point	Advanced notification	Work efficiency

Improvement

- Individual declaration method for each country
- Individual declaration document
- Manual processing
- long process time and high cost

Interoperability

- Seamless visibility with information sharing
- Easy connectivity with standard interface
- Flexibility with standard document

Standardization

- Redefine Business Process
- Enhance interoperability
- Combine with technology
- Uses the unified e-document

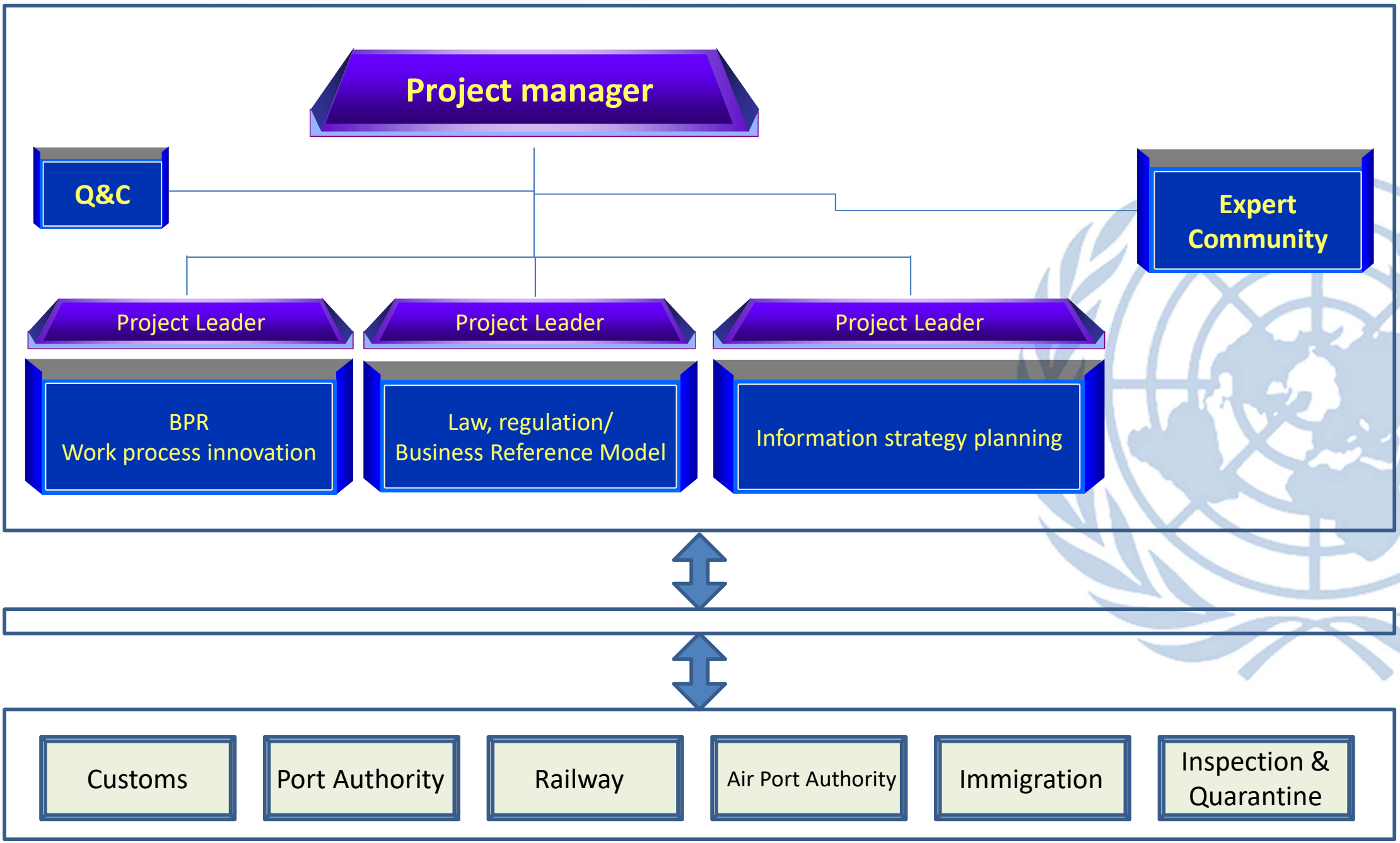
Paperless trade is very important in cross-border trade and transit

International trade environment changing

Focus : reliability transaction, easy connectivity, accuracy data visibility

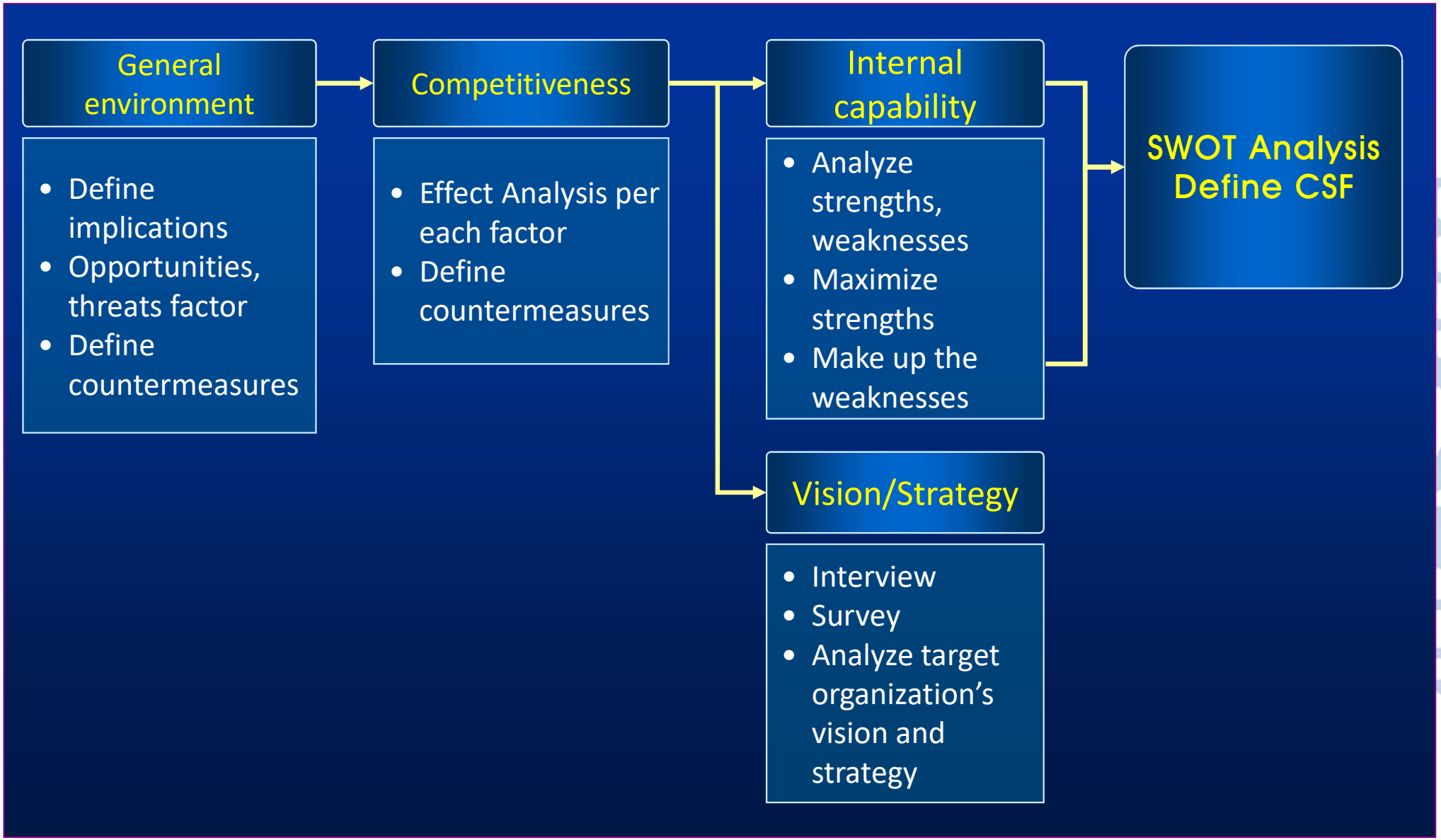
IT Convergence using New Technology

Project team



II. Grasp requirements

Environment Analysis



※ SWOT : Strengths, Weaknesses, Opportunities, Threats

CSF : Critical Success Factor

SWOT Analysis

S

- Describe your strengths of your country before starting BPR
- Ex) strong government’ s leadership
- Ex) Logistics infra and hub

W

- Describe your weaknesses of your country before starting BPR
- Ex) manual processing
- Ex) exists the duplicated work
- Ex) no information sharing between governments
- Ex) Not use standard e-document

O

- Describe your opportunites of your country before starting BPR
- Ex) Increase the volume of cross-border trade by FTA
- Ex) Increase the needs of work automation
- Ex) Introduce new advanced technology such as IoT, Blockchain, etc.

T

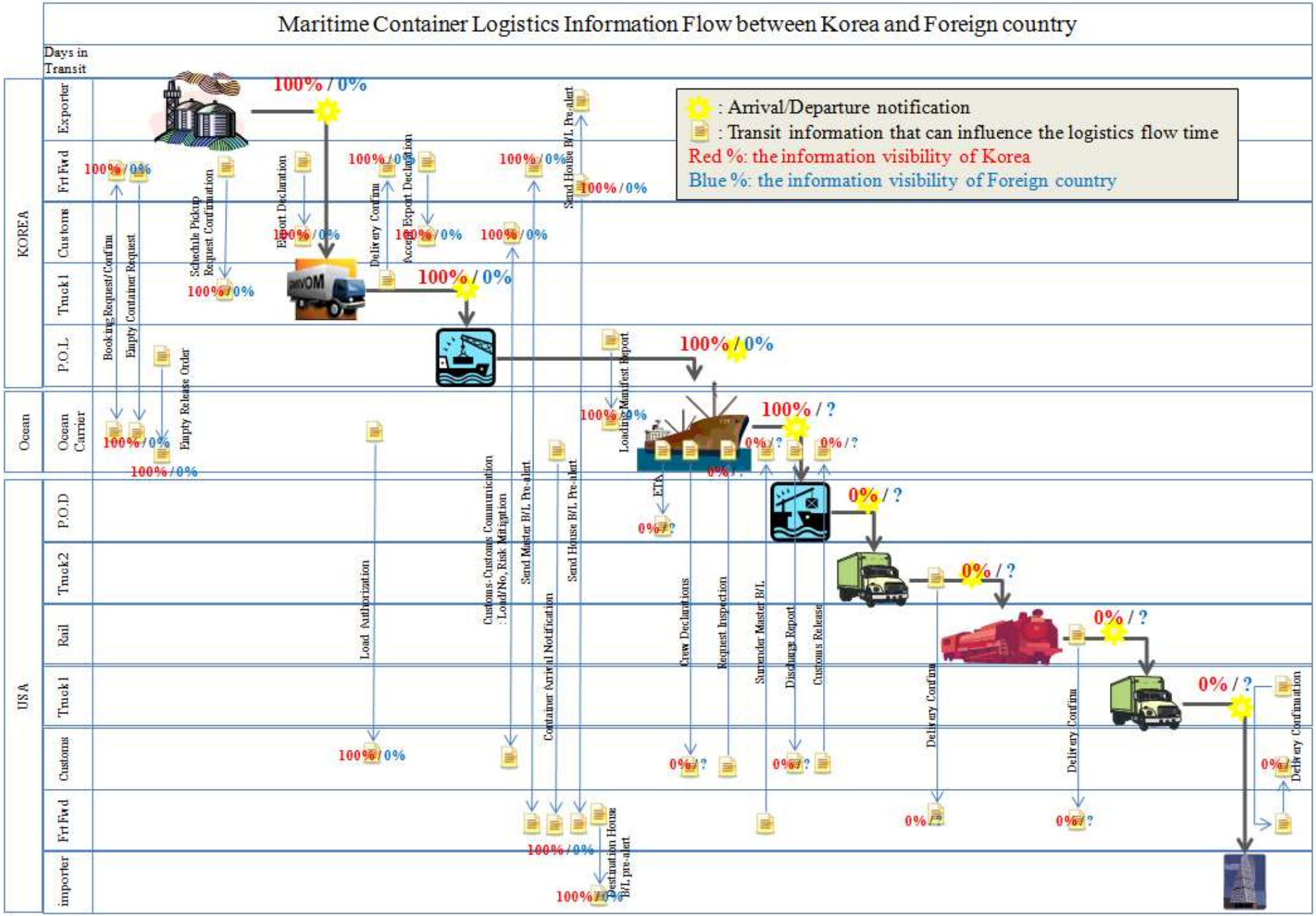
- Describe your threats of your country before starting BPR
- Ex) Strength security policy on exporting/importing
- Ex) Insufficient response of international changes
- Ex) international economic deflation

- Conduct SWOT analysis with external environment factor(opportunities, threats) and internal capability factor(strengths, weaknesses)
- Define subjects and CSF through SWOT analysis

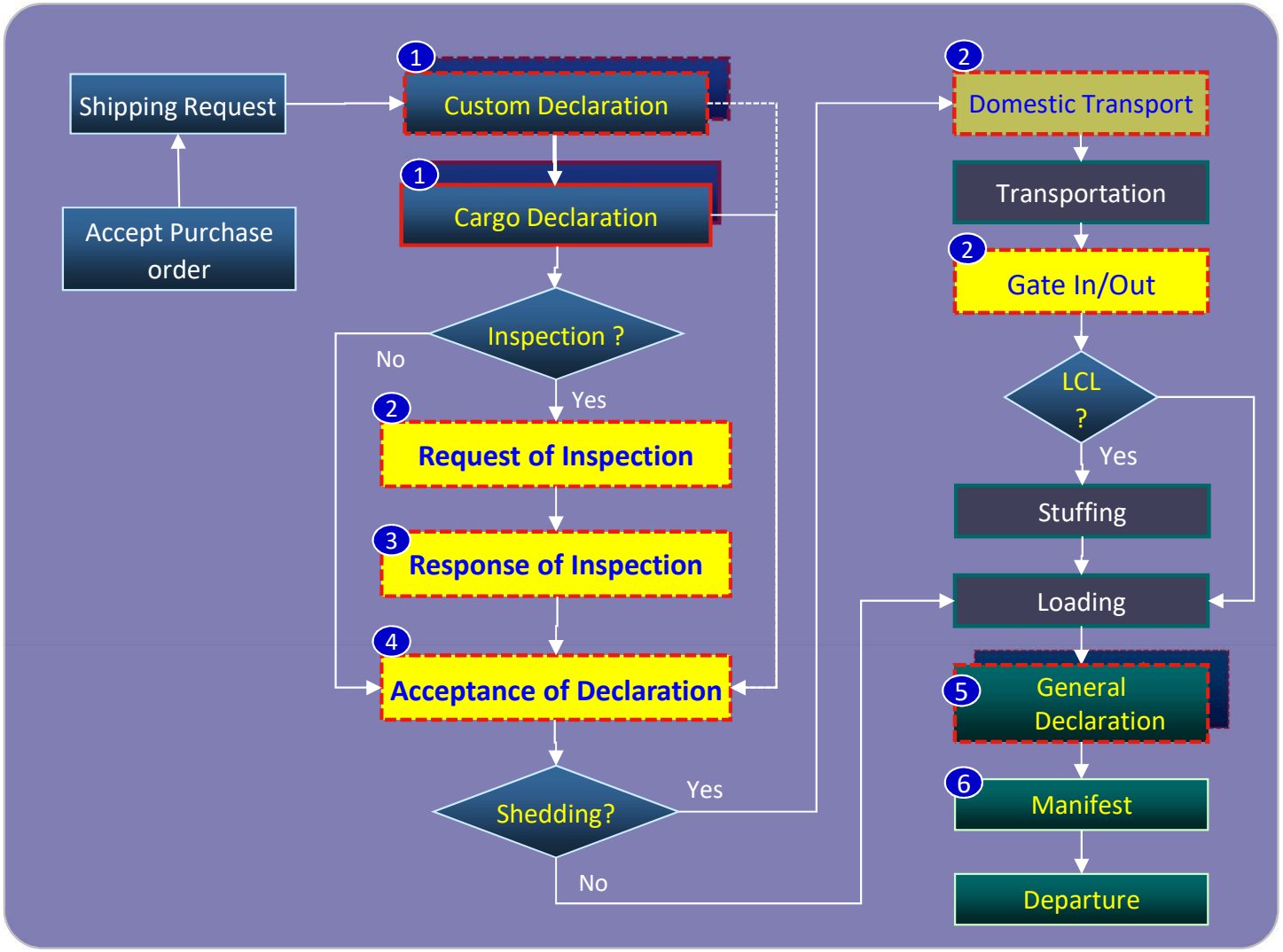
Subjects	CSF
1. Process Standardization	❖ Re-engineering work process, law, and regulation ❖ Standardize work process and e-document
2. Single Entry Point	❖ Eliminate the duplicated data, unify application ❖ Develop business reference model for inter-government
3. Information Sharing	❖ Develop information sharing method ❖ Check international trend such as standardization, regulation, etc.
4. Work automation, systemization	❖ Develop Information strategy plan for NSW ❖ Prepare information integration and association method

III. AS-IS Analysis

Analyze the Status of current work (1-5)



Exporting Procedure



Issues

1 5 Optional procedure depending on country's regulation and the type of exporting cargo

Submit heterogeneous format of Declaration to system by on-line

Send similar Application of Declaration to the relevant organizations in multiple times

2 Request by manual processing such as phone or site visiting

3 4 Receive acceptance or response of declaration by paper form with stamp

6 No Information linkage and sharing between CIQ

Exporting procedure

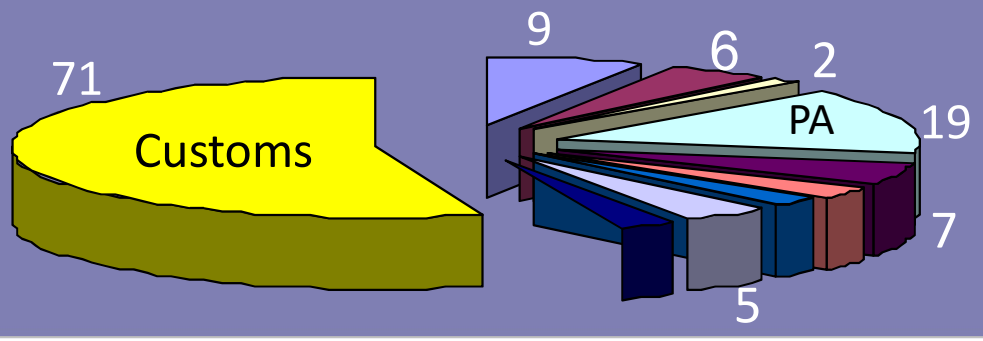
Work process	Organization				Entity				Problems
	Air	Sea	Rail	Land	Air	Sea	Rail	Land	
Loading		1	1		3	6	1	1	• Manual process (Off-line process) in air cargo • Not exist the public organization in land transportation
Customs/ Quarantine	5	5	1	1	3	3	1	1	• Sampling Custom or Quarantine process • Receive the result of Quarantine by paper form • Takes long response after declaration
Domestic Transport		1	1		3	3	1	1	• Not exist national or international regulation of multimodal transportation
Storage					5	6	2	2	• Not exist the public organization in this work process • Cargo missing, damage
Departure	4	5			4	5			• No information sharing between cross-border trade's country • Use different format of declaration between countries • No information linkage between manifest and cargo declaration • Submit same application to multi-organizations
Sum	9	12	3	1	18	23	5	5	

Importing procedure

Work process	Organization				Entity				Problems
	Air	Sea	Rail	Land	Air	Sea	Rail	Land	
Arrival	4	5			4	6			• No information sharing between public organizations • Submit same application to multi-organizations • Takes long response after declaration • Not exist the public organization in land transportation
Unloading	1	2			6	3			• Mainly focus on container cargo • Sampling Custom or Quarantine process
Storage	1	1	1		4	6	1	1	• Needs to short-period staying for cost reduction • Cargo missing, damage
Domestic Transport	1	2	1	1	6	4	2	2	• Not exist national or international regulation of multimodal transportation
Customs/ Quarantine	6	6	1	1	3	3	1	1	• Use different format of declaration between organizations • Receive the result of Quarantine by paper form • Takes long response after declaration • Submit same application to multi-organizations
Sum	13	16	3	2	23	22	4	4	

The status of Application Form

- Total count of application form (B2G) : 130
- Annual processing : around 58 million
- Total amount of processing cost : around 12 million USD

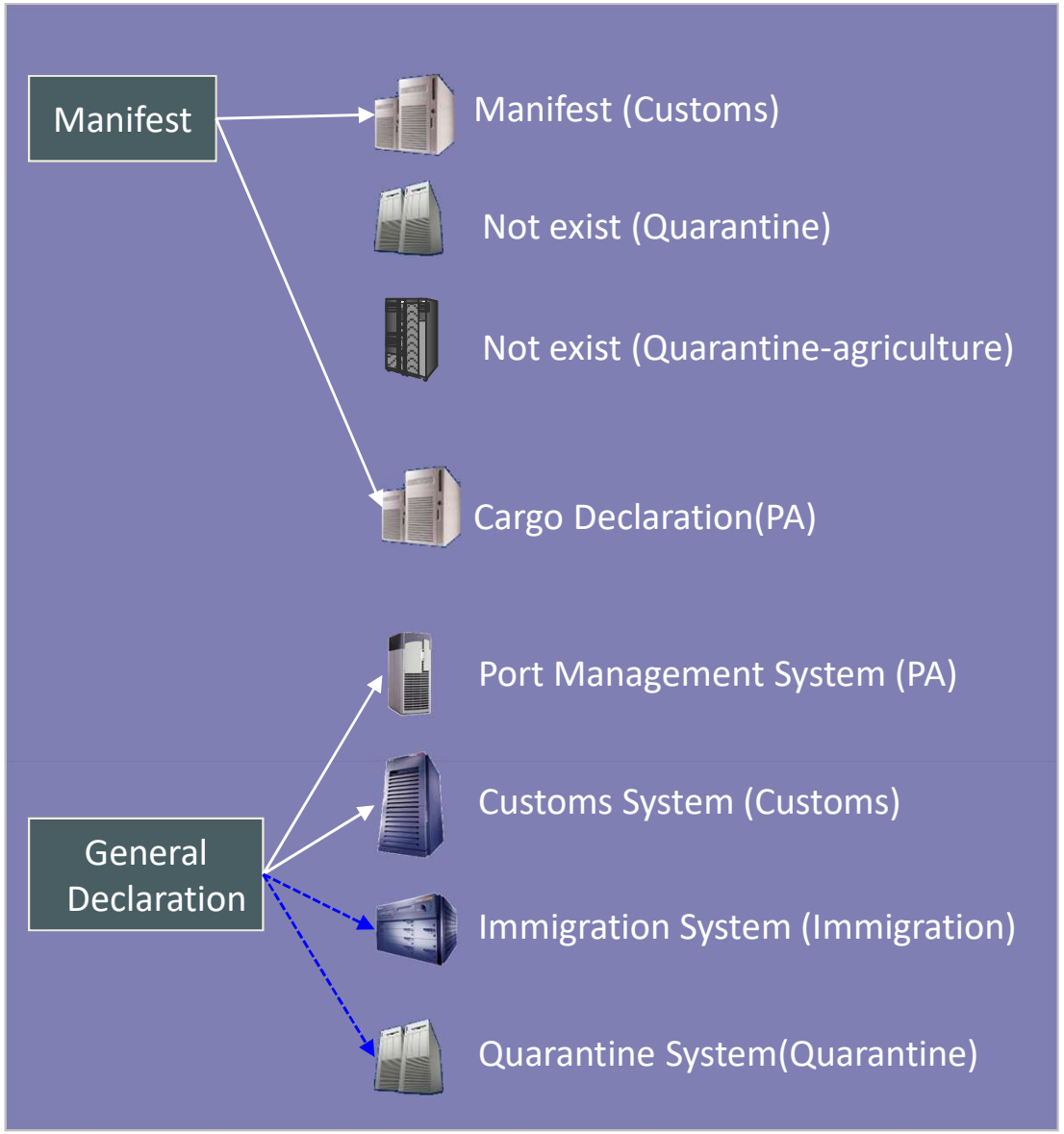


(Units : thousands)

Organizations	Annual Processing counts
Customs	53,917
Port Authority	2,368
Railway	431
Quarantine	378
Immigration	318
Air Port Authority	296
Inspection	247

	General declaration	Unloading	Storage	Domestic Transport	Customs Quarantine	Sum		Association with other organization	
Organizations	**#**	**#**	**#**	**#**	**#**	**#**	**%**	**#**	**%**
Customs	23	5	23	5	15	71	55%	74	73%
Port Authority	19	-	-	-	-	19	15%	27	26%
Railway	-	-	-	9	-	9	7%	1	3%
Quarantine	7	-	-	-	-	7	5%	-	-
Immigration	6	-	-	-	-	6	5%	-	-
Air Port Authority	2	-	-	-	-	2	2%	-	-
Inspection	-	-	-	-	5	5	4%	-	-

The status of information system



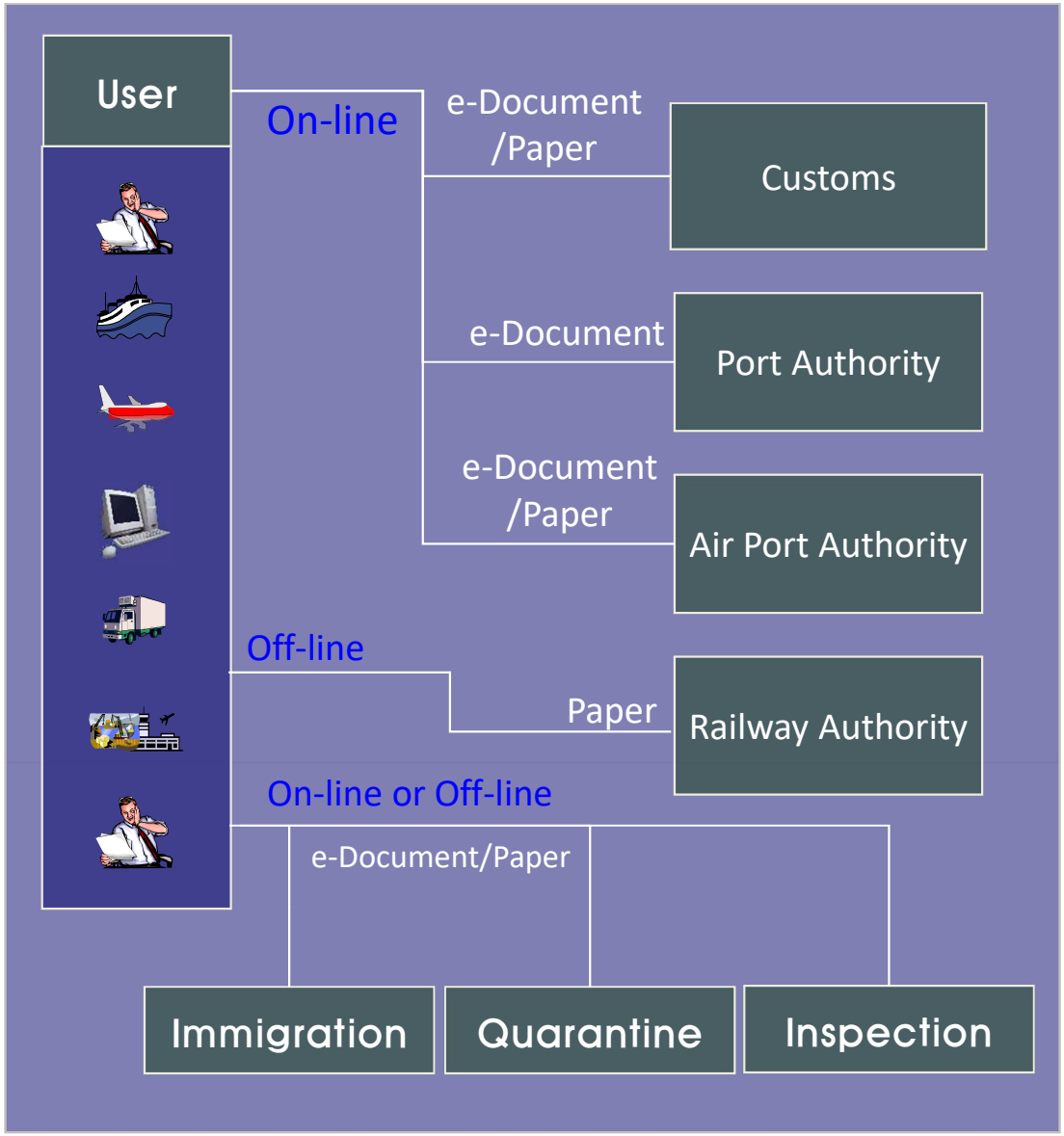
Status

- Use Different application form; ex) manifest – Customs, Cargo Declaration - PA
- Multiple submission of same application(General Declaration) to several organizations
- No association between organizations

Issues

- Needs to submit same application to several organizations
- Needs to share declaration data submitted by user
- Submit by on-line, but response by paper form

The status of information linkage



Status

- Difficult to share information because of no association between organizations
- Still exist off-line processing
- ex) user submit application to government by on-line, but they receive the permission with paper

Issues

- extra work load to enter data to information system in case of off-line process
- difficult to provide timeliness of data
- data dissimilarity even though same application(dec;aration)

The status of Law and regulation

Organization	Law & Regulation	#
The ministry of Transport	Law of railway transport Rule of railway technic usage	2
	Logistics promotion law, enforcement ordinance, enforcement regulation	3
PA	Public Order in Open Ports Act, enforcement ordinance, enforcement regulation	3
	Harbor Act, enforcement ordinance, enforcement regulation Regulation of port dues	4
Customs	Law of customs, Law of customs tax and tariff	2
	Law of Free Trade Area	1
Immigration	Immigration Control Law, enforcement ordinance, enforcement regulation	3
Quarantine	the Quarantine Act, enforcement ordinance	2

Status

- Insufficient to cover global trade (cross-border trade and transit) and single window
- Insufficient to support informization
- Insufficient to support TO-BE model of BPR
- Exists the duplicated and similar application form

Issues

- Needs to change to support TO-BE model
- Needs to change current law and regulation by re-engineered work process
- Needs to support the unified and standard declaration form

BRM status

❖ Logistics (Trade and Transport) domain

- Customs, Port Authority, Railway, Airport Authority — Main Organization : Four
- Quarantine, Inspection
- Immigration — Relevant Organization : Three

❖ The related Law & Regulation

- Four along with Logistics promotion law
- Five along with Harbor Act
- Nine along with Customs Act
- Two along with Immigration Control Law
- Three along with the Quarantine Act

❖ The related form

Categorization		# of Form	Duplicated /Similar
Sea	PA	19	5
	Immigration	4	2
Air	Air Port Authority	2	2
	Immigration	2	2
Common	Customs	71	6
	Quarantine	7	4
	Sum	105	21

Status

- Use Different application form; ex) manifest – Customs, Cargo Declaration - PA
- Multiple submission of same application(General Declaration) to several organizations
- No association between organizations

Issues

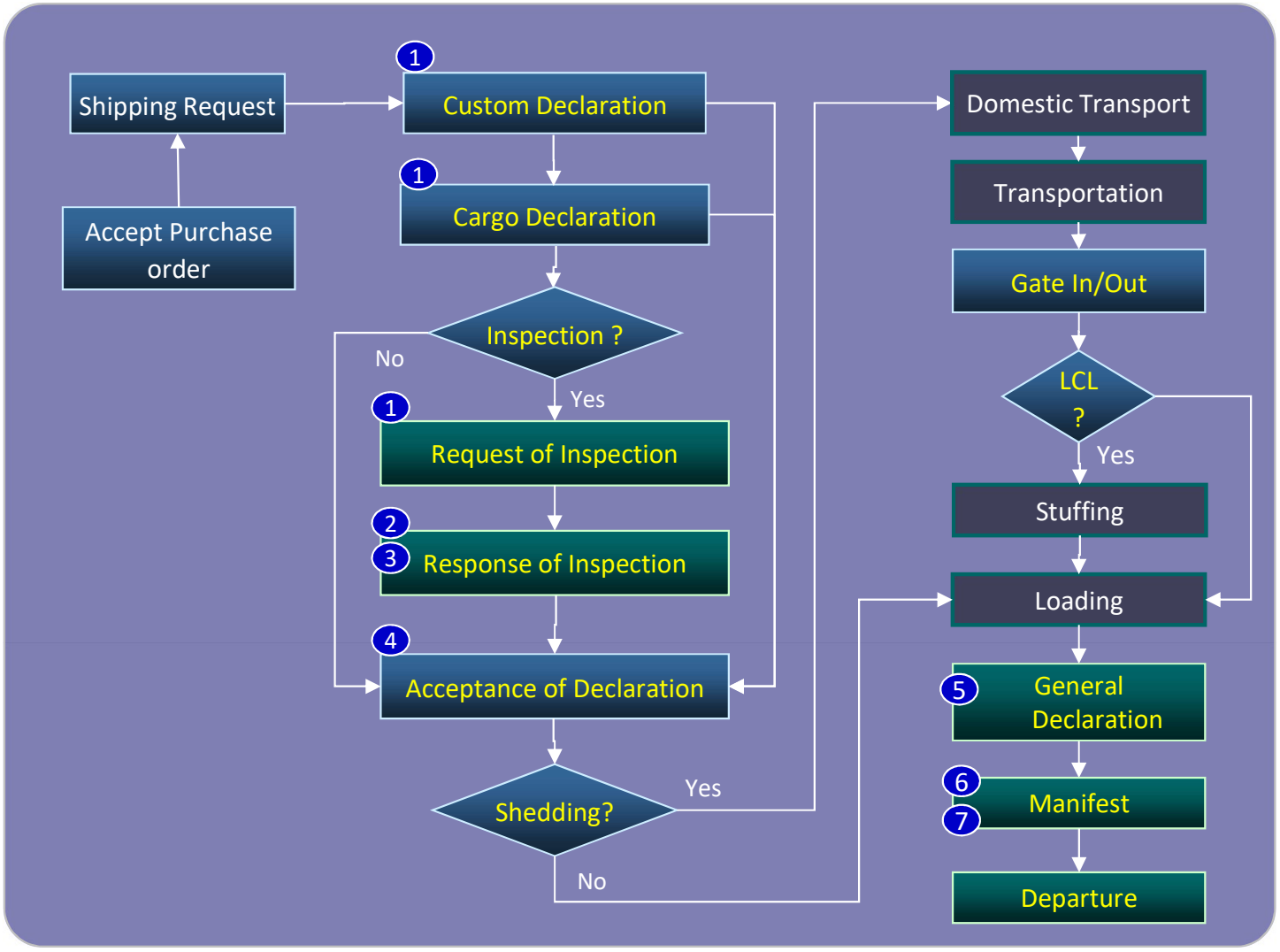
- Needs to submit same application to several organizations
- Needs to share declaration data submitted by user
- Submit by on-line, but response by paper form

Main issue, improvement issue

Main Issues	Approach	Improvements
❖ Multiple submission of Same or similar form ❖ Use non-standard code, form, data ❖ Long lead time	❖ Establish of one-stop processing approach of import and export procedure	❖ Establish national single window implementation master plan ❖ Establish work process linkage method for single window
❖ Insufficient level of informatization of business entity ❖ Inconvenience on using the legacy information system ❖ Inadequate utilization of information between entities ❖ Inadequate linkage of cargo trace information	❖ Standardization of same or similar form ❖ Simplification of business process	❖ Eliminate the duplicated and unnecessary data ❖ Integrate similar form ❖ Establish data elements simplification method ❖ Adapt international standard for interoperability and flexibility
❖ Inefficient work process ❖ Manual processing ❖ Still use paper form	❖ Information Sharing ❖ Establish of information common utilization approach	❖ Establish information sharing and linkage method with other entities ❖ Establish work process linkage method for analyzing cargo tracking
	❖ Reduce lead time	

IV. TO-BE Modeling

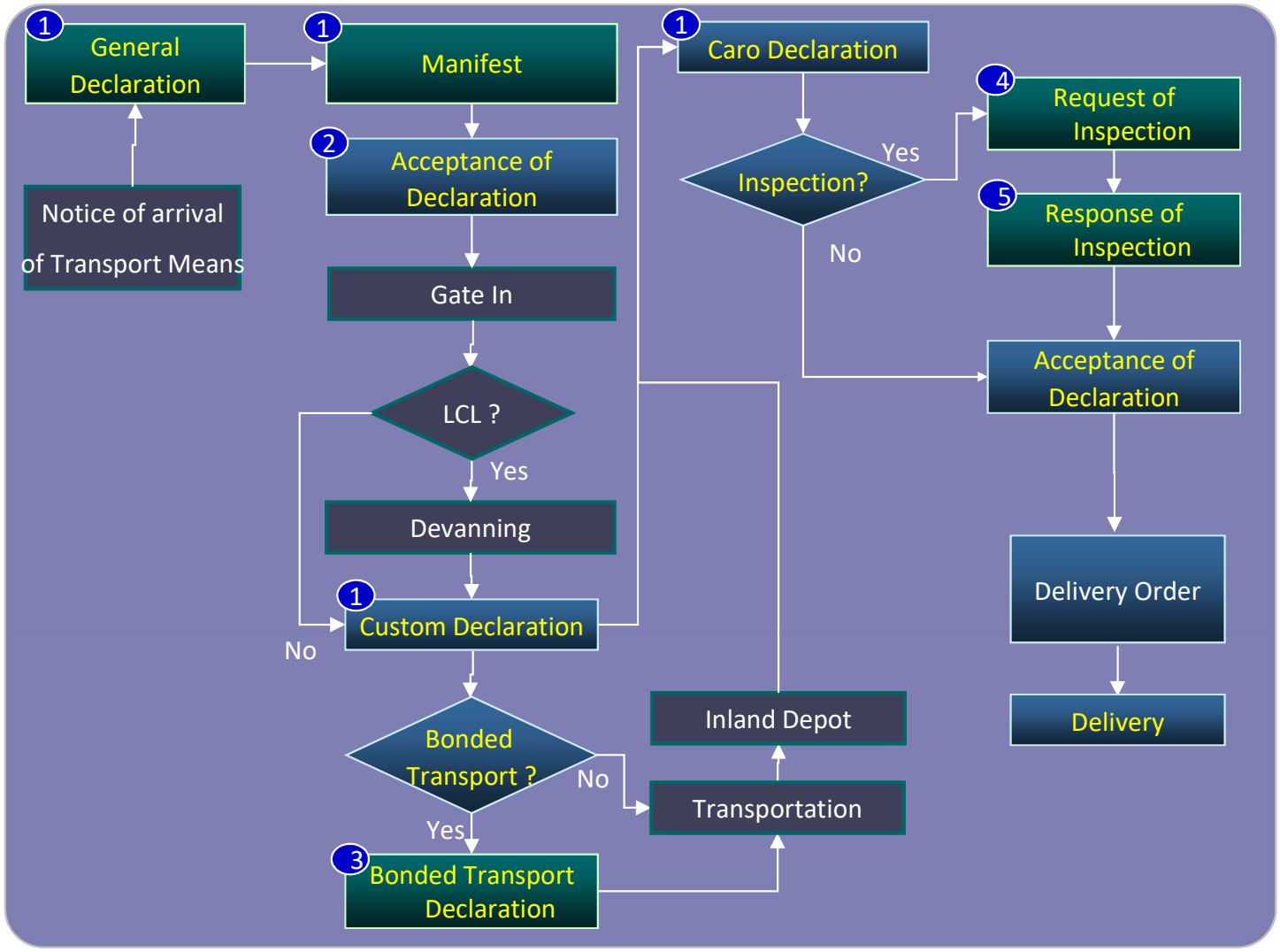
Exporting Procedure



Improvements

1. Procedure facilitation with single window system and on-line processing
2. Reduce lead time by real time processing
3. Receive response of declaration
4. with single window by e-document
5. Procedure facilitation with single window system and on-line processing
6. Procedure facilitation Information linkage and sharing between CIQ
7. One-stop service by linking processes between B2G and Global

Importing Procedure



Improvements

1. Procedure facilitation with single window system and on-line processing
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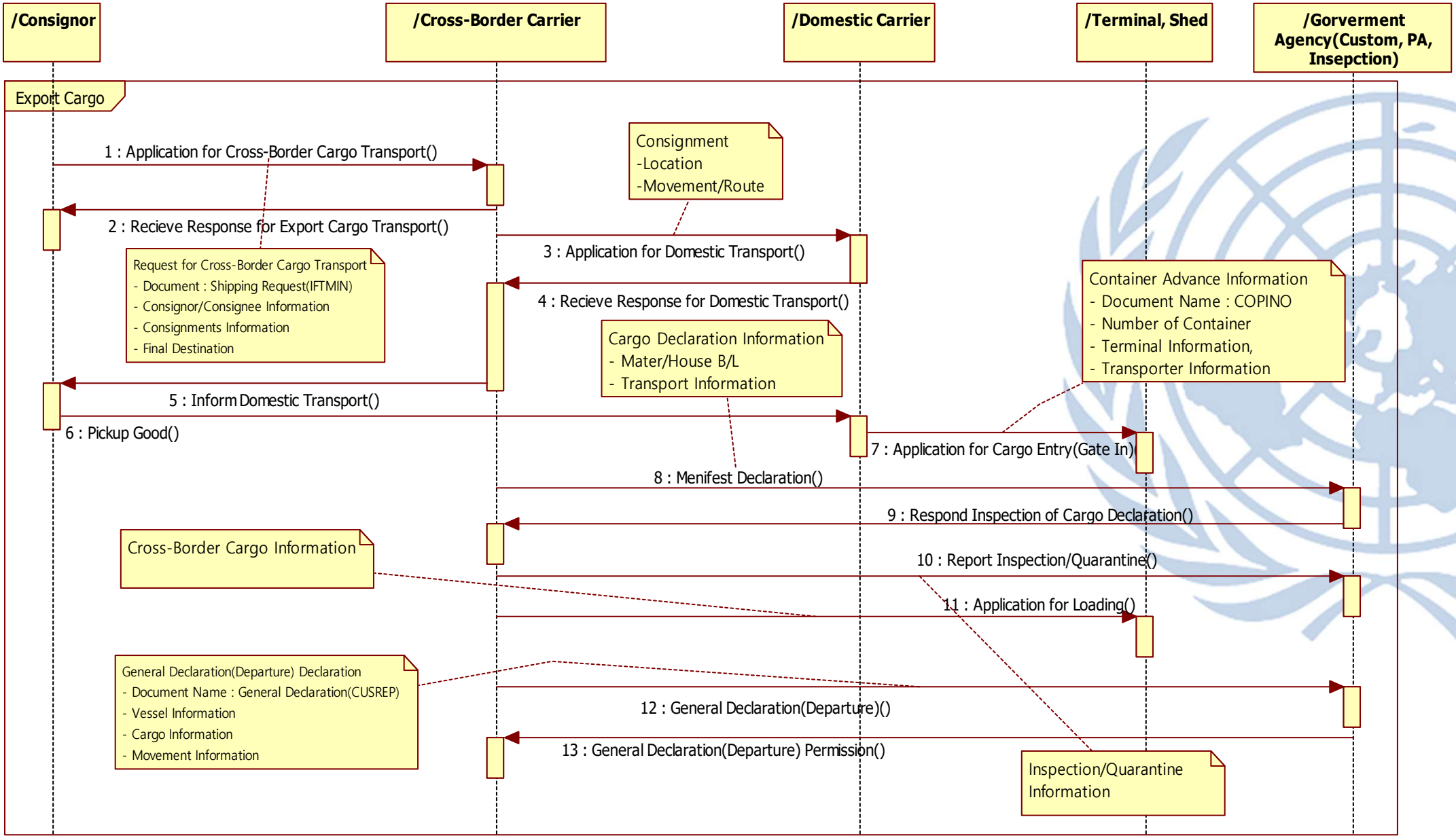
5. with single window by e-document
3. Procedure facilitation with single window system and on-line processing
4. Reduce lead time by real time process
* Procedure facilitation Information linkage and sharing between CIQ

One-stop service by linking processes between B2G and Global

Non-duplicated and Seamless processing

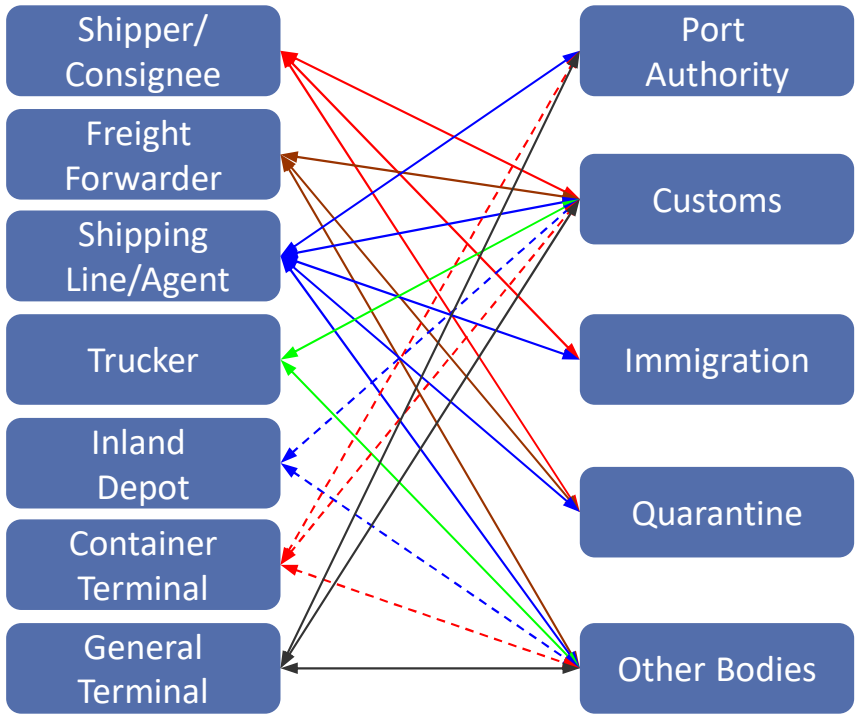


Work Process Improvement

Source : Korean Single Window

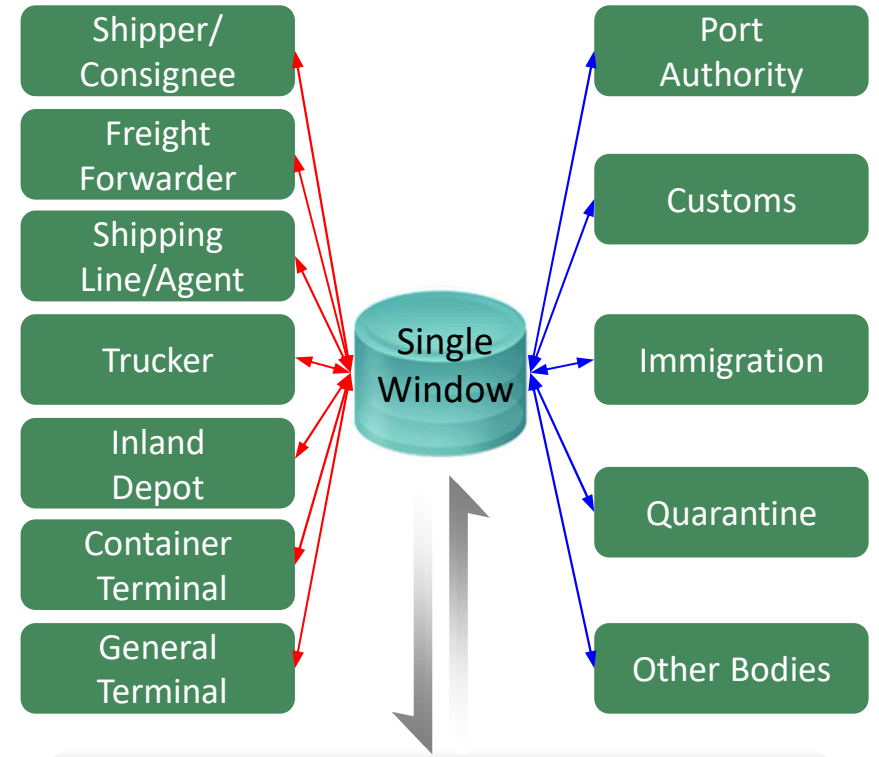
Before Single Window

- Duplicated & high cost
- Less accuracy of information

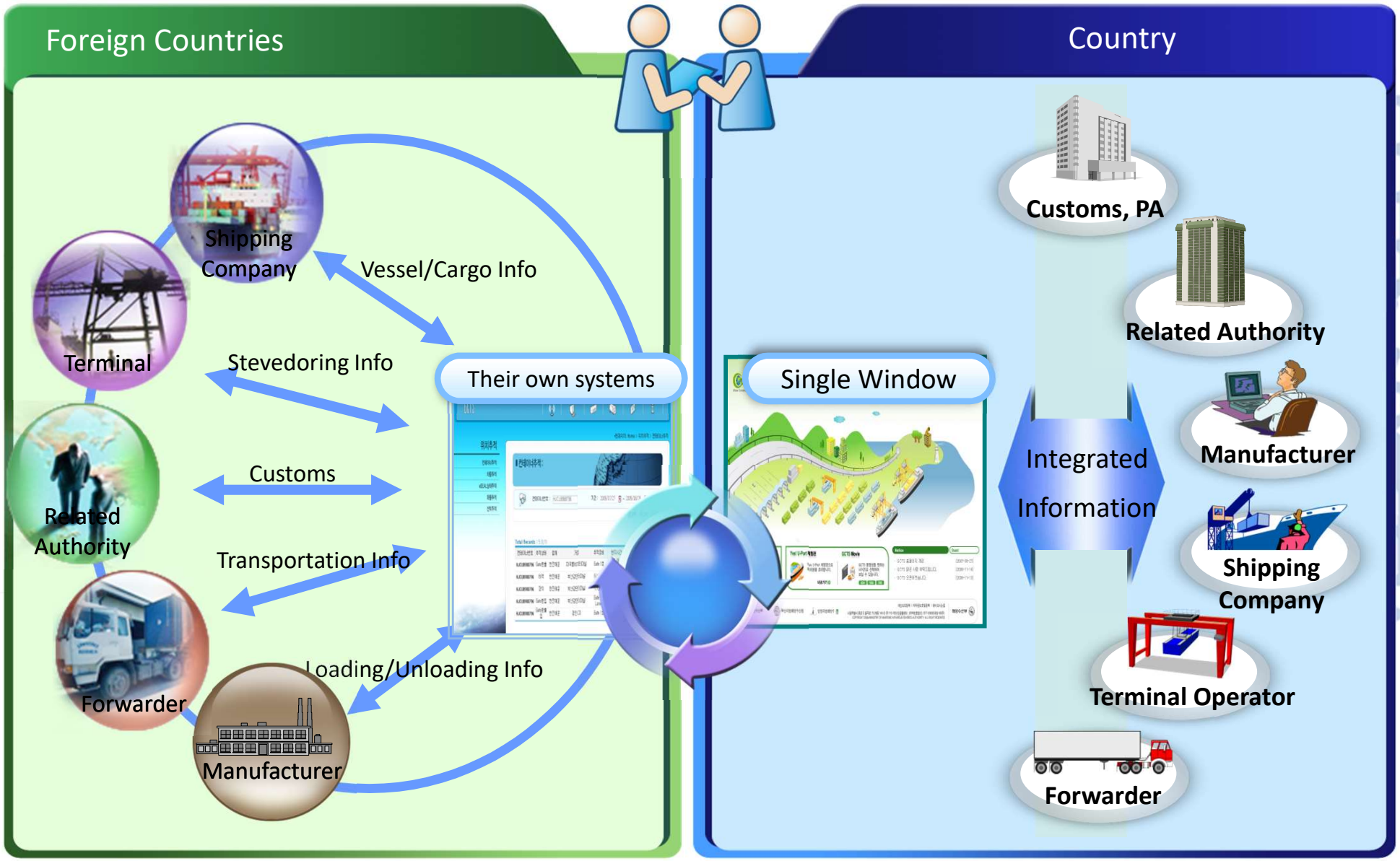


After Single Window

- Gate-Way to entire related parties with unified and easy to excess service



Connectivity with other countries



Source : Korean Single Window

Standardization of declaration format

❖ Same format(8)
- •General Declaration(Customs, PA, Immigration, Inspection)
- •Crew/Passenger List(Customs, PA, Immigration, Inspection)

} Sea

❖ Similar format (12)
- •Export/Import Manifest(Customs)
- •Cargo in/out list (PA)

} Sea

- •General Declaration(Customs, Airport Authority, Immigration, Inspection)
- •Crew/Passenger List(Customs, Airport Authority, Immigration, Inspection)

} Air

❖Same format(3)
- •General Declaration
- •Manifest
- •Crew/Passenger List

} Sea

❖Unified Format(4)
- •Export/Import Manifest — Sea
- •General Declaration
- •Crew/Passenger List

} Air

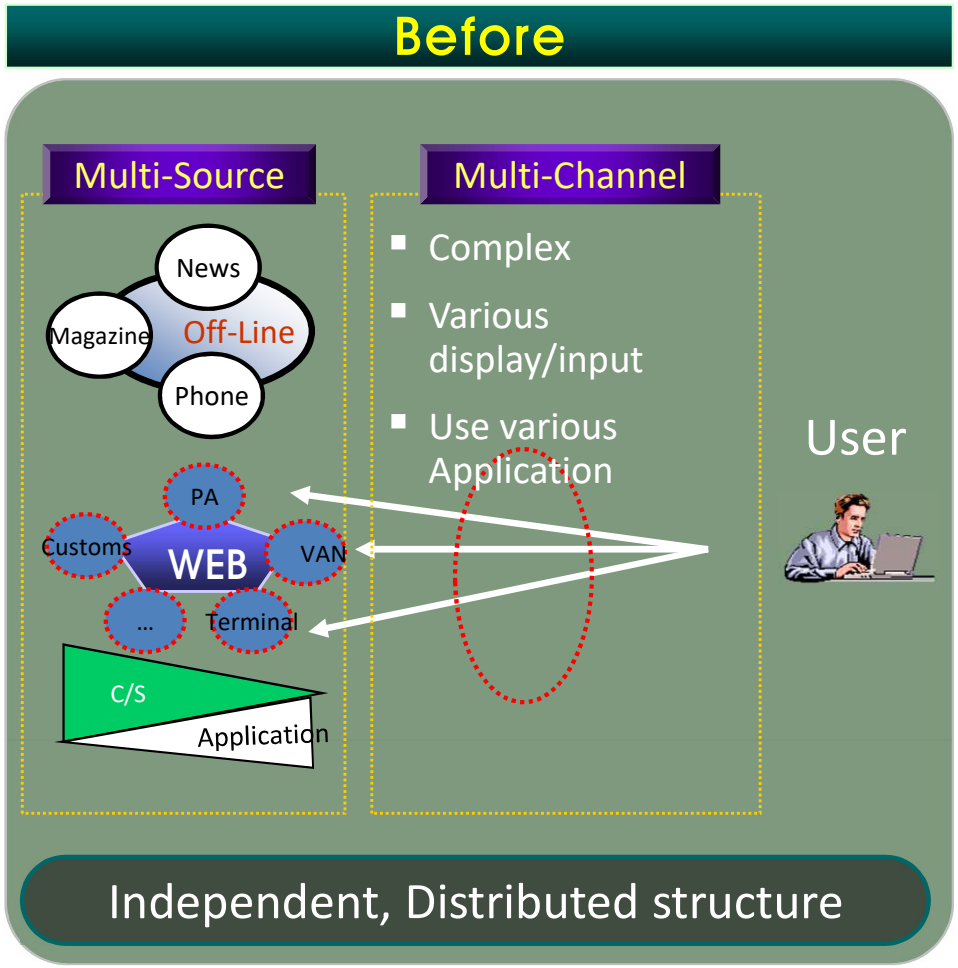
Organization	# of Form	Internet	Off-line
PA	19	15	-
Customs	65	65	-
Railway	9	9	-
Immigration	2	2	-
Inspection	15	10	5
Single Window	6	6	-
Sum	116	111	5

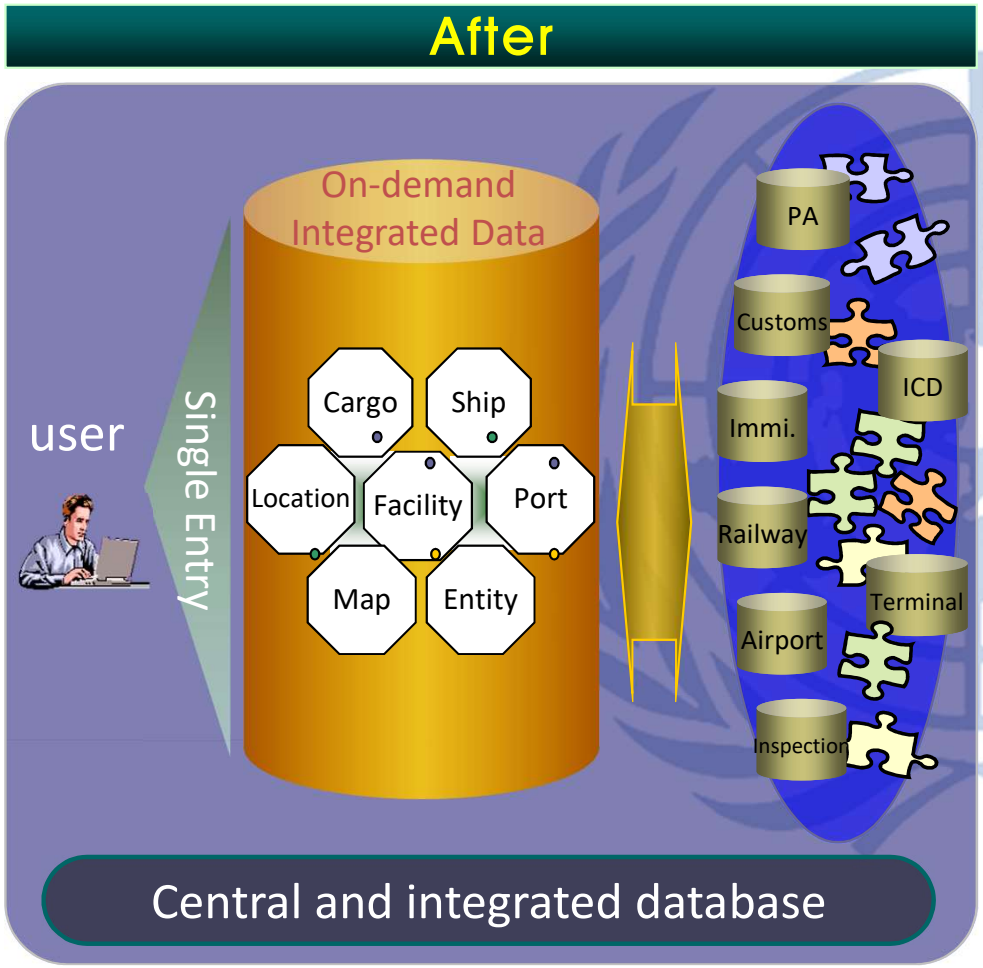
Improvement

❖Facilitate work process of General declaration

❖Unify and integrate of Customs manifest and PA cargo in/out list

Integrated Data



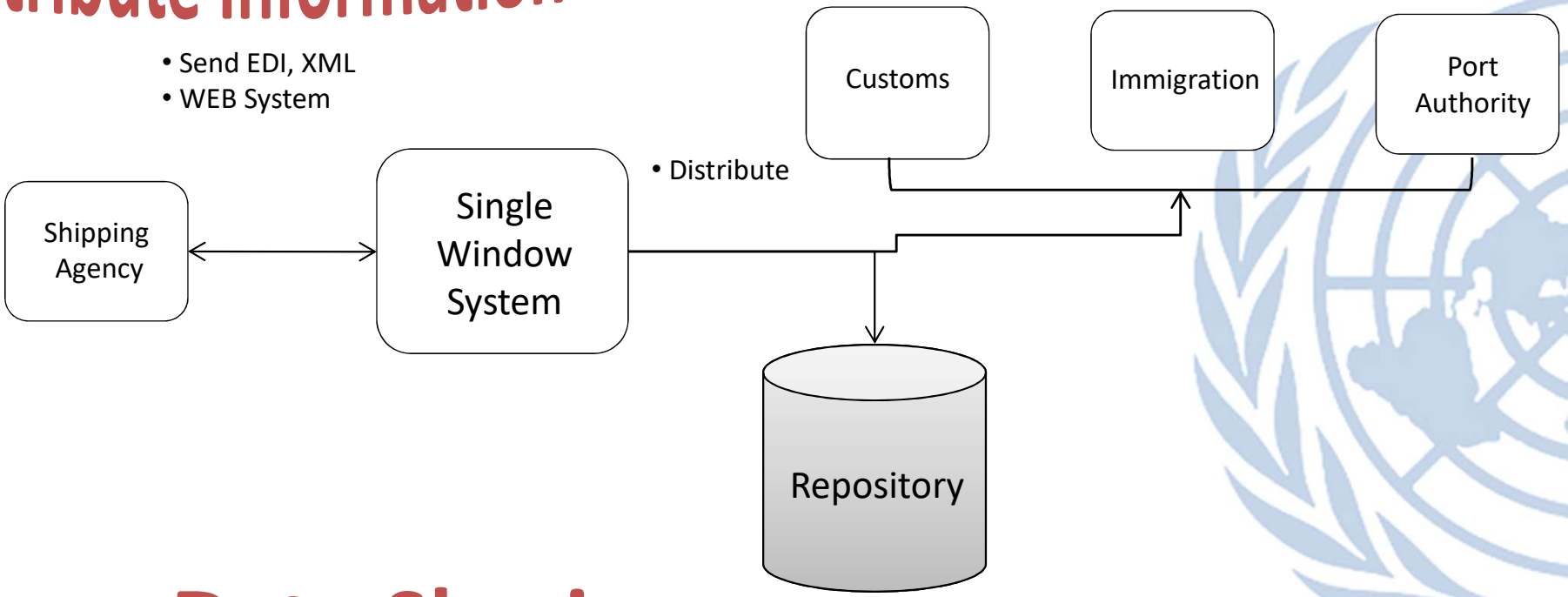


Source : Korean Single Window

Information sharing(ex)

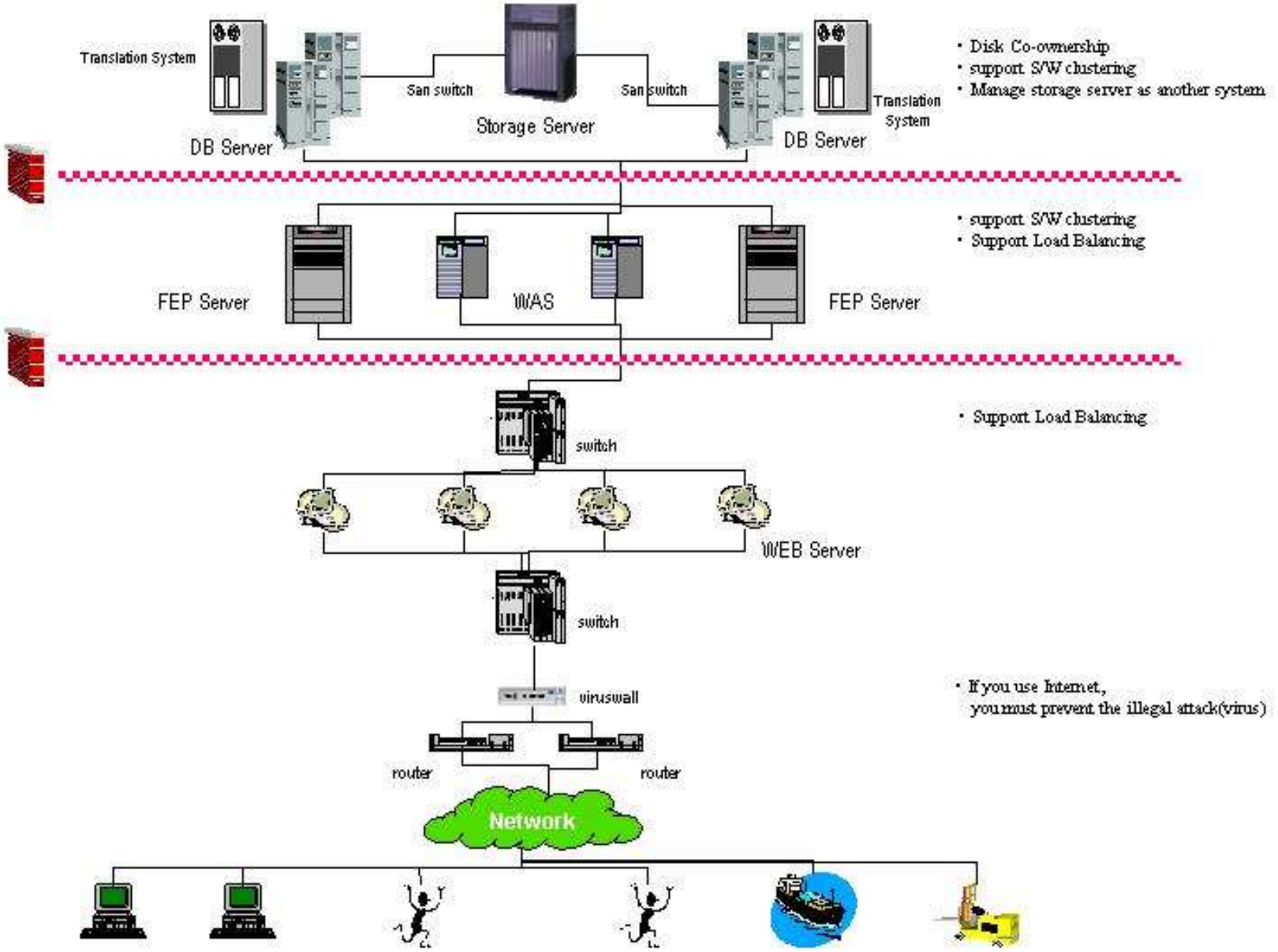
Distribute Information

- Send EDI, XML
- WEB System



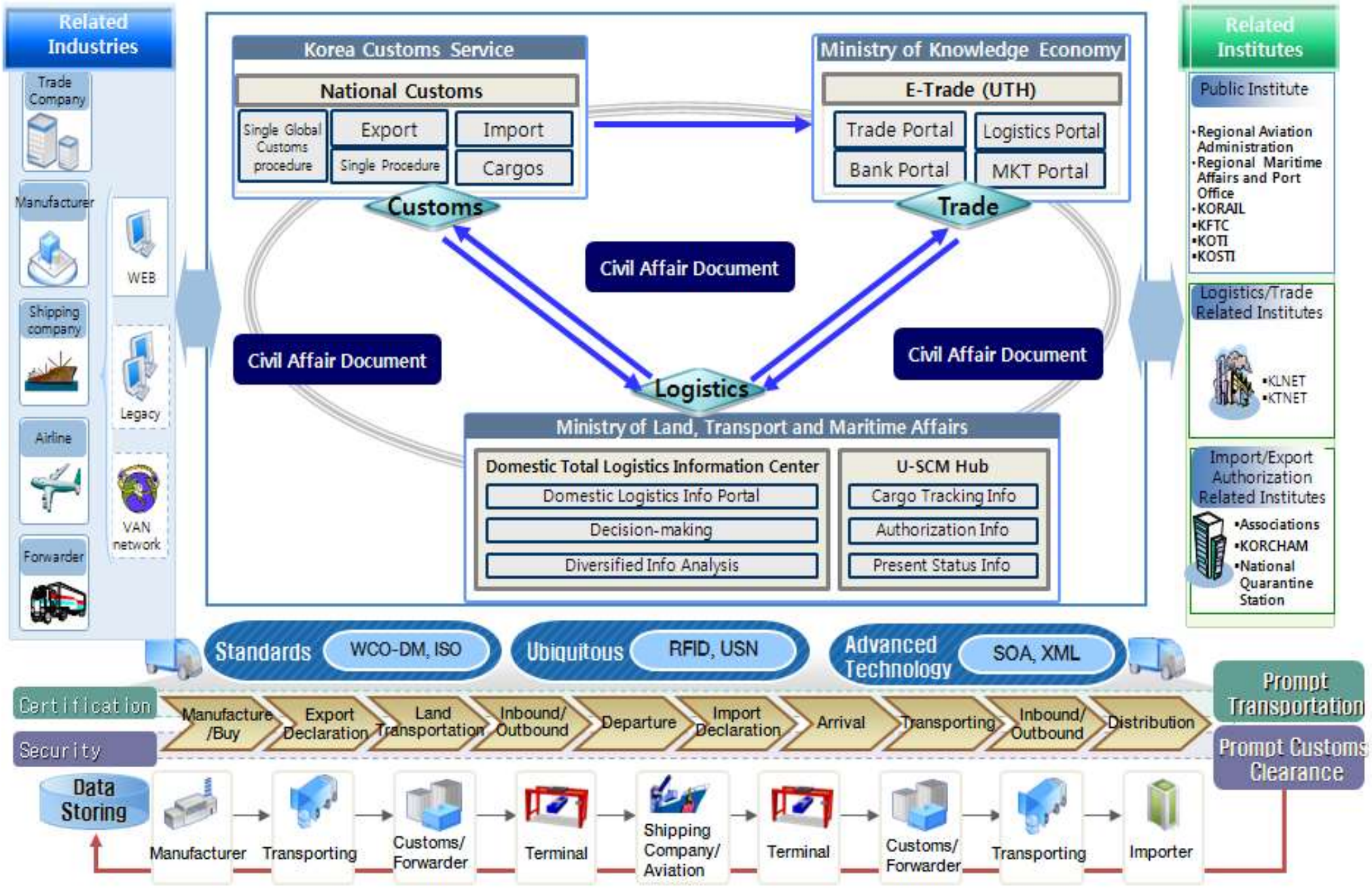
Data Sharing

System Configuration



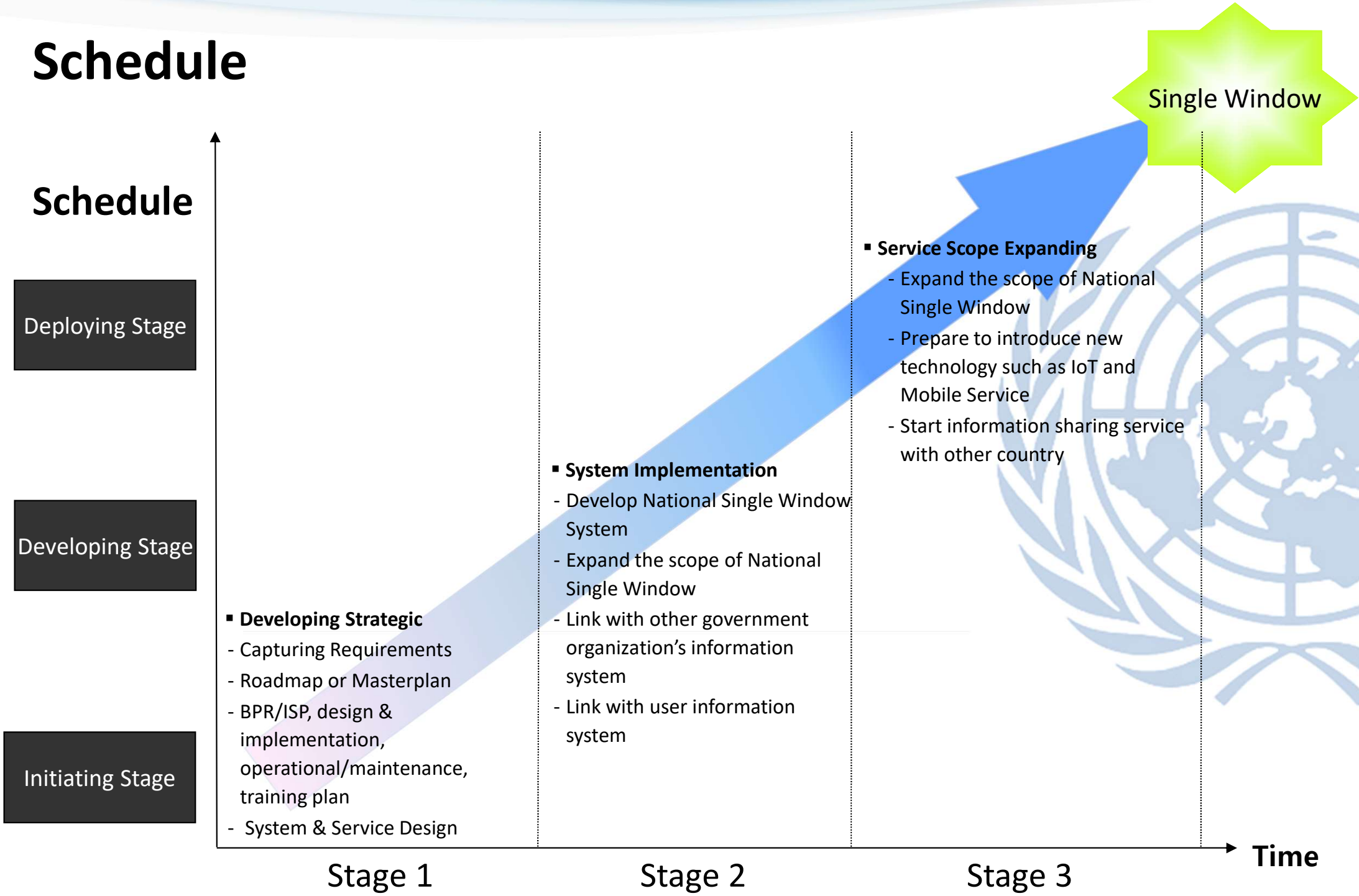
TO-BE Model (10-10)

Source : Korean u-Port

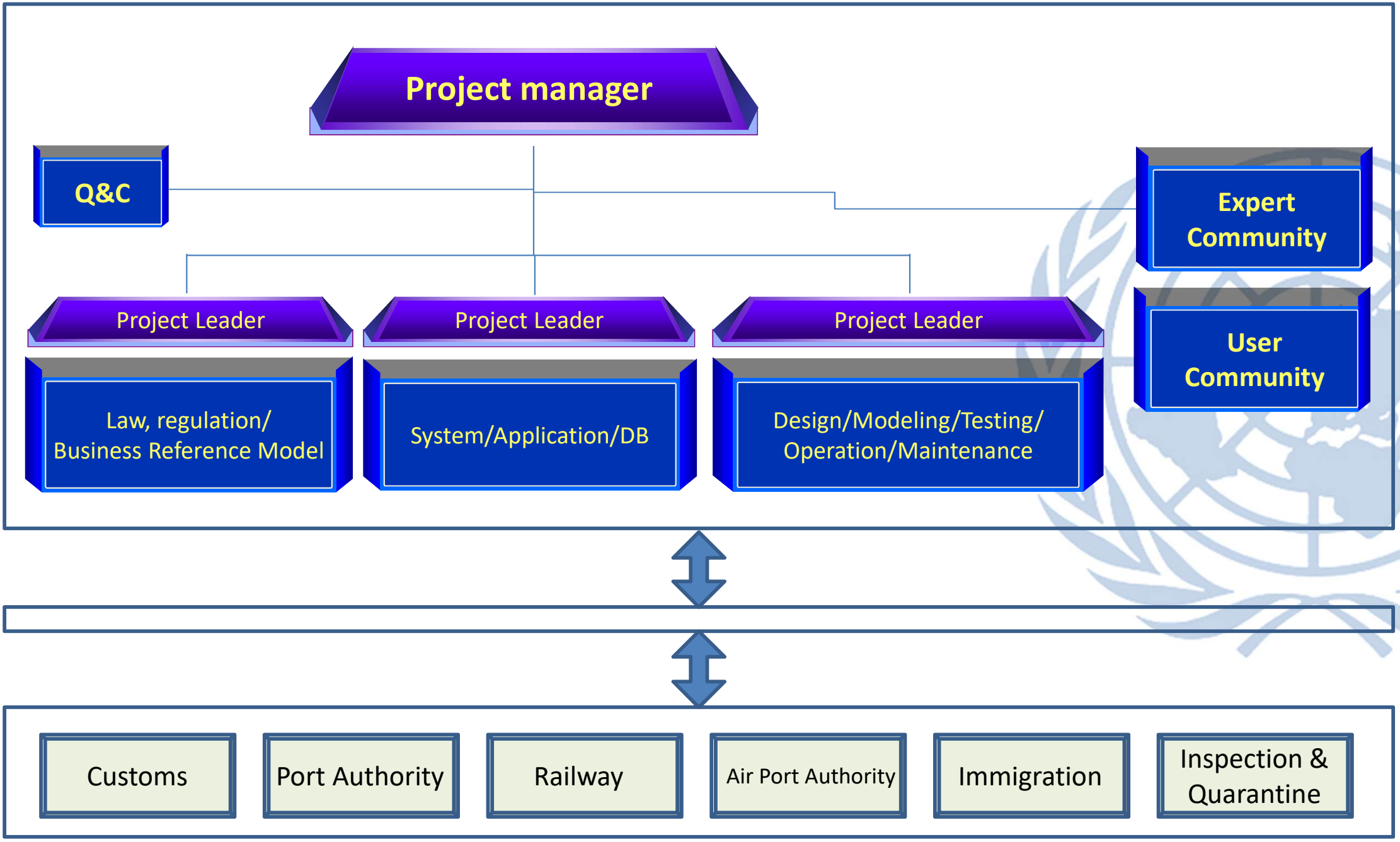


V. Execution Plan

Schedule


Single Window
Schedule
Deploying Stage
Developing Stage
Initiating Stage
▪ Service Scope Expanding
- Expand the scope of National Single Window
- Prepare to introduce new technology such as IoT and Mobile Service
- Start information sharing service with other country
▪ System Implementation
- Develop National Single Window System
- Expand the scope of National Single Window
- Link with other government organization's information system
- Link with user information system
▪ Developing Strategic
- Capturing Requirements
- Roadmap or Masterplan
- BPR/ISP, design & implementation, operational/maintenance, training plan
- System & Service Design
Time
Stage 1
Stage 2
Stage 3

Execution Team



Budget of Implementation

No	Equipment	Specification	Unit	Q'ty	Unit price	Price
1	Application Development	Direct Labor Cost	EA	1	356,832	356,832
		Miscellaneous Administrative and Support Cost				
		Engineering Fee				
2	S/W Tools and Servers	Software Tools	EA	1	17,800	17,800
		Servers				
		Network Devices	EA	2	2,500	5,000
3	Operating & Maintenance	Direct Labor Cost	EA	1	72,576	72,576
SUM						452,208

Labor Cost

Classification	Specification	Unit	Q'ty	Amount	Remark
Direct Labor Cost				356,832	
Special Engineer	*	MM	0	0	
1st level Engineer	0.8 engineers * 12 Months	MM	9.6	96,768	
2nd level Engineer	2.9 engineers * 12 Months	MM	34.4	260,064	
3rd level Engineer	*	MM	0	0	
SUM				356,832	

Classification	Project Manager			Project Leader			Programmer			Web			SUM	
	Men	M/M	Sum	Men	M/M	Sum	Men	M/M	Sum	Men	M/M	Sum	Men	M/M
Special Engineer	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1st level Engineer	0.5	12	6	0.3	12	3.6	0	0	0	0	0	0	0.8	9.6
2nd level Engineer	0	0	0	0.5	12	6	1.68	12	20.2	0.68	12	8.2	2.9	34.4
3rd level Engineer	0	0	0	0	0	0	0	0	0	0	6	0	0	0
SUM	0.5	12	6	0.8	24	9.6	1.68	12	20.2	0.68	18	8.2	3.66	44

Man power

Components	Level	M	M+1	M+2	M+3	M+4	M+5	M+6	M+7	M+8	M+9	M+10	M+11	Total
Project Manager	H	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	6
Project Leader	M	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	6
QA	H	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	3.6
Application	M	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.3	4.8
Interface	M	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.3	4.8
WEB	M	1	1	1	1	1	1	0.5	0.5	0.3	0.3	0.3	0.3	8.2
Database admin.	M	1	1	1	1	1	1	0.5	0.5	0.3	0.3	0.3	0.3	8.2
H/w Manager (System Admin.)	M	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2.4
Total		4.5	4.5	4.5	4.5	4.5	4.5	3.1	3.1	2.7	2.7	2.7	2.7	44

Resource

Item	Sub-Item	Description	EA	Price
S/W Tool	Auto Backup S/W	Server 1EA, Client 5EA	1	20,000
	Mirroring S/W	1 License	1	20,000
	RDBMS	2 License	2	40,000
	Firewall	1 License(S/W, H/W)	1	20,000
	NMS S/W	1 License	1	10,000
Server	WEB Server(WEB/WAS)	1.28GHz, 4GB DRAM, 73GB HDD	2	20,000
	DB Server	1.28GHz, 4GB DRAM, 73GB HDD	2	30,000
	NMS Server	3000MHz, 1GB DRAM, 38GB HDD	1	10,000
	Backup Library	L25 Tape Library	1	5,000
	Cabinet	Cabinet	1	2,000
	Keyboard/Mouse Share Device	8 Ch Server Joint Machine	1	1,000
Sum				178,000

Item	Sub-Item	Description	EA	Price
Network	L4 Switch	8 Ports, 1GB Ports	2	5,000

The Expected Effects

Source : Korean u-Port

Process Productiveness Enhancement

Process	Terminal In	Container Loading	Shipment
Process Changing	• Receive COPINO EDI • Check vehicle/ Container • Print assigned location • Pass Gate • Move to assigned location	• Cargo In • Indicate unloading work • Yard Loading • Check loading work	• Indicate shipment • Equipment • Shipment work • Indicate check process • Arrange Inspector • Check error or not • Adjust shipment items
Lead Time Reduction	10 min. → 5 min. (Reduce 50%)	1 H. 50 Min. → 1Hour (Reduce 45%)	11.5 Hour → 9 Hour by 1,000 TEU (Reduce 20%)
The ratio of productiveness	+100%	+83%	+44%

Quantitative Effects

Upgrade Process Productiveness

44%

Consider limitation of infra that come alongs ide the pier

Upgrade Port Productiveness

20%

Contract to Based on sales of current traffics

Upgrade Annual Sales

8.4 Hundred Million USD

Qualitative Effects

- **strengthen competitiveness of Trade and Transit**
- The Efficiency of Supply Chain Management (SCM)
- Strengthen national competitiveness of logistics
- International/domestic standardization on green port
- **Enhance work efficiency**

Economic Effects

- **enhance work efficiency**
  - **cost reduction through improvement of logistics process**
  - reduction of government officer's processing time with no manual processing
  - estimate annual gain: Average processing time per 1 transaction (40 min.) × 900,000 (TEU per 1 year) × Average labor wage ($2) = $1,200,000
- **enhance the quality of service for user (Convenient)**
  - **by reducing user's processing time with data reusability of information sharing and no manual processing**
  - estimate: Average processing time per 1 transaction (20 min.) × 900,000 (TEU per 1 year) × Average labor wage ($2) = $600,000

Social Effects

- grasp ahead in competition through improving quality of service to meet the needs of customers
- shorten lead time and increase accuracy of work with export/import work automation in trade and transport area
- **contribute to enhancing work competitiveness**
  - **with reduction of processing time and costs,**
  - **by eliminating manual processing and duplicated data elements**
  - **by sharing information among business entities, such as shipping agency, freight forwarder, carrier, etc., academia, and the related organizations**
- reduce congestion of port or terminal by information system and information sharing
- **provide user convenience by increasing information reusability**

Q&A

감사합니다.

Thank you