

PCS- Framework

(NIC-PCS-FRW)



Centralized Web Based Port Community System (PCS)

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Centralized Web Based Port Community System (PCS)

Prepared by Port Community System Division

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Amendment Log

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Chapter 1

Introduction

Port Community System (PCS) is intended to integrate the electronic flow of information across the trading partners involved in maritime transport chain through a common interface.

The objectives of the proposed centralized web-based PCS are to:

- Develop a centralized and intelligent electronic message switching facility to and from the community members including Ports, Shipping Lines, Shipping Agents, Terminal Operators, Customs House Agents, Importers/Exporters, Stevedores, CFS, CONCOR, Surveyors, Road Transport Operators, Banks, Insurance, Customs, PHO, Immigration etc.
- Maintain a centralized database to improve track and trace efficiency; shipment/service visibility.
- Use the centralized database as a repository for research and analysis.
- Develop web-based application to access and support the information of the central database and common processes in secure fashion. This would provide a single source and integrated standardized process for information exchange with links to the systems at the Ports and other stakeholders.

During the systems study, NIC teams interviewed the stakeholders at the Mumbai Port and JNPT to understand their working processes and the information exchanged with each other in the maritime cycle. (Refer to System Study Report)

On the basis of the study, NIC has developed a conceptual framework of the proposed PCS, which is documented in this report. The document presents the electronic message exchange in proprietary/EDIFACT/XML formats among the stakeholders. It also lists the services those can be provided on the PCS web portal.

References

S. No.	Title	Publisher/ Author	Version	Release
1	Interim Report on proposed Centralised Web Based EDI Port Community system	IPA		May, 2004
2	Report on proposed Centralised Web Based EDI Port Community system	IPA		June, 2004
3	PCS-System Study Report	NIC		Dec, 2004

Definition/Glossary

Term/ Abbreviation	Description
CFS	Container Freight Station
CHA	Custom House Agent
CLP	Container Loading Plan
COARRI	Container Arrival Report
CODECO	Container Gate-in Gate-Out Report
CONCOR	Container Corporation of India Ltd.
EDI	Electronic Data Interchange
EO	Entry Out word
EXP	Exporters
FTP	File Transfer Protocol
HTTP	Hyper text Transfer Protocol
ICT	Information and Communication Technologies
IGM	Import General Manifest
IMP	Importers
IPA	Indian Ports Association
JNPT	Jawaharlal Nehru Port Trust
MBPT	Mumbai Port Trust
MES	Message Exchange Server
NIC	National Informatics Centre
NSICT	Nhava Sheva International Container Terminal
PC	Port Clearance
PCS	Port Community System
PDA	Personal Digital Assistant
PHO	Port Health Organization
PMP	Project management Plan
RITC	Revised Industrial Trade Classification Code
RR	Rail Receipt
SA	Shipping Agents
SFTP	Secure File Transfer Protocol
SL	Shipping Lines
SMS	Short Message Service
SMTP	Simple Mail Transfer Protocol
SRS	Software Requirement Plan

SSL	Secure Socket layer
TCP/IP	Transmission Control Protocol / Internet Protocol
TP	Transshipment Permit
UNEDIFACT	United Nations Electronic Data Interchange For Administration Commerce and Transport
VIA	Vessel Identification Advice
XML	Extensible Markup Language

Chapter 2

Logical Framework

Information and Communication Technology can play a key role for all the stakeholders and offer instant access to information that can be used to handle their operations in more efficient ways. The Indian ports have their own operational procedures in place, which are different from each other. The stakeholders communicate with the ports and other members of the community to carry out their operations.

Most of the stakeholders operate and interact with multiple ports to carry out their business. To facilitate better information flow and tracking and tracing, it is proposed to have a centralized web based solution for the port community. The stakeholders would use this single window for their information needs for handling vessel and cargo. The system would facilitate the stakeholders in securely exchanging the electronic documents/information with respect to maritime chain in real time. The message exchange can be in UNEDIFACT/XML/Proprietary formats. The system would have the capability of translating message from one format to another as per the requirements of the stakeholders. The electronic message received can then be integrated with the back-end applications of the stakeholders.

The system would also provide a web portal for all the stakeholders to interact using web based forms. For example, the shipping agent would be able to file the berthing application either in the agreed message format or by using the web form available on the site.

The centralized application would also maintain the latest information with time stamped (up-dation) like vessel details, berthing status, weather at the port, gate open and close timing for a given vessel, vessel route and journey schedule, vessel layout plan, yard layout plan, container status, container tracking, shipping directory, train status etc available for reference and download.

As depicted in Figure 1, the stakeholders in port community would be able to interact with the multiple agencies through the centralized PCS.

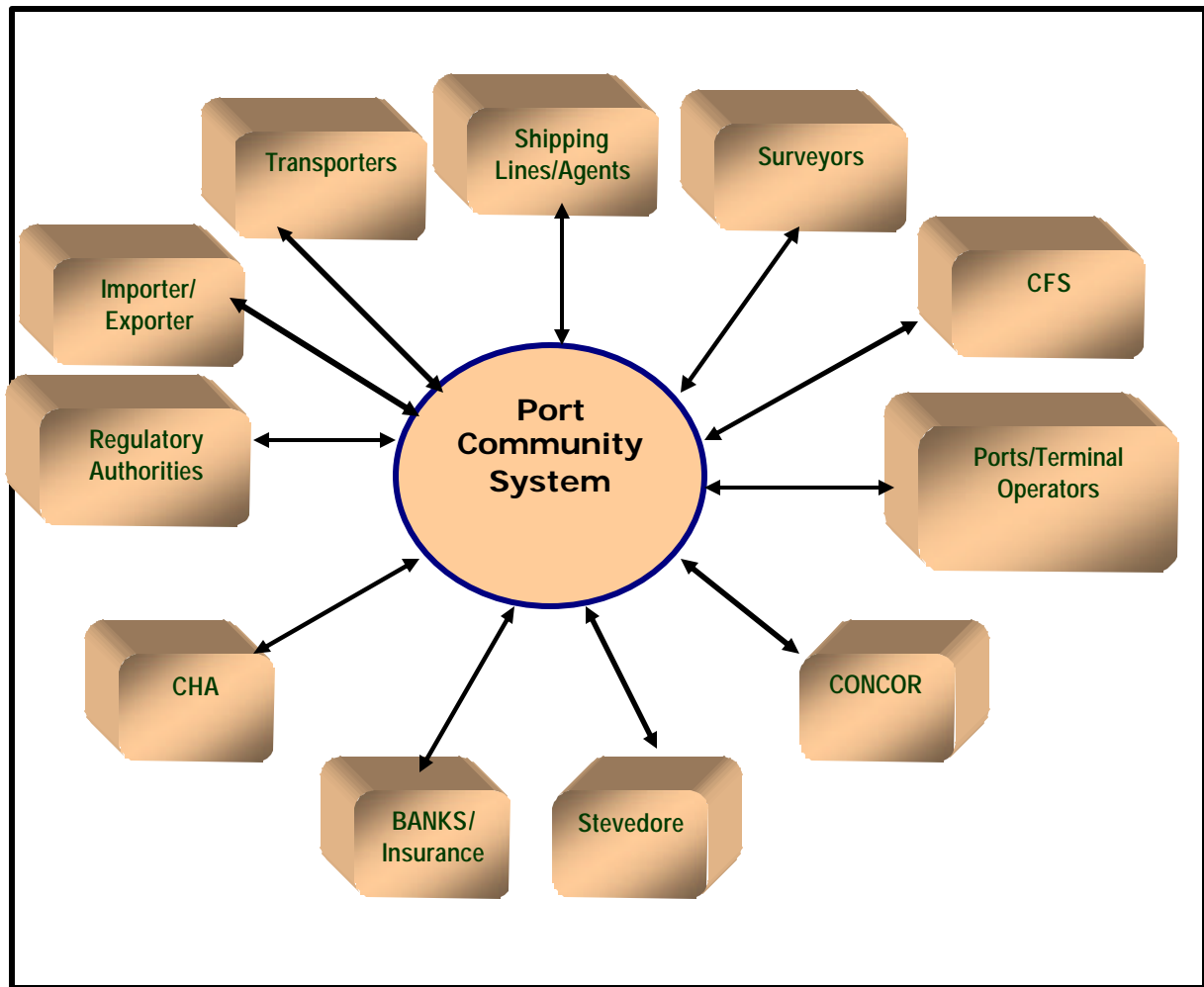


Figure: 1

The basic building blocks of the system would be the centralized servers with intelligent message switching facility for message exchange in the desired format and the centralized repository of data along with the web interface for retrieval and processing.

The user would create the message in the desired format at his end and then would be able to upload the digitally signed message to the PCS. The central system would have all desirable security features and capabilities to identify the sender and the receiver, validate the data before forwarding it to the agency concerned. The PCS would translate the message in the desired format to the recipient.

Example: VIA application by a Shipping Agent to Port:

The agent would create a message file in a given format, digitally sign and upload the file to PCS. The PCS would authenticate the source, check the file format and validate. In case of error, a negative acknowledgement would be returned to sender, otherwise a positive acknowledgement would be sent.

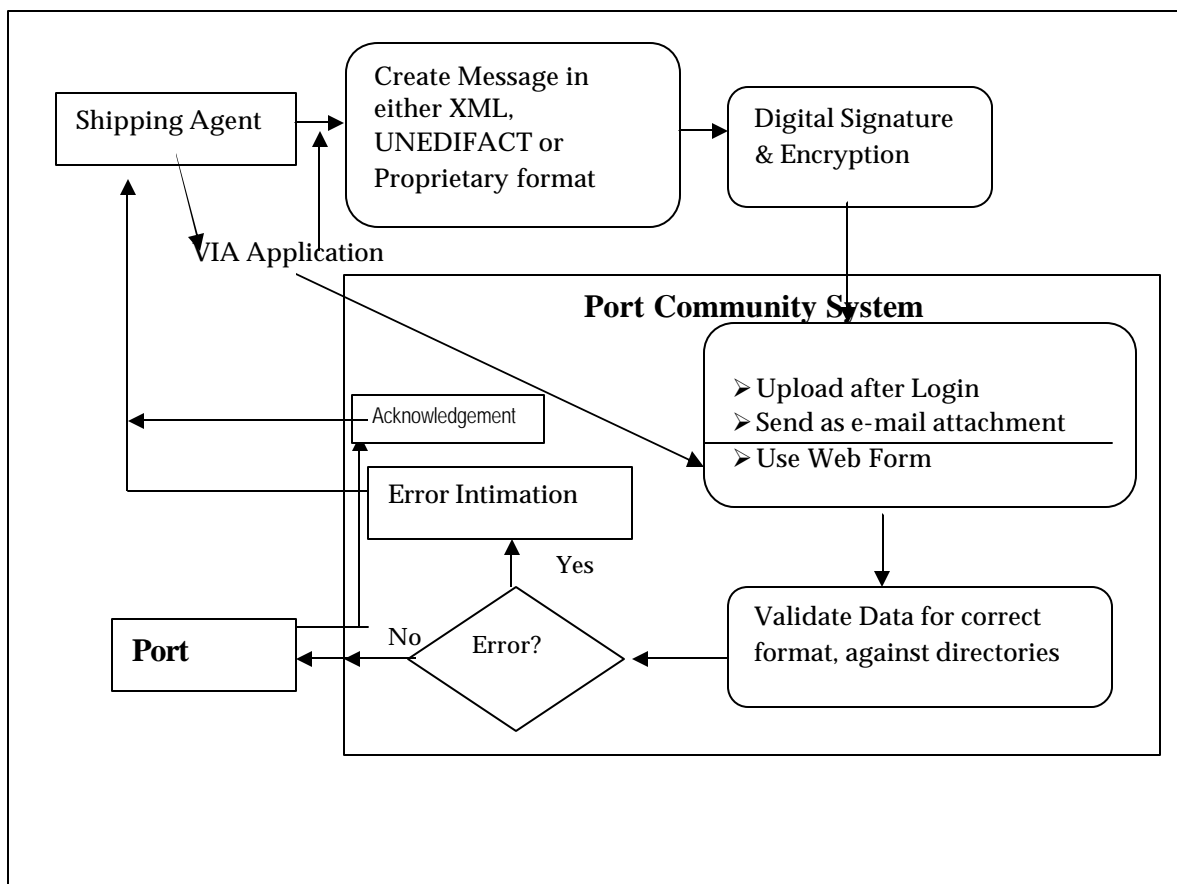


Figure: 2

Based on header, PCS would identify the recipient(s) of the message and would forward using the appropriate messaging protocol. The message would be translated in the desired format. The information would also be available for downloading.

Alternatively, the message can also be transmitted as an e-mail attachment using secure SMTP/Mime messaging protocol. The user would generate the file in a prescribed format and send the same to PCS Mail Server. At the PCS end, the message would be extracted automatically and authenticated for the file format. It is expected that the proposed PCS would support all the popular messaging protocols like Internet based protocols, Secure FTP, SMTP, SMTP/Mime, MQ Series, Simple Object Access Protocol (SOAP), Java Messaging Services etc.

All the messages received over PCS, would be available on the central database along with sender and recipient details. Such information can be viewed or downloaded by the stakeholders as per security norms.

Example: Berthing allocation

On allotment of berth by the port, a message is forwarded to the Shipping Agent. This information would be integrated with the centralized database and would be available to the stakeholders on the PCS.

The user would also be able to use the PCS Web Portal interface for calculating the applicable charges for the services and make the payment through the payment services interface.

Example: Payment of Port Charges

The calculation of charges for the services rendered by the port can be done in the following way.

The stakeholder will make use of the PCS interface for making a request

to the respective port for the services. The application at the port end would make the calculation and forward the challan to the PCS, which would be available to the stakeholder and bank. The stakeholder would be able to make the payment through the internet banking services.

The payment services can be implemented in one of the two modes:

Mode 1: Internet Banking operated by user

The user can pay to Port via Internet banking facility of the bank. The bank facility will prompt the port users to provide the relevant parameters like vessel no., voyage no., IGM details etc related to the payment. The user will log into the bank's application and enter the details of the transaction in specific forms for single or multiple transactions and authorize the same. Bank will debit the parties and credit the port and send debit and credit advices.

The port will make refunds to multiple port users by uploading the message file containing the details of the transactions after logging into the bank system. The bank will debit the port account, and credit the various port users account on a real time basis and generate the debit and credit advices.

Mode 2 : Bank Account operation by Port

In this scenario, shipping agents will open accounts with the banks specified by the port. The bank will obtain a debit mandate from the port users, authorizing the bank to debit the accounts of port users and credit the port account based on demand notes from port. The Port will upload a

flat file containing the details of transactions on bank system. The bank system will carry out the desired transaction and debit credit the accounts, generate the credit and debit advices and send them to the parties concerned.

The following is the proposed generalized logical framework of the PCS:

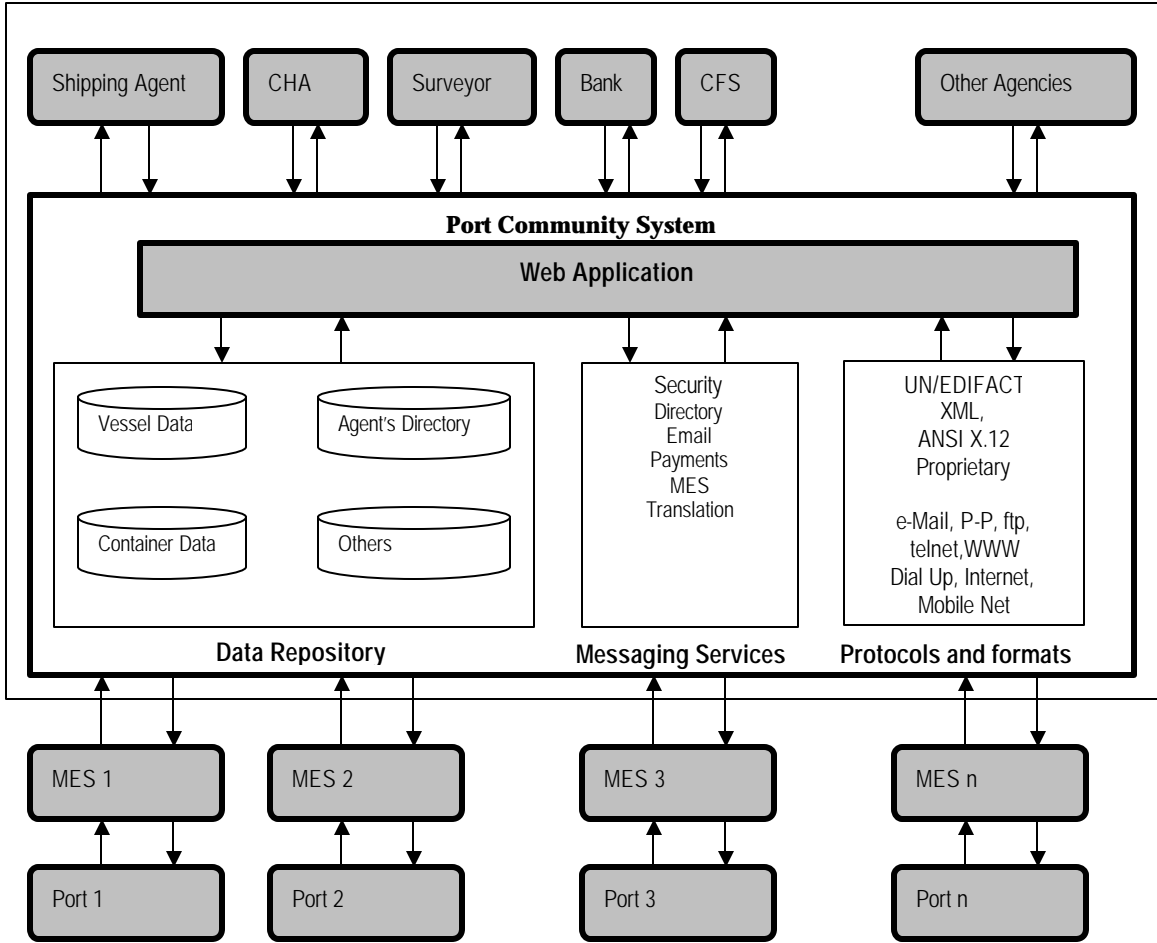


Figure 3

Ports are the major stakeholders and their information exchange with the other agencies is very high. Therefore, they are required to have a high end Message Exchange Server connected to the PCS on high speed

network connectivity. The ports must build the capabilities of using the messages received in the specified formats and integrate it with their backend applications systems. To access the PCS, the other stakeholders like shipping agents; CHAs/importers/exporters, surveyors, transporters etc. will be having the option either to have leased line connectivity or access through Internet.

Chapter 3

PCS functionality

PCS would require proper authentication of users. Only the registered users can use the services of PCS. Profile of each user would be maintained dynamically. The users would be provided with a Registration Option on the web site. The user would submit application with particulars like- organization, address, e-mail, telephone numbers, type of business in the port etc. The users who will be operating in more than one port, the master details – Name of the organization, type of business and corporate address; and port-wise address, phone numbers etc would be maintained separately. The information submitted for registration would be verified by the PCS Administrator and assigned a role as per the business profile. The user would be allowed to have access to the services as per the authorization. For each type of business activity the user has to get registered separately. For example, the user, if performing both as Customs House Agent and Stevedore Agent, he will be assigned two separate registrations.

The stakeholder can generate and forward message to the trading partner in two ways as mentioned below:

- Stakeholder is having necessary IT infrastructure: Generate the message in standard format and transmit the same to the receiver through PCS.

OR

- Stakeholder is not having necessary IT infrastructure: Would make use of the web form provided on PCS for entry of the information/request. The PCS would generate and forward it to the stakeholder concerned.

To send a message to the partner stakeholder, the user would generate the messages in accepted format, digitally sign and transmit. The PCS would receive the message and validate. In case of error, the system would generate an error message and the same would be sent to the sender. The user would also have the option to view the status of the messages on the web site.

After the message is validated, the same would be sent to the translator and loaded to the database. The message would be generated for the stakeholder in the desired format. The user would also have the option of entering the data using the Web Form.

Example: Berthing application by the Shipping agent to Port

The agent would either prepare the message or use the web interface for berthing request. The PCS would receive the message, translate the same and load the data to the database after validation. The message would be sent to the Message Exchange Server (MES) of the desired port in the specified format. The port would load the data, process it internally and generate a message for the confirmation of the berth. The response message will be put in the MES. PCS would pickup the message, and forward it to the shipping agent as per the procedure specified above.

The data would also be updated at the PCS databases. The users visiting the site would have access to the information to view the berthing status. Similarly, when vessel enters/leaves the port waters, the internal system of the port would generate a message for the PCS. The PCS would update its databases so that authorized PCS users will be able to view the latest status of the berths in the port. If the port's systems are web enabled this can be done through web services also.

In case of any problem like an accident, traffic congestion or any event like the container is de-stuffed, vessel has been discharged etc, the internal system of the CFS/Port would generate a message and send it to the PCS. PCS would forward the message in the form of alert to the stakeholders concerned.

Similarly, the other stakeholders would also update the centralized database either using message format or using the web based interface whenever any event takes place.

Example: CONCOR needs to provide the details about incoming/outgoing trains to the port or the status of the cargo delivered.

PCS will have a facility to calculate the service charges payable to the port at different stages of cargo clearance. For the purpose, each port has to maintain directory of tariff charges for the services on the PCS. The user can make request for the services required and calculate the charges in advance. To provide this facility, the master directory of the services has to be created and each port will have the facility to update the tariff charges as and when required. The service charge message generated by the user on PCS will be forwarded to the Port application for integration.

The following is the pictorial representation of the process:

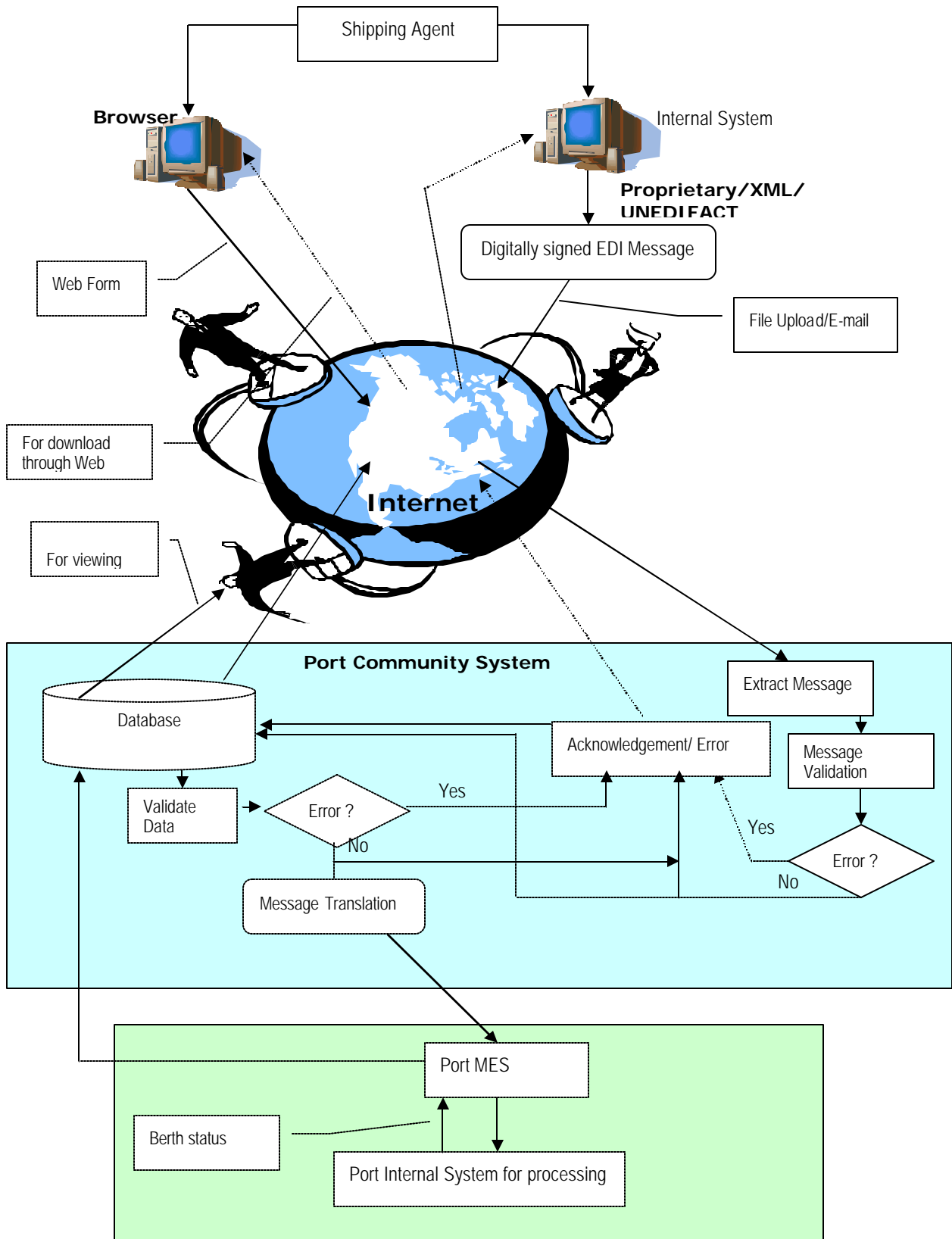


Figure 1

The above picture shows, how a message would be transmitted from shipping agent to port. On similar lines the information would be transmitted among other stakeholders. As depicted, the user will have the option of using the browser and entering the details through the web form. The user can also upload the file using the web application provided or using the secure HTTP/FTP options.

As the data would be validated against the directories of ports, shipping agents, CHAs etc., it would be mandatory to maintain and synchronize the directories of the PCS database and the stakeholders. The main directories would be:

1. Unit Quantity Codes
2. Package Codes
3. Port Codes
4. RITC Codes
5. Hazardous Item Codes
6. Country Codes
7. State Codes
8. Vessel / IMO Codes
9. Currency Codes
10. Port-wise Tariff Directory
11. Warehouse Codes
12. Custom House Codes
13. Container Directory

All the above directories would be adopted as per national/global standards. The PCS would attempt to use the coding schemes used by

majority of the stakeholders for the directories for which the national or global standards are not available.

The PCS would maintain following directories of the stakeholders:

1. Shipping Lines
2. Shipping Agents
3. Stevedores
4. CHAs
5. Importer/Exporter
6. Banks
7. Surveyors
8. Transporters
9. Container Freight Stations
10. Customs Houses
11. PHOs
12. Immigration Offices
13. Plant quarantine offices
14. CONCOR

The System Manager for the PCS would be responsible for maintenance of the directories. The agencies would be responsible for maintaining their profile after the registration using the user-ID/password and update whenever change occurs.

It is also recommended that all the stakeholders shall adopt uniform directories as maintained on PCS. This is one of the primary requirements for implementation of centralized PCS.

Chapter 4

Information Exchange

Stakeholder would have the option of sending the message in the preferred format or make the entry through the web form.

To facilitate track & trace, the stakeholders would also be sending messages to PCS or updating the PCS database for providing the services and alerts.

An attempt is made below to look at the information exchange among different stakeholders and to identify the information, which can be sent as UNEDIFACT message or proprietary message. The information, which can be provided through the web form is also identified. The details are as follows:

Sr. No	Message Description	Message Format	From-To
1	Vessel Calling Information	CALINF /Proprietary	SA to Port
2	Allotment of VCN/VIA Number	Proprietary	Port to SA
3	Amendment to VIA/VCN Application	Proprietary/Web Form	SA to Port
4	Berthing Application	Web Form/ Proprietary	SA to Port
5	Allocation of Berth	Proprietary/Web Report	Port to SA
6	Bay Plan / Stowage Location	BAPLIE	SA to Port
7	Stowage Instructions	MOVINS/Proprietary	SA to Port
8	Dangerous Goods notification	IFTDGN/Proprietary	SA to Port
9	Hazardous/Dangerous Goods Permission	Proprietary	Port to SA Customs to SA
10	Handling orders with respect to dangerous goods	In-Bound BAPLIE/Proprietary	SA to Port SA to Importer/CHA SA to Barge Contractor
11	Request for Un Berthing	Proprietary	SA to Port
12	Vessel Movement report	VESDEP/Proprietary	Port to SA
13	Departure and Performance of Vessel	Web Report	SA to port

14	Container Loading and Discharge Order	COPRAR/Proprietary	SA to Port SA to CONCOR SA to CFS/CHA
15	Container Loading and Discharge report	COARRI/Proprietary	Port to SA
16	Container Load Plan	Proprietary	SA to Port/CFS/Surveyor
17	Container Stuffing Order	COSTOR/Proprietary	SA to Port SA to CFS
18	Container Stuffing report	COSTCO/Proprietary	Port to SA
19	Daily Stuffed / De- Stuffed container report	Web Report / Proprietary	CFS/Port to SA
20	Container Special handling order	COHAOR/Proprietary	SA to Port
21	Advance Container List (Imports and Exports)	Web form/ Proprietary	SA to Port SA to Surveyor SA to Transporter SA to CFS
22	Export Advance list for Containers arriving by rail	COPINO/Proprietary	CONCOR to port CONCOR to SA
23	Gate Open report	Web Report	Port to stakeholders
24	Container Gate-In/ Gate-Out report	CODECO/Proprietary	Port to SA/CHA
25	Empty Container release	COPARN/Proprietary	SA to Port
26	Empty Container List of Shipping Agents	Web Report / Proprietary	CFS/Port to SA
27	Pendency of Container in the Port	Web Report/ Proprietary	Port to SA
28	Container Stock report	COEDOR/Proprietary	Port to SA
29	Pendency of Containers with respect to Destinations	Web Form/ Proprietary	CONCOR to Port CONCOR to CHA CONCOR to SA
30	CFS wise pendency report	Web Form/ Proprietary	Port to CFS
31	Intimation of non delivery of container	Web Report / Proprietary	CFS/Port to SA SA to CHA
32	Intimation of location for bringing of Cargo /Container	Web Report / Proprietary	CFS/Port to SA SA to CHA
33	Report of Damaged / Reefer Container	Web Report / Proprietary	CFS/Port to SA
34	Job order	Web Form/ Proprietary	CFS to Port
35	Stoppage or Release of Containers	Proprietary	Customs to CFS/Port SA to Port
36	Shed Delivery Order	Web report/Proprietary	Port/CFS to CHA/Importer

37	Application for Log entry /Short Landed / landing remark /Excess cargo	Web Form/ Proprietary	CHA to Port
38	Grant of Log entry /Short Landed / landing remark /Excess cargo	Proprietary	Port to CHA
39	Train Schedule / Summary	Web Report	Stakeholders
40	Placement Memo	Proprietary	CONCOR to Port CONCOR to SA
41	In-Land way bill/Rail Receipt	COPINO/Proprietary	CONCOR to Port CONCOR to SA CONOCR to ICD
42	Removal Memo from Rake	COPINO/Proprietary	Port to CONCOR
43	Forwarding report with respect to Cargo	Web Form / Proprietary	SA to CONCOR
44	Self Assessment of Charges	Web Form	SA to Port
45	Confirmation of Advance charges	Web Form/ Proprietary	Port to SA
46	Personal Deposit Account Adjustment Request	Web Report/ Proprietary	CHA/SA to Port
47	Personal Deposit Account Adjusted Advice	Web Report	Port to CHA/SA
48	Payment of Port charges	Web Form / PAYORD/Internet Banking	SA to Bank CHA to Bank Bank to Port
49	Credit Advice	CREADV/Proprietary	Bank to SA Bank to CHA Bank to Port
50	Debit Advice	DEBADV/Proprietary	Bank to SA Bank to CHA Bank to Port
51	Daily transaction summary	Proprietary/Web Report	Bank to Port
52	Invoice	INVOIC/Proprietary	Port to SA Port to CHA
53	Invoice with respect to handling / Ground rent	Web Report / Proprietary	CFS/Port to SA
54	Invoice / payment for Handling charges	Web Form/ Proprietary	CONCOR to SA SA to CONCOR
55	Discrepancy of Invoice	Web Report/ Proprietary	SA to Port CHA to Port
56	Letter of appointment for the joint Survey and term of references	Web Report	Port to Surveyor Port to SA
57	Vessel / Tank survey report of Volume of Liquid cargo	Web Report / Proprietary	Surveyor or SA to CHA / Imp
58	Application for Tonnage Certificate	Web Form/Proprietary	SA to DG Shipping
59	Tonnage Certificate	Proprietary	DG Shipping to SA/Port

60	License for Vessel Application	Proprietary/Web Form	Ship Owner to DG Shipping
61	Acknowledgment for License for Vessel Application	Proprietary/Web Report	DG Shipping to Ship Owner
62	Coastal Voyage Registration	Proprietary/Web Form	Ship Owner to DG Shipping
63	Acknowledgement for Coastal Voyage Registration	Proprietary/Web Report	DG Shipping to Ship Owner
64	Multimodal Transport Registration	Web Form/Proprietary	Transporter to DG Shipping
65	Acknowledgement for Transport Registration	Proprietary/Web Report	DG Shipping to Transporter
66	Vessel Details	Proprietary	SA to Customs Customs to Port
67	Cargo Manifest	Proprietary	SA to Customs Customs to Port
68	Container Details	Proprietary	SA to Customs Customs to Port
69	Allocation of IGM No	Proprietary	Customs to SA
70	Grant of Entry Inward	Proprietary	Customs to SA Customs to Port
71	Request for Cancellation	Proprietary	SA to Customs Customs to Port
72	Confirmation of Vessel Arrival at Port	Proprietary	Port to Customs
73	Cancellation of IGM No	Proprietary	Customs to SA Customs to Port
74	Landing/Tally Report	Proprietary	Port to Customs
75	Details of the Containers Landed and Damaged Packages	Proprietary	Port to Customs
76	Excess Landed Cargo	Proprietary	Port to Customs
77	Location of Cargo	Proprietary	Port to Customs
77	Out of Charge	Proprietary	Customs to Port
78	Containers out of Charge	Proprietary	Customs to Port
79	Out of Charge-Item Details	Proprietary	Customs to Port
80	Request for Transshipment	Proprietary	SA to Customs
81	Transshipment Permit	Proprietary	Customs to Port

82	Detention/Confiscation Release Order	Proprietary	Customs to Port
83	Detention/Confiscation Release of Containers	Proprietary	Customs to Port
84	Gate Pass	Proprietary	Port/CFS to Customs
85	Disposal Request	Proprietary	Port to Customs
86	Item Disposal Request	Proprietary	Port to Customs
87	Disposal Order	Proprietary	Customs to Port
88	Item Disposal Order	Proprietary	Customs to Port
89	Cargo Disposal Particulars	Proprietary	Port to Customs
90	Request for Cargo Movement	Proprietary	SA to Customs
91	Cargo Movement Approval	Proprietary	Customs to SA Customs to Port/CFS
92	Arrival of Cargo at CFS	Proprietary	CFS/Port to Customs
93	Transshipment Approval	Proprietary	Customs to SA/CHA/Importer Customs to CFS/Port Customs to CONCOR/Transporter
94	Acknowledgement Message	Proprietary	Customs to SA/CHA/Importer Customs to CFS/Port Customs to CONCOR/Transporter
95	Application for Rotation No.	Proprietary	SA to Customs
96	Allotment of Rotation Number	Proprietary	Customs to Port Customs to SA
97	Application for Cancellation of Rotation Number	Proprietary	SA to Customs
98	Cancellation of Rotation number	Proprietary	Customs to SA
99	Shipping Bill Details	Proprietary	Customs to Port
100	Shipping Bill – Item Details	Proprietary	Customs to Port
101	Entry of Goods into Port	Proprietary	Port to customs
102	Entry of Goods into Port-Container	Proprietary	Port to Customs
103	LEO/Stuffing Report	Proprietary	Customs to Port

104	Stuffing Report – Container Information	Proprietary	Customs to Port
105	Details of Shutout Cargo	Proprietary	Customs to Port
106	Container/Package Shutout Cargo Details	Proprietary	Customs to Port
107	Application for Entry Outward prior to Loading U/s 39	Proprietary	SA to Customs
108	Grant of Entry Outwards	Proprietary	Customs to Port Customs to SA
109	Application for Port Clearance U/s 42 (Prior to Sailing)	Proprietary	SA to Customs
110	Grant of Port Clearance	Proprietary	Customs to Port Customs to SA
111	Vessel Sailing Report	Proprietary	Port to Customs
112	Export General Manifest	Proprietary	SA to Customs
113	EGM – Container Particulars	Proprietary	SA to Customs
114	Requisition of Stevedoring activities	Web Report	All Stakeholders

Note :

Ports, CFS, Shipping Agents, CHA/Importers/Exporters are also the stakeholders of the Customs Community System. A number of messages like Bill of Entry, Shipping Bill, IGM/EGM, Movement of Cargo to CFS etc. are routed to ports and CFS operators through customs after the processing. For the sake of completeness of this document these messages (Sr. No. 66 to 113) have been included. However, the flow will remain the same as per the existing procedure for these messages and will continue to be routed through ICEGATE/LAN.

Information/services on the Web Portal

The following is the list of Services/Information, which can be made available on the web site.

- 1 Online Request for Berthing, Resources, carting and other services
- 2 Vessel berthing Schedules
- 3 Daily Vessel Positions
- 4 Vessel Routes and journey status
- 5 Container Location
- 6 Container Summary
- 7 Containers by Carrier/Port
- 8 Container Status Report
- 9 Stuffing/De-stuffing Information of CFS
- 10 Loading/Unloading of Cargo/Container
- 11 Reefer Container Status
- 12 Port Gate-Open/Close Status
- 13 Port Pendency Status
- 14 Facilities at the Ports
- 15 Resource/Equipment availability
- 16 Equipment Activities
- 17 Train Schedule
- 18 Weather Conditions updated by the port
- 19 Online self assessment of charges
- 20 Online payment using Internet Banking.
- 21 Facility for Invoice Printing
- 22 Tariff Rates of Different Ports
- 23 Auctions, Un-claimed cargo
- 24 E-Auction of Cargo for Disposal
- 25 Provides global visibility to in-transit ocean cargo from origin to destination
- 26 Provides unified view of all in-transit cargo via the web portal easily downloadable as message format wherever applicable
- 27 Multi-criteria search capabilities include: vessel, voyage, container, dates, and Bills of Lading
- 28 Track & Trace offers multiple ways for a user to search a shipment's history
- 29 Document Tracking Facilities
- 30 Alerts using latest mobile technologies
- 31 Annual performance of the ports and other stakeholders

- 32 Business Intelligence Analysis using central PCS databases.
- 33 White Papers/Case Studies on the Shipping Industry and the latest technological trends
- 34 The Notifications on policies, procedures and Forms
- 35 PCS related Government Regulations and Notifications
- 36 Latest News/Press Releases on the Port community
- 37 Tenders from the stakeholders
- 38 Facility for the stakeholders to update their profiles
- 39 Documents of latest message formats
- 40 Guidelines for Implementation of messages – PCS User's Manual
- 41 Helpdesk Facility and chat with the help desk executives
- 42 Frequently asked questions
- 43 Link to the Websites of other stakeholders

Chapter 5

Desired Features of PCS

The exact technical architecture would depend on the Port Community system selected. The following are the basic generalized features/functionalities expected to be available in the PCS:

➤ ***Message Translation:***

The PCS would be capable in translating messages in various formats like ANSI X.12, EDIFACT, XML and proprietary in either direction in an unattended mode.

➤ ***Data Integrity and quality:***

Transmission of data over PCS would meet the international standards and will ensure the data integrity for the EDI messages received from different sources. The messages would be validated for syntax integrity, conditional or situational requirements, validation of data against code directories and the stakeholder specific data validation requirements, etc.

➤ ***Security Services:***

The PCS would provide the higher level of security services than just the basic password authorization. The PCS would have a comprehensive security policy at various levels - hardware, network and application software. The PCS would ensure firewall and physical security at hardware, the SSL at network and role based authentication and digital signatures at application level as a security policy.

➤ ***Transaction Tracking:***

The PCS would have the inbuilt ability to track the transaction and maintain the appropriate logs. The system would also be able to track the messages and documents as they pass through the various stages.

➤ ***Multiple Transmission Protocols:***

The PCS would be easily configurable to communicate over Internet and Value Added Networks using multiple transport protocols in a secure manner. The system would support multiple transmission protocols like HTTP, FTP, SFTP, Email etc.

➤ ***Flexible and Open Architecture:***

The system would be based on open technologies and standards like Java, CORBA, ZONE, TCP/IP, Secure Socket Layers (SSL), HTML/Java etc. thus facilitating scalability and flexibility. The architecture would be flexible enough to adjust to the dynamic requirements, ensure data consistency and scale up to match the demands of each stakeholder and integrate heterogeneous systems. The system would be flexible enough to absorb the new technologies quickly and alter the scope and functionality of applications as needed, to support the changes.

➤ ***Delivery of content:***

The system is expected to support the delivery of content and services to non-PC devices like PDAs, SMS, Internet appliances, FAX, IVRS etc.

➤ **Reporting services:**

The system would meet the MIS requirements of the stakeholders.

➤ **Web Services:**

The system would have the ability to integrate the web services and also provide web services like container/vessel tracking for integration by the other agencies in their web applications.

➤ **Payment Services:**

The stakeholders would be able make payments to other community partner for the facilities and services like port charges, container charges, stevedoring charges etc. using the internet banking in secure mode.

Chapter 6

Benefits of PCS implementation

Introduction

With the Centralized Web based PCS in place, the stakeholders would be ensured that the data they need to manage their respective operations is accurate, consistent across all parties and available 24-hours a day. Each time a vessel is registered, berth is allotted, container is moved, cargo is released, or information flows through the system, data will be updated and available for the stakeholders for viewing on-line, as an e-mail notification, as SMS, or downloadable as message.

Benefits

The main benefits derived from the proposed system would be as follows:

➤ ***Single Window system***

The system will be a single window system and will facilitate the stakeholders to share information in secure and efficient manner with each other from a single point.

The proposed portal would fulfill the major information requirement of the stakeholders from a single point and would provide them information related to:

- Advance Timetable for the vessels
- Vessels
- Agencies Database
- Track and Trace Facility for Cargo/Containers

- Status of the cargo/containers
- Dangerous Goods
- Port Tariffs
- Financial Services like calculation of charges etc
- Notifications
- Procedures, Rules
- Port Community Forum resulting in better communication among stakeholders
- Link to the sites of the stakeholders and other related sites
- Weather conditions on the Port
- Latest News and Alerts
- Helpdesk facility

The central repository would also facilitate the multiple ports and other stakeholders to easily access the data like berthing details, ship schedules, dangerous goods etc. for better coordination.

➤ ***Common information to multiple agencies***

The stakeholders need not exchange physical documents. This would also eliminate the need of sending the same information to the multiple agencies. For example, the Shipping Agent's submission of advance container list would be forwarded to the CFS/Stevedore/Surveyor.

➤ ***Standardization of procedures***

The system would result in standardization of procedures with respect to information exchange, which would simplify the handling of documents.

➤ ***Standardization of Information Exchanges***

For shipping agents and shipping lines, the re-engineering and standardization of the information exchanged will result in consistency of approach with the port, customs and other agencies. This will result in better and efficient services and cost reduction.

➤ ***Convenience 24x7 submission***

The most important benefit for the stakeholders will be the convenience of submitting the documents at any time and from any where by using any internet-connected PC.

➤ ***Centralization for IT Operations for stakeholders***

The shipping agents and other agencies will be able to centralize their IT operations for all the ports of the country.

➤ ***Statistical analysis***

The data available in PCS databases would be usable by the agencies concerned including the government bodies for analysis and statistical purposes.

➤ ***Timely alerts during exceptions***

The system would generate the alerts for the stakeholders at the time of the event or exceptions like delays, problems and forward the same as e-mail, SMS etc. The timely information would facilitate the stakeholders in taking remedial measures and minimize the damage.

➤ ***On-line request for services***

The Web Applications would facilitate online request for services like berthing, resources, stevedoring services, de-stuffing, stuffing, movement of cargo/containers, change of schedule etc.

➤ ***On-Line payment for services***

The stakeholders would be able to pay online using the system for the charges. The system would calculate the charges resulting in faster processing.

➤ ***Flexibility for submission request***

Stakeholders will have the facility to exchange the information in different formats.

➤ ***Efficiency in faster clearance of goods***

Ports would be benefited as the clearance will become faster due to less paperwork processing, timely and accurate information availability for decision making and integration with the internal port systems.

This would result in more efficiency in terms of speed and accuracy in processing the inward/outward cargo because of the less amount of re-keying of the data by different agencies like ports, customs, lines, agents, CFS etc.

➤ ***MIS***

The system would also facilitate the ports and other government agencies in consolidation of the trade statistics at national level for better policy planning and decision making.

➤ ***Transparency***

The efficient dissemination of information through the PCS would improve transparency and provide an opportunity to improve the efficiency of port processes and procedures throughout the country.

➤ ***Cost Saving***

This would result in less time taken for cargo to be discharged at ports and significant cost savings as a result of paperless clearance prior to the entry of ships to ports.

➤ ***Enhancement in the trade***

The system would result in enhancing trade in the country by integrating the systems through greater use of the internet by making trading information readily available to port, stakeholders and general public.

Chapter 7

Key issues

Introduction

The implementation of a project of this magnitude would need coordination among a number of agencies and organizations along with the involvement of all the stakeholders from the study till the implementation stage. The implementation of the system would bring qualitative changes in the working of the stakeholders to manage their operations more efficiently and smoothly. The system would also bring in standardization of procedures up to certain extent at the stakeholders end requiring some changes in their internal IT systems, and operational procedures. Some policies, rules and regulations related to Shipping trade would require to undergo changes because of the implementation of electronic format of data.

This would be a challenge for the agencies involved in building and managing the system to co-ordinate the activities and address the issues, which can have impact on the success of the project. An attempt is made in the following section to highlight a few key issues which would have impact on the project and need to be addressed.

➤ ***Uniformity of message formats***

One of the main issues in implementation of PCS is that the electronic messaging formats in ports are not uniform. In JNPT, the messages are implemented as UNEDIFACT messages whereas the

Mumbai Port has implemented the proprietary messages.

The data elements and directory of UNEDIFACT messages needs to be common for all the ports and the same parameters should be exchanged. The ports will be required to agree on one superset of data elements in the case of proprietary messages.

➤ ***Implementation of calculation of port service charges in PCS***

Considering the complexity and intricacy involved in calculating service charges rendered by port to the various stakeholders following is recommended:

- ***Calculation of the charges by the port***

PCS will redirect the stakeholder to the port for calculation of charges for the requested services. The port application would return the challan to the PCS. The information is available to the stakeholder and bank for payment. After getting confirmation of payment from bank through PCS, the port would provide the desired services.

➤ ***Level of automation in Ports***

The Ports have different level of automation of their internal processes. To take the full benefits of the PCS, the internal operations need to be computerized so that the data can be captured at the source. For example, to provide the services regarding Vessel/Container status in the port, the vessel services and container management within the ports needs to be computerized.

➤ ***Non-standard directories and codification schemes***

The directories of shipping agents and lines, CHAs, Vessels etc. are different with different codification schemes and are tightly integrated with the internal computerized systems. The difference in codes and schemes would make it difficult to integrate and consolidate the data at the centralized PCS and map the messages in different formats. This would also make it difficult for the stakeholders to maintain a centralized application for their operations and track and trace the cargo/containers. The adoption of single standard is highly recommended.

➤ ***Legal requirements for bringing hard copies***

The operations are dependent on lot of paper work with the Shipping Agents and CHAs are required to produce the hard copies even for the information, which is received electronically. The policies would be required to be changed by the ports to minimize the paper operations.

Example: The port receives the IGM message electronically from the Customs but still the shipping agent is required to produce the hard copy. Even after making the changes to the internal port system, the agent/CHA is required to carry the paper confirmation in the shed in the case of MBPT.

➤ ***Lack of standardization of procedures***

The lack of standardization can have impact on the success of the project and a concerted initiative is needed on part of the ports to streamline and simplify their internal procedures especially with respect to the information exchanged with the trading partners.

Different type of messages in different formats would prove to be very expensive.

Example: The procedure and format of filing the VIA application is different in both the studied ports.

The difference in working in ports requires the shipping lines and agents to follow different procedures internally which can become a deterrent for them to join the PCS community as they would be required to cater to the different systems and different standards.

➤ ***Requirement for re-engineering the processes***

The procedures and processes within the port would need re-engineering for the streamlining and integration. The ports need to be ready for taking up the exercise of that level.

➤ ***Willingness on part of agencies to invest***

It is observed that most of the shipping agents have internal automated systems and have good IT infrastructure in place but the policies and procedures of handing the cargo are different. A few of the Shipping Agents have direct access to the system of their principals for updating the information. To provide relevant information to the PCS, they will be required to create a mechanism to get the information from their principals in the form acceptable to PCS or re-enter the information on PCS. This will result in –

- Investment in terms of some application changes at the principal's end and/or
- development of application at the stakeholders end for integration or

- physical entry of data on the PCS

➤ ***Unstructured form of information exchange***

The interaction of shipping agents is mostly in unstructured format with the other stakeholders like the CHAs, transporters, surveyors and is usually using phone, e-mail and fax. The standardization of the information exchanged and its implementation is desirable.

➤ ***Common Ownership***

The success of the project would depend on the initiative of bringing all the stakeholders together and develop the system as a joint venture. Participation of all the stakeholders during the life cycle of a project like this is crucial for successful implementation.

The collaborative strategy is required to be developed by the Working Groups and the Associations of different stakeholders so that knowledge and experiences about the use of the PCS will be openly shared.

➤ ***Lack of IT and communication infrastructure***

A number of stakeholders specially in the small towns are still not equipped with the basic IT infrastructure to use the centralized PCS. The communication networks are still not in place. The smaller stakeholders are still not equipped with the basic IT infrastructure.