Tender for

SUPPLY, CUSTOMISATION, IMPLEMENTATION AND MAINTENANCE OF AN INTEGRATED PORT OPERATION SYSTEM (POS)
FOR

VISAKHAPATNAM PORT TRUST

TENDER NO: <XXX/XXX/XXX/2020>   **Date: <DD/MM/YY>**

<Port Address>
<FAX>
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Scope of Work:

The Scope of Work covers **Supply, Customisation, Implementation of Integrated Port Operation System (POS) and Maintenance for a period of 6 Years .**The proposed system should have the feature to facilitate the following functional requirements:

a) Documentation
b) Marine Operations
c) Cargo Operations
d) Storage Operations
e) Tariff/Billing Management
f) PCS/EDI Integration
g) SAP Integration
h) Operational, Financial and Statistical Reports
i) Web Services enabled POS application for administrators for stake holders
j) Online Berthing
k) Mobile Application (Andriod/IoS …etc mobile Operating systems)
l) Customer Portal
m) RFID Integration
n) Weighbridge Application integration
o) Dashboard Implementation
p) API integrations for FOIS,RFID,weigh bridges, terminal operators of VPT, SCMTR, Unnati Portal, PCS1x …etc.
q) BI reports/MIS reports as per the VPT management requirement
r) Integration of Water meters/ electricity meters
s) Web enabled MIS reports

Documentation

Facility for capturing all DryBulk / Break Bulk / Liquid Bulk /RO-RO operations with respect to Import/Export/Transshipment/Stuffing/ Destuffing /Storage operation with validations and checks even for other services from the POS application through Excel, doc,text, Pdf..etc.

Marine& vessel Operations:

1. Customized Workflows configuration feature is required on the proposed transaction of the application to facilitate the approval hierarchy with defined users.

2. Creation of vessel profile uniquely identifying them (IMO number of the vessel) and storing the same in the port's database.

3. Uploading the vessel profile through PCS or Manual Creation

4. Registering each voyage of the vessel by authorized Steamer Agents through PCS. A Vessel Identification Number (VCN) shall uniquely identify each voyage should be generated from POS application and forwarded to PCS1x application.

5. Capturing the date and time of arrival at outer anchorage either by interfacing with the VTMS of the port or through data entry at the Radio / Signaling station.

6. Updation of the ETA of the vessel, Arrival/Departure Recording, Berthing / Unberthing Recording, Vessel Delay Recording, Shipping Programme, Pilotage Recording, Towage Recording, Service Recording, Resource Requisition etc.

7. Filing of application for allotment of berth by authorized Steamer Agents / Vessel Agents through the PCS or Traffic Section of the port.

8. Capture of berth allotment and berthing schedule online and distribute them electronically and publishing through the port website or using Mobile Application.

9. Viewing the up to date status of the applications filed and Berthing schedule with amendments thereof for the authorized users

10. Provision to traffic team to have dashboard with auto prioritize the vessels in validation with latest Berth requests received through PCS 1x and Cargo loading / unloading status information updated in the proposed mobility application by ground team of operations.

11. Viewing the status of the vessel at any time during the stay at the port.

12. Provision to view the status of all VCN (open/closed) with details such as VCN, Vessel Name, Last activity etc.

13. Granting of the Port Entry/ Clearance for the vessel with provision for verification of documents.

14. Capture of Pilotage and towage information for inward, outward and shifting operations.

15. Capture of the time of each movement of vessel like berthing, unberthing, shifting etc and any significant delays to a vessel's activities in the Port right from the arrival at outer roads of the port till its sailing shall be recorded.

16. Providing other services rendered to the ship like fresh water supply, bunkering, non-standard services, shore supply, telephone etc.

17. Declaration of dangerous cargo on board the vessel

18. Submission of PANS(ISPS requirements) through PCS

19. Mobilizing the resources (craft, tugs, pilots, berthing/ mooring crew etc.) required for inward/ outward / shifting pilotage and berthing / unberthing operations.

20. Mobile Application for pilotage and other offshore activities recording

21. Provision to capture the restricted / released vessel information by the competent MMD / PHO, Customs in validation with vessel profile records for approval / reject decisions by the traffic team.

22. Provision to capture the flotilla masters and its activities recording with billing validations against the service availed users.

23. Provision to capture the masters / look up values of the transaction pages throughout the application.

24. Provision for avoiding redundancy of the application

25. Provision for uploading documents of check list verified by VPT traffic department for berthing the vessel in POS application only

26. Other services requested by VPT during the time of design of POS application

Cargo Operations

i)   Import

1. Receipt of IGM and its amendments/deletions/cancellations if any from Customs electronically through PCS.

2. Manual entry /Uploading provisions to capture IGM details.
3. Tally / Draft Survey / Ullage Recording of cargo
4. Planning for storage at the sheds or yards
5. Allocation of Shed / Yard on licence basis inside Wharf area and its extension / vacation.
6. Receipt of cargo at the storage location – updating the storage plan
7. Capture of Bill of Entry(BE) from Customs through PCS
8. Manual entry provisions for Bill of Entry details
9. Capture of Agent's Delivery Order (DO) through PCS
10. Capture Customs clearance – Out of charge (OOC) electronically
11. Manual entry provisions for OOC details
12. Release of cargo, cross verifying with DO and OOC
13. Delivery of multiple parcels against one release order.
14. Change of Ownership of cargo
15. Calculation and billing of Demurrage charges wherever applicable.
16. Interim invoice generation.
17. Holding of cargo release till payment of port charges
18. Inter-carting of cargo
19. Delivery of cargo from the hook point directly /storage area.
20. Provision to capture the internal shifting movements of the cargo through the mobility application.
21. Provision for sharing the necessary data with other agencies/terminal operators/Govt department/ other ministries through
22. Provision for capturing container scanner details in to POS application
23. Provision for sharing necessary data between proposed POS application and other Applications through API& EDI integration as and when VPT will request.

ii) Export

1. Exchange of message for Shipping Bills (SB) from Customs electronically through PCS.
2. Manual entry provisions for Shipping Bill details
3. Preparation of Shipping / Packaging List
4. Storage planning for export cargo
5. Vehicles entry against SB
6. Admission of cargo against SB/Customs Permission
7. Receipt of export cargo at storage location against SB/Customs Permission
8. Calculation and billing of Demurrage charges wherever applicable.
9. Interim invoice generation.
10. Preparation of Loading / Discharge sequence.
11. Loading tally / Draft Survey /Ullage recording and preparation of loaded list

12. Preparation of EGM.

13. Back to town for shut out cargo.

14. Provision to capture the long-term storage (Open / closed) area, Special agreements through contracts management.

15. Provision for sharing necessary data between proposed POS application and other Applications through API& EDI integration as and when VPT will request.

iii) Transhipment

1. The system should have provision to support transhipment Operations of all types of bulk/break bulk cargo.

2. The system should have facility to capture Voyage, Container and Billing/Invoice data for the purpose of assessing and reporting Terminal /Port performance, Delays, Cargo Container handled, Vessels handled etc.

iv) Facility to capture and report ICTT data
The system should have facility to capture Voyage, Container and Billing/Invoice data for the purpose of assessing and reporting Terminal /Port performance, Delays, Cargo Container handled, Vessels handled etc.

v) Gang Allocation

1. The POS should have a provision to request for Resources / Equipment with job wise details in the request and autosuggestion / allocation in validation with predefined configurations and allocation also should be done in the proposed POS application only accordingly bills also should be adjusted in POS application only

vi) The request for allocation of gangs generated from POS and allocated data should be interfaced with SAP /ERP system of VPT, for billing should adjusted in the accounting system adjusted in SAP

vii) Cruise Operation

1. Facility to capture all cruise vessel related data

2. Bunkering/Ship Store Operation

3. Provision to capture special service request From Cruise vessel operating agents (The screens and features will be finalized during the process study phase of the project)

4. Provision to capture Garbage / Sludge / Waste removal from vessel.

viii) Water Supply

5. Application for fresh well water

6. Approve or reject with reason the application for fresh well water

7. Recording the details of water meter connecting form mentioning quantity of fresh well water, vessel's name, water meter No. and its previous reading

8. Recording the details of fresh well water also supplied by water tanker on payment of Port Trust charges through water Supply Section within port(payment collection will be done via ERP)

9. Recording the details of daily water supply duty slip

10. Generate water receipts to be signed by Chief Officer of the vessel

11. Bill/Invoice of water supplied to the vessel based on standard charges

12. Bill/invoice for water supply to the port users and quarters

13. Provision for integration through API/EDI with other applications with out any Change Requests (CRs)

ix) Bunkering :

14. Application for bunkering in port

15. Accept or reject with reason the application

16. Calculating and raising invoice for license fee/wharfage

17. Integrating with ERP to check the payment received.

X) Dry docking services

1) Application should be able to provide a provision for capturing of dry dock services

2) Prevision for generating provisional / final bills as decided by VPT

Xi) Electricity charges

1) Provision for EDI/API integration with electric meters (Smart meters) located in VPT / VPT employees quarters/ VPT berths in SAP/PPP applications

2) Provision for adjustment of bills from employees salary/ PDA accounts of trade in SAP

Storage Operations

The system shall support for import, export and transhipment cycles for :

a) Import Receipt/Storage Operations
b) Export Receipt/Storage Operations
c) Inter Carting Operations

For all the above, the features such as storage Planning, Viewing availability of space for the yard or the shed, Updation of storage plan, Delivery from storage in real time, Receipt to storage in real time, Shifting from one storage area to another etc to be incorporated.

Tariff/Billing Management

1. Configurable Tariff Management as per the Scale of Rates (SoR) of the Port and its maintenance at front end only. The change of SoR also through front end only against to the services effected for SoR approved by tariff management. Change provision only for the IT section only
2. Billing/ Invoices Management as per SoR
3. Offline Invoice/Credit Note Generation
4. All vessel related charges like Port dues, Berth hire, Pilotage, Tug Hire etc as per Scale of Rates (SoR) of Visakhapatnam Port Trust
5. Vessel, Berth and period wise billing
6. Billing parameters includes Slabs (GRT,RGRT etc), MT, vessel type(Feeder, Main Line etc.) Vessel Category(Passenger, Container, Cruise, General Cargo, Tanker, LNG Vessel etc.) , vessel status (foreign, coastal) and currency (INR, USD), Duration of Stay, etc
7. All cargo related charges like Wharfage, Demurrage, Storage etc as per SoR
8. Collection of Penalty/incentive based on cargo operation
9. Charges for Equipment usage, Electricity, Offshore water supply, Water Front Royalty, Water Front Royalty on Re-loading of LNG, IGTPL Revenue Share etc.
10. Agent, equipment and period wise billing
11. Pilotage service billing for berths other than port berths
12. Berth hire charges for other vessels, floating crafts, bodies, Yachts
13. Wharf entry charges for Fresh Water Supply tankers
14. Overtime charges of crew for the supply of fresh water for employees
15. Provision to have a preview of the invoice before finaliszing
16. Provision to make corrections (Date / Voy No. / Change etc)
17. Provision to delete an estimated invoice and regenerate one after making necessary changes.
18. Provision to change the billed party w.e.f a particular date and time in which case part of the vessel bills go to the owner and part to the charter.
19. Ship To Ship (STS) Operation Cargo and vessel related billing.
20. Back loading of POL Products (Shifting/Pilotage/Wharfage) billing
21. Billing of Oil pumping facility through Ports Berth, Jetties & Pipelines for transferring POL Products.
22. VCN Cancellation, Security Charges for Cruise Vessels

23. Provision to automate billed rebate/concession as per quality criteria (ref. MGT, No. of Vessel & No. of Direction of VSL (E/W) & period)
24. Provision to Bill Double the normal berth hire on cargo ships idling on ship's account for 24 hrs or more during and after operations.
25. Provision to bill Berth hire at double the normal rates for research vessels, supply vessels, pleasure yachts, oil rigs and other non cargo vessels excluding Passenger Ships, Navy & Coast Guard Ships and Ships & Barges for bunkering.
26. Performance Norms based Incentive and Penalty Scheme for cargo operations at Visakhapatnam Port Trust for POL products except Furnace oil, handled at COT, NTB & STB and Cement handled through Pipelines, in accordance with the Berthing Policy issued by the Ministry of Shipping, Government of India
27. PD Account maintenance of customers and Maintenance of Customer Master Data
28. Payment Integration through PCS/Portal
29. Auto Mailing of Invoices
30. Customer Portal to view Invoices, PD Account Balance etc
31. Provision to view charges for the actual services rendered after the completion of voyage.
32. PDA account wise reports of up to last 3 months should be generate in POS application only
33. GSTN reports should be available in POS application only
34. Berth wise revenue reports should be available in POS application
35. Cago wise revenue should be available in POS application
36. Party wise revenue should be available in POS application
37. Provision for API/EDI integration of financial operations between PCS1x and proposed POS application

SAP Integration

The POS system should be tightly integrated with the SAP – ERP System of the Visakhapatnam Port Trust especially its FICO module and project system module

PCS1x Integration

The POS system should be tightly integrated with the PCS1x System of the IPA, Ministry of Shipping and ICEGATE of Customs department especially its Shipping module, cargo module, FICO module

UNNATI Integration

The POS system should be tightly integrated with the UNNATI System of the IPA, Ministry of Shipping especially its Shipping module, cargo module, FICO module

Operational, Financial and Statistical Reports

The POS system should be able to generate necessary and required Operational, Financial and Statistical Reports.

Web Services

The POS system should be capable of communicating and integrating with various messages exchanged through the Port Community System (PCS) and other community systems or Portals using Web Services technology. If any new upgradations will come , that time also New POS application should support for it

Online Berthing

Provision should be provided for allotment of berths online by giving access to Vessel Agents for submission of berth requests. The system should facilitate the planning, allocation and publishing of report in the Visakhapatnam Port Trust website/Customer Portal.

Mobile Application:

- Mobile application has the business process covering various internal, external user's activities, alerts, notifications, workflow etc.
- All information viewed by the user are encrypted
- The architecture is scalable and plot form independent
- Application should works both offline and online
- Application can be integrated with any kind of external application
- Mobile application gives first-hand information to port authority, customers and port users
- The all business users functions are covered in the mobile application like
- Pilot operations
- Craft operations
- Recording tally clerk operations for loading/unloading of vessel and truck
- Gate operations
- Mobile application has real time integration with all business module
- The application resolution is independent that will automatically expand/compress itself as per the device screen resolution
- Mobile Application Platform should be hosted in VPT dedicated environment that provides a complete environment for building, integrating and deploying mobile apps meant for various Department / User categories. The platform is leveraged to provide App version management, Device management, Push notifications, multiple authentication methods and offline synchronizing for enforcing, controlling and governing mobile-based information access policies. End users must sign up to the platform for availing POS mobile services.
- Mobile application should be able to available in Playstore/appstore (Andriod/IoS and other mobile operating systems)

RFID Integration / Gate Operations:

Provision for issuing wharf entry pass is currently incorporated in the RFID system of Visakhapatnam Port Trust. The POS should be integrated with existing RFID system and data should be transmitted to/from both the systems.

- The software providers should propose an auto gate automation process for all Cargo Gate In / Gate Out activities of the Port.
- Facility to support Gate Operations for export / import/ transshipment etc. with RFID integration.
- The Proposed solution should have feasibility to integrate with RFID cards, which issued to truck drivers and registered trucks
- The solution to capture the Preadvise request from the Agents with Truck and cargo information.
- The solution to validate the PCS eDO and customs approved Out of Charge information for cargo delivery operations.
- The shed supervisor approvals on cargo delivery operations to be authenticated with yard operations for which approval done on mobility applications.
- Agent wise Gate in / Gate Out transactions report.
- Agent wise cargo summary report on Cargo Delivered and In Yard cargo stock.
- The solution to provide an option to display the Truck information in IN / out gates with approvals to the CISF team for required verification and approval.

Railway operations –

A. Railway Operations

- Applications for railways service from agents with necessary details like cargo details, rakes requirements, storage requirements, over dimensional consignment (ODC) detail.
- Indent for Wagons by wagon users
- Attachments along with application to support the request
- Verifying the application along with support documents and approving or rejecting with reason
- Trip Plan with details of requirements provided by agent & operational availability details captured in the system
- Estimation of charges for the service as per standard rates applicable

B. Loading/ unloading of goods

- Recording the details of Railway Receipt (RR) received from agent (Inward trip)
- Bill/Invoice generation for collection of port and Railway charges (including applicable taxes)

- Recording of following operations facts for loaning / unloading wagons
- Marking of wagons placed
- Placement of wagons
- Loading/Unloading commencement
- Any discrepancies
- Completed Loading/ Unloading Sheet & Forwarding Note along with Sealing and labelling of wagons
- Recording the details of Unloading Sheet (UDS) and recording unloading completion details
- Calculating and generating the bill for collection of Demurrage Charges to be remitted
- Demand analysis based on indent applications to be notified to Controller by Depot
- Recording the arrangement and supply of Wagons
- Recording the capture details of Certification of lashing packing and loading of ODC
- Recording the details of Wagon examination & Certification by TXR
- Recording the details of declaration of loading-completion and Request for dispatch of load
- Recording the details of detention for calculation of demurrage charges, if any
- Recording the details of verification (including weighment) in respect of Rating on FOIS installed and scrutiny of Railway Board notifications for charging load booked to Indian Railway
- Recording the details of application received for rebooking of load from party
- Recording the details of in respect of permission given for Rebooking of Load
- Railway trip operations - Inward trip movement
- Recording the details of Line Clear of up train or Foreign Power
- Recording the details warning for up train / foreign power
- Notifications and alerts to concern parties
- Recording the details of Line clearance
- Recording the details of nomination of line for receiving Up Train / Foreign Power
- Recording the details of Memo sent to TXR for Up train to be received to Railway
- Recording the details of path is set for up train / foreign power acceptance
- Recording the details of time of arrival of Up Train / Foreign Power
- Recording the details of verification of Up Train
- Recording the details of preparation of Up Train Guidance
- Alerts, notification to Controller for arranging engine for upload clearance
- Recording the details of path is set for light engine
- Recording the details of confirmation in system from Controller for orders in respect of light engine

- Recording the details of path is set for up train / light engine clearance to Depot
- System should have provision to display or relay the information to Controller about load / light engine dispatched
- Recording the details of transfer of foreign power to down yard
- Recording the details of confirmation in system about the orders in respect of foreign power
- Recording the details of path is set for foreign power to nominated line
- Recording the details of controller's order for planning of engine

C. Railway trip operations -Outward trip movement

- Recording the details of clearance of Down Load or Empties or Light Engine
- Recording the details of Movement of Engine
- Recording the details of arrangement of engine for clearance of Down load
- Recording the details of guidance for down load to be dispatched
- Recording the details of down load or empties connected to engine available
- Recording the details in respect of Line Clearance from Controller before dispatch of Down Load / Light Engine
- Recording the details of acceptance of Down Load for formation of Down Train
- Recording the details in respect of Down Load / Empties received
- Recording the details of verification and details of wagons weighed containing loose/bulk commodity
- Recording the details of notification to the concerned by issuing message and details thereof
- Recording the details of Shunting Memo for formation of train
- Recording the details of nomination of line for Marshalling of Train and its formation
- Recording the details of memo sent to TXR for examination of train
- Recording the details of message or notice for train ordered
- Recording the details of Down Train Guidance
- Recording the details in respect of memo received from TXR
- Recording the details of removal of sick wagons from Down Train ordered
- Recording the details in respect of Down Train made ready
- Recording the details of foreign power attached and Vacuum Testing Memo for Down train offered
- Recording the details of release of signal for dispatch of Down Train / Foreign Power
- Recording the details of Down Train / Foreign Power dispatched

Port Land / Storage Licensing

- Licensing process for Shed/Yard for storage of cargo inside the docks.

- Request/application for storage area and storage of cargo along with supporting documents
- Recording the System the discrepancy with reasons
- Approval / reject with reason application for space allocation
- Allotment of space at single/multiple location and storage area
- Amendment/ Renewal/extension of storage period and change of area
- Business conditions configurations for extension of period and demurrage etc
- Integration with ERP

Dredging

- Dredging operations by mechanical and hydraulic dredging
- Application for requesting the dredging services
- Accept or reject with reason application for dredging
- Integration with ERP for dredging equipment/dredger
- Progress or %age completion of job
- Bill/Invoice for dredging operations
- Able to provide a report of capital dredging and revenue dredging

Floating Craft Service Station

- Floating Craft roaster to meet the marine requirements
- Allocation of floating crafts for vessel movements
- Cancellation of allotment
- Floating Craft utilization log for various vessel movements
- Floating Craft movement tracking via mobile application

Uncleared cargo operations

- Sell the un-cleared cargo lying on shed after a certain period goods by offering them up for bid, taking bids, and then selling the item to the highest bidder.
- At the end of every shift, shed staff will update the system with undelivered/unclaimed cargo.
- Concerned authority will issue the notice to the cargo owner for removal/shipment/delivery of cargo.
- In case of no response from cargo owner, after the final notice, sale of cargo notice will be issued.
- After sale of cargo notice if there is no response from cargo owner, sale re-tally will be issued and forwarded to customs.
- Upon approval, Bill of Entry will be prepared in the system and forwarded to Special Disposal Cell of Customs.

- After the custom duty payment, auctioned goods will be allowed to transport out of port premise.
- Cargo status will be updated in the system.

PCS EDI Integration:

Interface with Indian IPA PCS for following Messages should be ready with API Connectivity

S. No.	Modules	Messge Name	EDI	Message Flow
1	Vessel	Vessel Profile	VESPRO	SA / SL to Port / Terminal
2	Vessel	Voyage Registration	CALINF	SA / SL to Port / Terminal
3	Vessel	Allotment of VCN	CALINV	Port / Terminal to SA / SL
4	Vessel	Berth Management	BERMAN	SA / SL to Port / Terminal
5	Vessel	Berth Allotment	BERALT	Port / Terminal to SA / SL
6	Vessel	Stowage Plan	STOPLN	SA / SL/SL to Port / Terminal
7	Vessel	Bay Plan	BAPLIE	SA / SL to Port / Terminal
8	Vessel	Stowage Instruction	MOVINS	SA / SL to Port / Terminal
9	Vessel	Re-Berthing	UNBERT	SA / SL to Port / Terminal
10	Vessel	Vessel Movement	VESDEP	Port / Terminal to SA / SL
11	Vessel	Terminal Performance RePort	TPFREP	Port / Terminal to SA / SL
12	Vessel	Pilot Memo Application	PLTMEM	SA / SL to Port / Terminal
13	Vessel	Pilot Memo Acknowledgment	ACKPLM	Port / Terminal to SA / SL
14	Vessel	Expected time of Arrival	ETAETD	SA / SL to Port / Terminal
15	Vessel	Pre Arrival Notification	PAISPS	SA / SL to Port / Terminal
16	Cargo	Agent Delivery Order	AGDORD	SA to Port
17	Container	Equipment Interchange RePort	EICREP	Terminal / Port to Sl
18	Container	Request for Carting Permission	CARREQ	CHA / Sl to Port / CFS

19	Container	Confirmation of Carting	CARCFN	CFS / Port to SL / CHA
20	Container	Job Order	JOBORD	CFS to Port / Terminal
21	TransPort	In land Way bill	COPINO	CONCOR to Port CONCOR to SA CONOCR to ICD
22	TransPort	Rail Receipt	RAILRE	CONCOR to Port CONCOR to SA CONOCR to ICD
23	TransPort	Removal Memo from Rake	RMLMEM	CONCOR to Port CONCOR to SA CONOCR to ICD
24	TransPort	Pendency of Containers	CONTPE	Port / Terminal to SA / SL/ Concor
25	TransPort	Train Schedule	RAILSC	CONCOR to Port CONCOR to SA CONOCR to ICD
26	Customs	IGM On Submission/Inward Entry	CHPOI03	Customs to Terminal / Port
27	Customs	Bill of Entry on submission	CHPOI09	Customs to Terminal / Port
28	Customs	Out of charge	CHPOI10	Customs to Terminal / Port
29	Customs	Transhipment Permit Approval	CHPOI13	Customs to Terminal / Port
30	Customs	Allotment of Rotation number	CHSA / SLE02	Customs to Terminal / Port
31	Customs	Shipping Bill Details	CHPOE05	Customs to Terminal / Port
32	Customs	LEO	CHPOE07	Customs to Terminal / Port
33	Customs	Goods Arrival at Port / Terminal	POCHE06	Customs to Terminal / Port
34	Customs	Vessel SA / SLiling RePort / Terminal	POCHE14	Customs to Terminal / Port
35	Customs	Consignment Arrival at Port / Terminal	POCHE17	Customs to Terminal / Port
36	Customs	Landing/ Tally RePort / Terminal	POCHI06	Customs to Terminal / Port
37	Customs	Excess Landed Cargo	POCHI07	Customs to Terminal / Port
38	Customs	Location of Cargo	POCHI08	Customs to Terminal / Port
39	Customs	Cancellation of Rotation No.	CHSAE04	Customs to Terminal / Port
40	Customs	Grant of Entry Inward	CHSAI02	Customs to Terminal / Port

41	Customs	Cargo Movement Approval	CHSAI15	Customs to Terminal / Port
42	Customs	Grant of Port / Terminal Clearance	CHSAE13	Customs to Terminal / Port
43	Customs	Details of Shutout Cargo	CHPOE09	Customs to Terminal / Port
44	Customs	Stuffing RePort / Terminal	CHPOE08	Customs to Terminal / Port
45	Customs	Grant of Entry Outward	CHPOE11	Customs to Terminal / Port
46	eDO & Gate Appointment	TransPort / Terminal Order	TPRORD	SL / CHA / SA to Port / Terminal / CFS
47	eDO & Gate Appointment	Equipment Interchange RePort	EIRMSG	Port / Terminal to SL / CHA / SA / CFS
48	Vessel	Agency Change	AGNCHG	SL / CHA / SA to Port / Terminal
49	Customs	Excess Landed Cargo Acknowledgement	CHPOI07A	Customs to Terminal / Port
50	Customs	Landing / Tally RePort / Terminal Acknowledgement	CHPOI06A	Customs to Terminal / Port
51	Customs	Location of Cargo - Acknowledgement	CHPOI08A	Customs to Terminal / Port
52	Customs	Detention / Release Order	CHPOI31	Customs to Terminal / Port
53	Customs	Container arrival at CFS	CFCHI17	Customs to Terminal / Port
54	Customs	Gate Pass	POCHI16	Customs to Terminal / Port
55	Vessel	VCN Link		
56	Finance	Payment Status	PAYSTS	SA / SL to Port
57	Cargo	Stowage Plan for Cargo	STPCGO	SA / SL/SL to Port / Terminal
58	Finance	Request for Vessel Assesment charges	REQVAC	SA / SL to Port
59	Finance	Request for Stevedore Assesment charges	REQSAC	SA / SL to Port
60	Finance	Request for Cargo Assesment Charges	REQCAC	SA / SL to Port

61	Finance	Request for Container Assesment Charges	REQCTC	SA / SL to Port
62	Finance	Request for Containerised Cargo Assesment Charges	REQCOC	SA / SL to Port
63	Finance	Conformation of Assesment Charges	CNFASC	Port to SA / SL
64	Finance	PD Balance	PDABAL	Port to SA / SL
65	Finance	Daily Summary	DLYSUM	Bank to Port

However, as per business confirmation of VPT, the other new messages also should be added from total no of messages already given by PCS1x are 98 messages list attached in annexure 1 and Unnati Portal messages attached in annexure 2 will be addressed during the initial Process study phase of the project and the software providers should provide the following Key features to be incorporated throughout the application.

Dashboard Implementation

A suitable informative and user friendly dashboard that displays key performance indicators (KPI) to monitor the business of the Port and help in taking day to day decisions should be provided. Total dashboards to be delivered are decided by VPT during implementation time of POS application as per the VPT management requirements and inputs also shared by VPT management

MIS Reports:

The Software providers should provide the below mentioned typical reports as a default in a proposed Port Operating System. However, these reports are indicative and during the Business process study phase few more additional reports will be discussed to configure as per the VPT management request without any Change request (CR) if already data available in proposed POS application. Otherwise, CR will be given as per the Man hours per Day calculation basis. Some of the standard MIS reports are

- Tonnage Handled
- PCS Message Exchanged
- Pilotage Movement
- Fortnightly Return Of Ships
- Berth wise Tonnage
- Voyage Operation Detail

- Vessel Performance Detail
- Turn Round Time-Vessel Wise
- Total Turn Round Time
- Pre-Berthing -Date Wise
- Total Pre Berthing Details
- Number & Size Of Ships
- Berth Occupancy
- Vessel Movement Query Date wise
- Naval/Costal Vessel Movement Query Date wise
- Vessel Productivity
- Vessel Produtivity_Web
- Vessel Arrived
- Date wise PreBerthing Details
- Traffic Pre Berthing Details
- Vessel Arrival/Shifted/Sailed Details
- Daily Traffic Report
- Vessels at Berth OA ETA
- Cargo Summary
- Work Detention Details
- Berth Utilisation Details
- Port Performance Report
- Terminal wise Container Vessel Reports
- Cargo Related Reports
- IGM/EGM Details
- Vessel wise Commodity
- Flag Wise Commodity Statement
- Flag Wise Summary
- Commodity Wise Summary
- Flag Wise Vessel Wise Summary
- Flag Wise Vessel Wise Statement
- Commodity Wise Flag Statement
- Commodity Wise Reg Imp/Exp
- Type Wise Summary
- Port Wise Commodity Statement
- Port Wise Commodity Summary
- Port Wise Flag Wise Commodity
- Port Wise Flag Wise Commodity Summary
- Flag Wise Vessel Wise Port
- Vessel Wise Commodity Summary
- Commodity Wise Quay Wise Statement
- Quay Wise Commodity Wise Statement
- Other BI reports as per the VPT management requirement

  There are no Change requests (CRs) are entertained if data available in POS database only

Applications

A. Service Portfolio

- Services Master with features like to add/delete/suspend for temporary duration/modify
- Tariff and contracts
- Configurable tariffs against the services mentioned
- Customer based tariffs like specific contracts
- Multiple tariffs for same services for different users
- Unit based and time based tariff
- Minimum and maximum rate tariff
- Configuration of service delivery model with sub services, resources and equipment's linked to main services

Weighbridge operations

- Request application from CHA / Importer / Exporter for allotment of weighbridge
- Approval or reject with reason application for allotment of weighbridge
- Allotment of weighbridge along with Entry/ Exit gates
- Planning the weighbridge for multiple shifts
- Recording the operational data from Weighbridge Operator (contracted by port) and revenue thereof.
- Integration to weighbridges (optional)
- Weighbridge plan to display all concern team
- Reconciliation and recover weighment charges as per SOR and provision to verify same before weighment.
- Recording of weighment and map with IGM/ Shipping Bill Item, Gate pass and generation of IGM/ Shipping Bill Item wise summary
- Generation of weighment slip showing gross/tare/net weight of each vehicle

Registrations

- Agent registration
- All vessels and voyage registrations
- Crew and craft registration
- Master data creation and maintenance at regular intervals (every month) for vessels, cargoes, ports,countries..etc.

Service Requisitions

- Service request for services via through port portal for certain or all services

- An auto-generated assessment of charges depending on services requested by the user.
- Each service request will have a unique Id to track the complete cycle
- Integration with portal to receive the service requests from users

Planning & Scheduling

- System should support Automatic berth allotment as per VPT berthing Policy
- System should support Gang allocation based on gang allocation rules of VPT

Operations

- System should have following business process in POS COTS solution in operations module
- Berth requisition
- Resource Requisition
- Berth, resource, shed availability
- Berth, resource, shed utilization
- Planning is like berth planning and resource planning.
- Allotment / allocation of berth and resources
- Vessel arrival details
- Vessel movements booking / requests like STA, STB, ATB, BTB, BTA, BTS, to record vessel berthing, unberthing shifting and wharfing
- Vessel movements within the port like STA, STB, ATB, BTB, BTA, BTS, to record vessel berthing, unberthing shifting and wharfing
- Single/multiple banking process
- Billing process for all vessel related charges i.e. Berth Hire charges, Stevedoring charges, container related charges - Container/Cargo Related Charges, Additional Berth Hire Charges, Double Banking etc.
- Billing process for operations charges like wharfage,
- Integration with ERP to check the payment details against the bill raised
- Vessel movements capturing which includes all facts like berthing timings, unberthing timings, shifting timings, wharfing timings etc. and resource details
- Vessel movements with different conditions like cold movement, night movement, Single/ multiple tug assistance, single / multiple pilot allocation etc.
- Vessel movement cancellation and calculation cancellation charges, if applicable
- Resource like tug, pilot availability and utilization
- Billing calculation for all vessel movements as applicable

Barge / IWT Operations

- System should have following business process in POS COTS solution for Barge / IWT Operations
- Barge registrations and renewal process
- Notifications for barge renewals / license expiry
- Barge operations like lighterage operations/loading/unloading to mother vessel
- Barge movements like berthing, unberthing, sailing out etc.
- Cargo loading / discharging operations
- Billing for all barge movements and operations
- Allocation / removing of barges to mother vessel

Craft Operations and Craft station operations

- System should have following business process in POS COTS solution for Craft Operations
- Allocation of crafts for vessel movements
- Cancellation of allotment
- Craft utilization log for various vessel movements
- Craft movement tracking via mobile application

Cargo Operations

System should have following business process in POS solution for general cargo Operations
- Import Operations
    - Import general manifesto
    - Import Application
    - Vessel Load/Discharge Sequence
    - Labour Request
    - Labour Allotment
    - Labour Deployment (In development)
    - Labour Written Form (In development)
    - Vessel Tally
    - Vessel Tally Mapping
    - Internal Shifting Request
    - Yard Delivery/Receipt (Shifting)
    - BE on Submission

- Out of Charge
- Delivery Order
- Bill of Coastal Goods
- Draft Survey
- Ullage Survey
- Shed DO
- Truck Entry Permit
- Cargo Gate Pass
- Truck Gate In
- Truck Weighment
- Yard Delivery (Instead of Truck Shed Operation)
- Truck Weighment
- Truck Gate Out

Billing calculation and invoice generation for all cargo operations like cargo handling, demurrages, licenses etc.

Export Process (Transit and Stock):

- Export Gate Open
- Shipping Bill
- Export Application
- Export Link
- Storage Request & Allotment
- Carting Permission
- Truck Entry Permit
- Cargo Gate Pass
- Truck Gate In
- Truck Weighment
- Yard Receipt (Instead of Truck Shed Operation)
- Truck Gate Out
- Let Export Order
- Allow for shipment (Export Ready Application)
- Internal Shifting
- Yard Delivery/Yard Receipt (Internal Shifting)
- Vessel Load Discharge Sequence
- Labour Request
- Labour Allotment
- Labour Deployment (In development)

- Labour Written Form (In development)
- Vessel tally
- Draft Survey
- Mate Receipt
- EGM
- Voyage Registration
- VCN Conversion
- Allotment of Rotation No
- VCN Link
- SB Conversion
- Internal Shifting Request
- Yard Delivery
- Yard Receiving
- Mate Receipt
- Import Operations
- IGM
- Import Application
- Vessel Load/Discharge Sequence
- Labour Request
- Labour Allotment
- Labour Deployment (In development)
- Labour Written Form (In development)
- Vessel Tally
- Vessel Tally Mapping
- Internal Shifting Request
- Yard Delivery/Receipt (Shifting)
- BE on Submission
- Out of Charge
- Delivery Order
- Bill of Coastal Goods
- Draft Survey
- Ullage Survey
- Shed DO
- Truck Entry Permit
- Cargo Gate Pass
- Truck Gate In
- Truck Weighment
- Yard Delivery (Instead of Truck Shed Operation)
- Truck Weighment

- Truck Gate Out
- Liquid Bulk Cargo Operations

Import Liquid Cargo

- Once the berthing is completed, Gangway is made ready
- Key meeting safety inspection
- loading arms contention to vessel
- Line packing Operation
- Discharge operation
- The following information is recorded along with operations
- All resources utilization
- Stoppages
- All activities commencement and completion timings
- Vessel completes discharge, which is remaining on board.
- Survey recording of the discharge quantity and remaining quantity.
- Loading Arms stripping Operation
- Disconnection of loading arms
- Pigging Operation
- NO DISPUTE CERTIFICATE from End User
- Port clearance certificate
- Unberthing Operation

Export Liquid Cargo

- Once the berthing is completed, Gangway is made ready
- Key meeting safety inspection
- loading arms contention to vessel
- Line packing Operation
- Loading operation
- All resources utilization
- Stoppages
- All activities commencement and completion timings
- Vessel completes loading which is remaining on board.
- Survey recording of the discharge quantity and remaining quantity.
- Loading Arms stripping Operation
- Disconnection of loading arms
- Pigging Operation
- No Dispute Certificate from End User
- Port clearance certificate

- Unberthing Operation

Rail Operations

Inward Rake Operations

- Rake Application
- Pre Arrival Information
- Rake Arrival Details
- TXR Release and Certification (After Arrival)
- Rail Weighment Details (For Inward it is optional)
- Rail Receipt Capturing (For Inward it is optional)
- Wagon Placement Details
- Declaration of Loading and Unloading
- Wagon Removal Details
- TXR Release and Certification (After Loading/Unloading-Optional)
- Wagon Formation Details
- Rake Diverted Details
- Derailment
- Rerailment
- Sick Wagon Placement
- Sick to Fit Certification
- Transhipment Wagon details
- Wagon Damages Details
- Placement of Newly Build Wagons
- Shunting Operation
- Under Charge and Error Sheet
- TXR Release and Certification (Before Departure)
- Rake Departure Details

Inward Rake Operations (back load operations)

- Rake Application
- Pre Arrival Information
- Rake Arrival Details
- TXR Release and Certification (After Arrival)
- Rail Weighment Details (For Inward it is optional)
- Rail Receipt Capturing (For Inward it is optional)
- Wagon Placement Details
- Declaration of Loading and Unloading
- Wagon Removal Details
- TXR Release and Certification (After Loading/Unloading-Optional)

- Declaration of Loading and Unloading   (If it is Back Loading)
- Wagon Removal Details (If it is Back Loading)
- Rail Weighment Details (If it is Back Loading)
- Rail Receipt Capturing (If it is Back Loading)
- Rake Diverted Details
- Derailment
- Rerailment
- Sick Wagon Placement
- Sick to Fit Certification
- Transhipment Wagon details
- Wagon Damages Details
- Placement of Newly Build Wagons
- Shunting Operation
- Under Charge and Error Sheet
- Wagon Formation Details
- TXR Release and Certification (Before Departure)
- Rake Departure Details

Outward Rake Operations

- Rake Application
- Pre Arrival Information
- Rake Arrival Details
- TXR Release and Certification (After Arrival)
- Wagon Placement Details
- Declaration of Loading and Unloading
- Wagon Removal Details
- TXR Release and Certification (After Loading/Unloading-Optional)
- Rail Weighment Details
- Rail Receipt Capturing
- Rake Diverted Details
- Derailment
- Rerailment
- Sick Wagon Placement
- Sick to Fit Certification
- Transshipment Wagon details
- Wagon Damages Details
- Placement of Newly Build Wagons
- Shunting Operation
- Under Charge and Error Sheet

- Wagon Formation Details
- TXR Release and Certification (Before Departure)
- Rake Departure Details
- Rake details exchange provision between FOIS and POS application through EDI & API integration

Signal Station Operations

- All communications from signal station to vessel movements, crafts, pilots will be recorded
- Interface with VTMS / VTS systems present at the port for exchanging information related to vessels, movements, etc.
- Alerts and notifications based on vessel movements

Crew Station Operations

- Crew station operations such as
- planning,
- scheduling and
- allocation of crew to various port movements and others
- Billing / invoice for crew services
- Tagging of crew to various movements and update dispatch and related details on real- time basis
- Crew details upload provision in POS application or crew/ passenger details updation from PCS1x through EDI& API integration

Navigational Assistance

- Mobile application to pilot
- Channel information, vessel to be handled/navigated information, berth information, anchorage information etc. to be provided on handheld
- Pilot can update the status of navigational equipment such as buoys, etc.
- Pilot can enter the navigation facts like start and completion timings

Shed Operations

- Tariff with the free days for combination of different sheds and cargoes for carting in reshipment / normal storage area
- Controlling non authorized entry by checking the entry permit details of the Exporter / CHA / Vessel Agent.
- Gate entry for factory stuffed containers
- Recording the details custom LEO copy of S/Bill and P.T. copy of S/Bill (duly paid) from the Exporter/CHA
- Process for issuing the "Let Move" Memo to Exporter/CHS
- Destuffing process for containers

- Gate entry process for Factory Stuffed containers
- Cargo storage process from container after destuffing
- Cargo delivery process based CHA request
- Import containers from other ports receiving, destuffing and delivery process
- Complete import process containers, bulk, break bulk at shed or open yard

Customer Portal:

To facilitate the seamless message exchange with Ports agents / external users VPT would like to propose a user-friendly customer portal, which should include the following key features / requirements.

Charges Assessment Calculator:
The users of the port will enter the required inputs against the intended services avail from the port then application should auto calculate as per Port tariff.

Live load and Discharge Information:
The live load and discharge information of vessel with quantity and expected cargo completion time to be updated on customer portal landing page, which should accessible to all VPT Customer Portal users without login.

Latest Vessel Position list:
The latest Vessel's positions of the port like Anchored, Berthed, Sailed and Departure arrival information to be available on customer portal landing page.

VPT Proprietory application documents:
The port defined VPT authorised documents should be available in customer portal landing page of the application in a downloadable format.

Ports Latest circular and Messages:
The Solution to provide message scroll ribbon on the customer portal application of the agents, which should be created by the admin login of the application to update latest notifications and alerts.

Custom Invoices:
The custom Invoice request feature to be provided in the application with required services to be chosen against the VCN and the agent code of the customer to whom the invoice to be raised.

Consolidated Payment Status Report / Information:
The application should provide a payment status / consolidated report against the services invoiced from Port finance team and payment transactions done through PCS on daily basis/ weekly basis/monthly basis

Common Functions

The system shall support certain common functions for all types of operations

1. Shift Working Report indicating amount of cargo discharged/ loaded through the tally sheet - productivity of the gangs, equipment and also the balance of cargo to be handled – delays in working and any special events. Direct links to EIS and Porterage section for calculation of the piece rates and incentives.
2. Out Turn indicating the actual cargo handled against the manifested quantity reconciling discrepancies.
3. Cargo Monitoring - to track and trace the status of a particular consignment through various queries.
4. Cargo Damages/ short landed/ short shipped / excess landed cargo
5. Detention of cargo – put on hold at bill of lading level, at voyage level or at party level.
6. Nonmoving cargo reports beyond pre-defined period
7. Grant of Permits for dangerous goods, explosives, radioactive material and noxious substances from the relevant approving authorities electronically
8. Grant of entry passes/ work permits for vehicles and labour
9. Gate Operations for export/ import/ transhipment etc.
10. Monitoring the gate movements – trucks – stay in port (ISPS requirements)
11. Private equipment operations within the port
12. Allotment, occupation, vacation and rental payments for temporary allocation of storage space/ office space.
13. Registration of Agents of all types electronically
14. Validations at all possible places in POS application
15. Monitoring the validity of license and give alert on expired license electronically

Integrated Application Performance Management

1. The proposed POS solution must comprehensively cover the following 5 dimensions of

application performance management:

1. End-user experience monitoring by capturing data on how end-to-end performance impacts the user, and identifies the problem.

2. Discovery of application architecture, modelling and mapping in run-time by discovering the software and hardware components involved in application execution, and their communication paths and establishing the potential scope of problems.

3.User defined transaction profiling by examining user-defined transactions, as they move across paths to identify the source of the problem.

4. Deep-dive in-context component monitoring to conduct deep-dive inspection of the resources consumed by, and events occurring within, the application components.

5. Application analytics including technologies such as behaviour learning engines – to crunch the data generated, discover meaningful and actionable patterns, pinpoint the root cause of the problem, and ultimately anticipate future issues that may impact the end user.

The proposed POS solution must be able to deliver all the above mentioned outcomes as part of one integrated user interface with no requirement to launch or access separate tools/screens. The information flow among all the modules should be in-context, correlated and seamless without the need to manually correlate and analyse data among multiple disparate tools.

The licensing model of the POS platform with integrated APM should be based on the number of application instances and not on the server host compute. The proposed POS solution should provide integrated APM with perpetual licensing models and it should be capable of working on cloud as well as on prem.

The proposed integrated POS with APM platform must support both Linux and Windows flavours for deployment of its core components (such as management server) and should not require any kind of "root access" or "root privilege" to deploy agents in the monitored applications. Proposed POS application is platform independence and able to access with any secure browser available in the digital world

The proposed POS solution with integrated APM should also have an option to identify network performance bottlenecks and app/network-interaction bottlenecks using an agent that resides on the java or .net application instance without needing any kind of network tapping or data capture appliances. The solution should be able to detect load balancers, TCP endpoints etc. and depict it on a dynamic network map. The solution should also be able to capture network KPIs such as throughput, latency, TCP Loss, SYN/FIN errors, client limited, client zero, TCP retransmission timeouts, server limited, server zero etc. in-context to the problematic application transaction with a provision to drill down from the application transaction to any correlated or contextual network metric.

The proposed POS solution with integrated APM should be able to auto discover experience journeys for the users and provide below details:

The proposed POS solution with integrated APM must be able to track web and mobile user sessions to analyze any user's behavior based on users unique ID. There must be a provision to query for a segment of users with similar behavior, such as from a specific geo location or visiting a specific page or using a particular device etc. The solution should also support a seamless ingestion of raw session data to an analytics engine to perform slicing and dicing on the data.

The proposed POS solution with integrated APM should be able to provide in context database monitoring and OS monitoring supporting wide array of RDBMS as well as NoSQL and provide auto correlation to application performance

The proposed solution with integrated APM must have a robust alert and respond engine that leverages multiple data inputs into analysis (app performance data, machine data, analytics data and user provided data), uses Boolean logic to combine multiple conditions through AND / OR logic, has capability to disable rule evaluation temporarily for predetermined maintenance windows, can trigger alerts or notifications when rules are violated (email, SMS or custom), can utilize complex logic to combine different metrics into one trigger/alert. Proposed POS application must be able to configure and provide MIS reports/BI reports for VPT management from the available data in POS database without any CRs (Change requests).

The proposed solution with integrated APM should provide mechanisms (API based or other methods) to take data feeds from various infra providers - cloud platforms, software defined data center and networking platforms as well as send data feeds and trigger actions into hybrid cloud management platforms, application resource scalability and optimization platforms and service management platforms of various Govt agencies/ Terminal Operators of VPT…etc during entire period of the tender contract without any further CRs(Change Requests) until , if any new data filed will be defined in the POS application. It should facilitate auto remediation of problems based on alert triggers and pertinent action workflows through these integrations.
The proposed POS application is able to prevent the Cyber attacks

Post Implementation Support

a) The POS Systems shall be under warranty for a period of one year from the date of operational acceptance of the complete system. The warranty support should be comprehensive which covers all the software offered and implemented as part of this tender.

b) The bidder should provide onsite support for a period of 6 months from the date operational acceptance of POS. The onsite support personnel appointed for the onsite support should be able to give necessary support and training for the efficient functioning of the system. He should be capable of attending to any issues related to the smooth functioning of POS.

c) Two copies of necessary System/Reference, Operation and User Manual should be supplied along with the soft copies of the same for operational acceptance of the system at no extra cost.

Annual Maintenance Support

The POS shall be under AMC for a period of four years from the date of expiry of the warranty period. The AMC support should be offsite and comprehensive which covers all the software offered and implemented as part of this tender. The contractor shall arrange onsite support also in case of such requirement. Technical team should be available at 24×7×365 at VPT premises

Roles and Responsibilities of the Contractor

i. Project Management

a) The contractor shall ensure that a senior support team manager (Project Manager) to provide consistent leadership and performance monitoring for effective support. The details of the Project team and task (Form VI) and Details of the Key personnel (Form VII) should be submitted by the bidder.

b) The contractor shall prepare weekly/monthly status reports and submit to the Project Manager of Visakhapatnam Port Trust.

c) The Project Manager of the contractor should be available for all review meetings.

d) Technical team should be available at 24×7×365 at VPT premises irrespective of public holidays during entire contract period

ii. Documentation

The successful bidder should maintain all the necessary documentation (i.e., Functional specs, Technical Specs, List of affected codes, Test scripts, Unit test plans, System Test plans etc) for any changes they perform in the system. Configuration documents, process flow documents and other documents.All these documents should be approved by Visakhapatnam Port Trust and a copy needs to be submitted by the bidder

iii. Training

The Contractor should provide necessary Training on the application to the end users before go live and during the warranty period to utilize the application properly and effectively by Visakhapatnam Port Trust. Training/Re training should be done as part of the software AMC/ATS without any additional cost. The training/Re training during the AMC period shall be for a maximum period of 10 days in a year.

The L1- bidder need provide certified level administrator training for VPT management nominated employee also on application data base and process flows installed at VPT for proposed POS application

iv. **Technical Support**

The consultants of the successful bidder will perform all type of monitoring and administrative activities like restarting POS servers, maintenance of system configuration, administration for Browser-Based User Dialogs, User Administration, Scheduling Background Tasks, Printer Connections, System Monitoring and Trouble Shooting, Backup procedure, Memory Management, System Load Verification, Database Overview and monitoring, DB Monitoring Tools, Recovery, DBA activity.

The successful bidder will perform above activities in Quality and production systems. They will also perform all the System Monitoring and health check activities for smooth running of the servers.

The contractor has to fix all vulnerabilities, if any, in the application software found based on the application audit conducted by Visakhapatnam Port Trust during the period of contract. Technical team should be available at 24×7×365 at VPT premises irrespective of public holidays during entire contract period

v. **Master Data Migration**

The contractor has to migrate all the Master data from the existing system to the new system to be hosted in the cloud either in raw form or in a summarized manner for generating statistical (Marine and Traffic) and financial (Billing/SOR) reports as well as for analysis purposes from the new POS.
And L1- tenderer will migrate entire existing POS application data into the proposed POS application within the tender cost only.

vi. **Recording / Tracking of Issues**

The consultants of successful bidder will use necessary tools for Incident management and recording/tracking of issues raised during support period.

vii. **Problem Management**

System outages are to be met with an immediate response, with continued effort until the issue is resolved. Events impacting a single work group or inconveniencing the entire organization, (for example, failed printing, or failure of a particular module) will be responded to within 2 hours, with resolution expected within 24 hours. Configuration/customization changes and transport requests will be addressed within 24 hours.

viii. **Change Management**

The change management in Visakhapatnam Port Trust is a predefined process which keeps track of all the changes carried out in the system through proper documentation and approval mechanism. The successful bidder, during this support phase, should follow the procedure for any Change in the system. All such changes depending on the type of requests would follow one of the below mentioned path of the change management process.

For changes pertaining to Customization, Configuration, new transactions / processes/ developments, Report generation/modification, Interface & Integration requirements required for implementation will be mutually agreed by both the successful bidder and Visakhapatnam Port Trust by way of Change Request procedure.

ix. **Change Request & Implementation Procedure**

a) **Change Request**

The change requirement from Visakhapatnam Port Trust will be intimated to the Contractor in the Change Request Form (**Form No IX**) by mail. The Project Manager or any other nominated person of the Contractor should intimate the methodology in which the change is going to be implemented in Visakhapatnam Port Trust along with the efforts in man days, time for implementation and the probable impacts of the change in the module or the entire system through Change Proposal in response to the Change Request given by Visakhapatnam Port Trust.

The Change management procedure should be as per the RICEFW (Report, Interface, Conversion, Enhancements, Forms and Workflow) method.

b) **Change Order& Valuation**

Visakhapatnam Port Trust in consultation with the contractor will arrive at a consensus in the man days requirement for the change. Visakhapatnam Port Trust will obtain a management approval for the financial implication to carry out the changes and a change order (**Form X**) with the financial implication as per the man day costs for the Change Request.

It is contractor's sole responsibility to ensure that there are no adverse impacts occurred in the application due to the changes if any, made in the system. Proper impact analysis has to be conducted by the contractor.

The changes on account of CR implementation should be tested by support team and subsequently UAT will be carried out by the end users in the Quality environment with the support of the contractors before they are moved to production.

c) **Operational Acceptance**

The contractor shall request for Operational Acceptance with respect to

Change Order, for payment in the next quarterly cycle. Necessary documentation for the changes has to be submitted by the Contractor. Besides, training if required, to the users shall be given by the contractor.

10.3 Testing, UAT, Transportation to production

The successful bidder should carry out Code review, System Integration Testing (SIT) of the process / module (including co-ordination with other vendors if required), Unit testing, Integration testing of components etc. They will also be responsible for conducting the User acceptance testing for the same where the users will participate.

Bug fixes/program changes will be tested by the support team and subsequently UAT (user acceptance testing) will be done by the end users in the Quality environment before they are moved to production.

System testing:

The MSP shall provide details of tests being carried out during the implementation (e.g. including conference room pilots, unit tests, System integration tests, Stress tests and final user acceptance test.)
MSP has to prepare a testing strategy document, which will include testing plans, schedules, content, training approach and methodology. Testing strategy should define the requirements and goals of POS configuration, determine the tools and methods used to check that the system responds correctly, determine how and when the test will be performed and recommend how the approval process should occur.

The test strategy document shall guide the project team through the implementation to ensure that planning and conducting testing activities in the various phases of POS implementation are proper.
The following testing should be done by MSP:
Unit Testing:
After development and customization/configuration of the POS solution, the MSP shall, conduct tests to demonstrate the readiness of the system which meets all the requirement specifications (functional and Non-functional) as brought out in this RFP.
On the basis of these tests, a report would be submitted by the Managed Service Provider for review and approval by VPT. MSP should perform following as a part of the scope:
Unit testing shall cover all the custom developed objects as part of configuration/customization phase.
This shall be tested thoroughly to make sure that the test results (output data) are correct, and reflect the business processes defined in the Business

blueprint report.

MSP shall perform a code review for each of the custom development as a part of quality procedure and submit it to VPT

Integration testing:

The purpose of the integration test is to execute the integrated components, including simulation of live operations, and analyse the results that are important for the functional verification of the production system.

Integration testing shall be accomplished through the execution of predefined business flows, or scenarios, that emulate how the system will run the processes of VPT These business flows, using migrated data from the existing systems, shall be performed in a multifaceted computing environment comprising of POS products, third-party software, system interfaces and various hardware and software components. Integration testing shall focus on cross-functional integration points, as well as end-to-end business processes.

Performance and load Testing:

MSP will be responsible for carrying out the performance and load testing of the developed application in a production like simulated environment arranged by MSP at its own cost. Various performance parameters such as transaction response time, throughput, hits per second and transactions per second etc. should be taken into account. Test cases along with test results to be shared with VPT. The MSP should use suitable simulation tools in accordance with the agreed test procedures keeping in view VPT's projected future load of transactional users as proposed by MSP and agreed by VPT

Security Testing (Penetration and Vulnerability testing):

The solution provided by MSP should be in compliance with security requirements as mentioned in the RFP including but not limited to security controls in the application, at the network layer, network, data centre(s), and security monitoring system deployed by the MSP and preventive tests of cyber-attacks .

The solution shall pass vulnerability and penetration testing for rollout of each phase. The solution should pass web application security testing for the portal and security configuration review of the baseline infrastructure.

MSP should carry out security and vulnerability testing on the developed solution. Security testing to be carried out in the exact same environment/architecture that would be set up for production. Security test report and test cases should be shared with VPT.

During Operation & Maintenance phase, penetration testing to be conducted on yearly basis and vulnerability. VPT will also involve third party auditors to perform the audit/review/monitor the security testing carried out by MSP. Cost for such auditors to be paid by VPT.

System Acceptance:
The MSP will develop acceptance test procedures for VPT approval. The purpose of this acceptance is to ensure conformance to the required process operations, response times, and integrity of the software after installation, and to eliminate any operational bugs. Acceptance testing has to be conducted in the test system with migrated data.

For this MSP ensure the completeness of following activities:

Fine tuning of the software, ensuring all required related software components are installed.All the acceptance tests should be carried out before Go-Live at site.
At the satisfactory conclusion of these acceptance tests, the implementation of the software shall be considered complete for migration and Go-live.

User Acceptance Testing

- MSP shall maintain a traceability matrix, to confirm that all the business and functional requirements as stated in Annexure of this volume of the RFP are met by the solution.
- MSP shall be responsible for the below mentioned activities as part of the testing:
- Unit testing of different modules of the solution Integration testing of the solution Functional testing
- Performance testing which includes load / stress testing
- MSP shall prepare test plans and test cases for testing and user acceptance.
- MSP shall prepare test data for testing and user acceptance. MSP shall ensure that they create data, which is similar to what VPT has both in terms of quality and volume.
- MSP shall setup a separate test environment for testing, which would be used for testing and quality check, before changes are pushed to the production environment.
- MSP shall perform testing and enable User Acceptance Testing (UAT), prior to Go-Live of each project phase.MSP shall get the Vulnerability Assessment (VA) and Penetration Testing (PT) and Application Security Audit conducted by CERT-In empaneled agency before

deployment/ Go-Live of each project phase. MSP shall be responsible for all payments to engage such agencies. MSP shall be required to make necessary changes in the SRS as well as other documents based on the changes made during testing and UAT.

- As part of FAT, all aspects of project development and implementation shall be reviewed. This will include software, hardware, network, solution architecture, high level and low-level design, coding, testing, implementation of business processes, project documentation, version control, change management, security, architectural requirements and compliance with all the business and functional requirements.
- MSP shall fix the bugs found during UAT.
- VPT reserves the right to engage a third party agency for Final Acceptance Testing (FAT) and certification after Go-Live of phase III of the project. MSP shall assist the third party agency in all activities undertaken as part of FAT. Any non-compliance reported shall have to be fixed by the MSP within the contractual period.

Service Conditions:

i. Support Levels

Implementation Support and application support must be 24×7×365. L1-bidder will make his arrangements for the application support of end users

a. Level 1 Support

Level 1 support team would receive the tickets and resolve if any solutions are directly available. Communications to users in all cases will be done proactively by Level 1. Telephonic support, email support or end user level support on their desk has to be provided by successful bidder as and when required. Level 1 team may record the issue reported through email or telephonically.

The support team will be responsible for detailed problem determination of issues. This detailed problem determination includes simulating the issues, determining the point of failure for the problem resolution.

All application support tickets, master data or transactional data related tickets will be handled at this level.

b. Level 2 Support

The level 2 support team will be expected to have the deepest level of application or product understanding. This team should understand both the standard application features as well as the detailed components of the customized features.

When bugs occur in the code or configuration, the level 2 support person will be responsible for making changes to system, transporting them, communicating the change to the level 1 support person, who can then resolve, test and close the user call.

For the more technical roles, this includes not only user calls/issues, but also those problems found by the proactive application monitoring being done on a regular basis by the level 1-support person. Therefore, the level 2 person may also have to apply patches, complete performance tuning, re-create tables or indexes, etc.

ii. The successful bidder will be responsible for Level 1 (Helpdesk, Process, Configuration, Integration and Testing) support and Level 2 (Code Change, Bug fixes) support for resolving problems and issues during the support period

iii. For level 1, level 2 support, adequate shared resources shall be made available by the successful bidder

iv. The proposed support scope shall cover the offices of Visakhapatnam Port Trust in <Address>

v. The successful bidder should provide contact numbers, email addresses, escalation matrix of the shared support team. Visakhapatnam Port Trust shall be kept informed well in advance in case any changes are being made in the contact details.

vi. The consultants deployed for the support services should have adequate experience to resolve the issues with respect to all modules. The bidder should submit the details of the consultants.

Severity & Resolution:

i. The successful bidder will adhere to the following Service Level Agreements (SLA) related to both the Level 1 and Level 2 support for the production problems

Sl No	Severity Levels	Description	Measurement and Reporting	Resolution Duration
1	Business standstill (Critical)	An application is unavailable and blocks the execution of the primary business process. No workaround is possible. A business-critical part of an application is not available. No workaround is	Monitored call reported monthly	Up to 24 Hours

		possible. Business-critical functions cannot be executed. No workaround is possible.		
2	Performance Degradation / Partial impact (High)	Important functions perform with response times that deviate significantly from the agreement. The user is able to work but is unable to achieve a normal productivity level due to the problem. Partial unavailability of system or components.	Monitored call reported monthly	Up to 72 Hours
3	Regular default category (Medium)	A non-business critical part of an application is unavailable. A workaround is not possible but the user is able to achieve a normal productivity level. The problem has few consequences for the user and workaround is possible. The majority of the functions operate normally.	Monitored call reported monthly	Up to 120 Hours
4	No immediate impact to business (Low)	The problem has few consequences for the user and there is a workaround. The application or its parts are used by a very few users & the unavailability will not affect business.	Monitored call reported monthly	Up to 240 Hours

ii. The "resolution duration" refers to the total number of clock hours within which the fault should be resolved, starting from the time of reporting to the Level 1 or Level 2 support contact person.

iii. If L1 bidder unable to resolve the issue within the specified time , VPT may impose a penalty based on the reputation damage and operational revenue loss occurred during that time. VPT management decision will be final that time.

It is pleasure to inform that , VPT has taken initiation for design , development and installation of new POS application for feeding, retrieving and obtaining MIS /BI reports of VPT management to take further course of action. in this regard, request you to submit a budgetary quotation for the scope of work attached herewith for period of 6 months for implementation of application , one year for stabilization period and five and half years at ATS/AMC support. and also provide technical details offered by your firm for new application design at i) UAT level ii) production level. on or before 08-10-2020