

**Date: 10-03-2018**

**Sub: Request for Proposal (RFP) for “Design, development, integration, implementation, operation and maintenance of Port Community System ver1x for Indian Sea Ports” Bid Reference # IPA/ICTD/PCS/1x/2018 dated 27.02.2018**

**1. Clause 2 of Volume 1 (Page 7)**

Please provide the list of all the Indian Sea Ports which will be included in the scope of PCS 1x.

Refer IPA PCS web site at <https://www.indianpcs.gov.in> (Link: About PCS at homepage of PCS). PCS 1x should be scalable to add any new ports in the future.

**2. Clause 2.2.2 Consortium of Firms of Volume 1 (Page 13)**

ix. (bullet point 6) In case of any dissatisfaction or default on part of the lead bidder, Consortium members would provide the level of support desired by IPA without any financial liability

**To be read as**

“In case of any dissatisfaction or default on part of the lead Bidder, Consortium members would provide the level of support desired by IPA without any financial liability as per the role defined in the MoU/agreement.

**3. Clause 2.3 Sub-Contracting of Volume 1 (Page 13)**

Sub-contracting would be subject to the following conditions:

- i. All sub-contracting arrangements must form part of the bid.

**To be read as**

Sub-contracting would be subject to the following conditions:

- i. All sub-contracting arrangements must form part of the bid and be indicated in the bid.
- ii. All sub-contracting contracts must be entered into by the bidder / lead bidder before award of project by IPA.

**4. Clause 4.6 Tender Evaluation Schedule of Volume I (Page 29)**

**point A6.** IPCSA+ISO 27001+SEI CMM Level 5 shall be read as IPCSA+ISO 27001+SEI CMM Level 3

**5. Clause 6.1 Payment components of Volume 1 (Page 41)**

**Shall be read as**

No	Milestones	% of stage payments	Remarks
1	Completion of system study with recommendations for process optimization – submission	5	
2	Proto type of the design of the proposed community system – acceptance of the design by the stakeholders	5	
3	Setting up Cloud space/Development environment and subsequent migration of existing PCS 1.0 functionality to Cloud	25	Parallel activity
4	Development , integration and implementation of the value added solution	20	-do-
5	Completion of UATs	10	
6	Training	10	
7	Completion of Go Live	25	
8	Operations & Maintenance (O&M)		At actuals as quoted.
a	Application Support – Successful Performance		Every quarter
b	Central Helpdesk		Every quarter
c	Facility Management		Every quarter
d	Cloud Services		Every quarter

**6. Clause 8.5 Tender Evaluation Schedule of Volume I (Page 29)**

Revenues from PCS Operations (in millions) to be read as “Revenues from PCS Operations (in millions) in INR”

**7. Clause 8.6 PQ Form 6 of Volume I (Page 53)**

Refer Annexure B

**8. Clause 8.5 Tender Evaluation Schedule of Volume I (Page 29)**

Revenues from PCS Operations (in millions) to be read as “Revenues from PCS Operations (in millions) in INR”

**9. Clause 8.19 of Volume I (Page 70)**

Heading is as modified as "8.19 Tech Form 12 - Format for Power of Attorney for Lead Bidder of Consortium" and

Para three shall be read s

Whereas, it is necessary for the members of the Consortium to designate one of them as the **Lead** Bidder with all necessary power and authority to do, for and on behalf of the Consortium, all acts, deeds and things as may be necessary in connection with the Consortium’s RFP response for the Project.

**10. Clause 9.1 Sample Form Volume 1: Tripartite agreement for Cloud Service Provider Changes – 9.1 Sample Form 1 is deleted.**

**11. Clause 10.2 10.2 Summary of Commercial Proposal (in Table) of Volume I**

Refer Annexure C

**12. Volume 2 - Clause 2 (Scope of work project) of point 2 shall be read as**

Prepare a cloud migration roadmap for PCS 1.0 and implement the same. The cloud solution should meet the following criteria:

- a. Facilitate for seamless migration of the existing Application hosting from NIC Datacenter to a MeitY Certified Cloud Service provider with DR capabilities as per the SLA and deliverables on various aspects of Uptime of Infrastructure, Application, Connectivity, Information Security & Compliance, etc.;
- b. Bandwidth guidelines for access of the PCS 1.0 application for locations of IPA to the chosen MeitY Certified Cloud Service provider.
- c. Solution should have Onsite and Offsite proper backup mechanism with a mechanism for restoring data to check the backup consistency as per scope of work.
- d. All licenses shall be procured for IPA by successful bidder and shall be used for the purpose of PCS. The responsibility of procurement of all services and licenses shall rest with the successful bidder and will be transferred to IPA, who will be the owner.

**13. Volume 2 - Clause B Software Components under d.cloud (Primary and DR site)**

The clause shall be read as

The overall deployment landscape for the port community system 1x will include two sites including the

- a) Primary Data Site (cloud based)
- b) Disaster Recover Site (cloud based)

Bidder is responsible for Disaster Recovery Services so as to ensure continuity of operations in the event of failure of primary data center of the PCS 1x and meet the RPO and RTO requirements. The bidder should offer dashboard to monitor RPO and RTO of cloud infrastructure and systems

In the event of failure of cloud primary site, the Bidder would be required to switch over to DR site within the prescribed service levels (including RTO and RPO). The bidder shall be required to ensure the availability of all business systems and data required to ensure continuity of port community operations. In the event of failure of primary link, the bidder would be required to switch over to secondary link. In the event of unavailability of both links, the bidder is required to undertake the following activities:

- o Issue notification and alerts to the users to indicate unavailability of primary and secondary links

- Coordinate with CSP to resume business-as-usual activities within defined service levels

The IT continuity plan established should be planned such that the business users should not be impacted in the failover plan. The IT continuity plan presented below describes the proposed activities, RTO/RPO requirements and responsibilities of the bidder;

	Scenario	Proposed action	RTO / RPO
1	Primary site is unavailable	1) Switch over to DR site	RTO – 2 hours RPO – 15 minutes
2	Disruption in primary link	2) Switch over to secondary link	RTO – 5 minutes
3	Disruption in primary and secondary network links	Port users to switch over to GPRS-based internet connectivity through dongles	Immediate

- Meet the ever evolving security requirements as specified by CERT-In (<http://www.cert-in.org.in/>)  
If required, further details can be obtained from IT department of IPA.

14. **Volume III - Clause 4.2.b. Conditions Precedent of IPA** shall be read as

IPA shall be required to fulfil the Conditions Precedent which are as follows:

- (i) Handing over of site; and
- (ii) Necessary clearances (if any);
- (iii) Approval of the Project by a Competent Authority, etc.
- (iv) Handing over of source code of existing PCS 1.0

15. **Volume III - Clause 21.1 of RFP (Page 35)**

Sub clause L is deleted

16. **Table under 3.4.1 Sr. No. 1: PQ Form 8**

Refer Annexure C for revised PQ Form 8

17. **Schedule II-Change Control Schedule Volume III (Page no 50)**

The Schedule Manpower rate structure to be part of commercial proposal 10.2 of vol.1 page 86. - Refer Annexure D

18. **Clause 3.4.1 of Volume I (Page 21)** Table Shall be read as

Section #	Category	Response
1.	Response to Pre-Qualification Criteria	<ul style="list-style-type: none"> <li>● PQ Form 1 - Supporting Information for Pre-Qualification Conditions</li> <li>● PQ Form 2 - Certificate of Conformity/ No Deviation</li> </ul>

Section #	Category	Response
		<ul style="list-style-type: none"> <li>• PQ Form 3 - Financial Capability</li> <li>• PQ Form 4 - Proforma for EMD</li> <li>• PQ Form 5 - Details of Experience of Bidder in Various projects</li> <li>• PQ Form 6 - Format for Consortium Agreement</li> <li>• PQ Form 7 - Details of ineligibility for corrupt or fraudulent practices / blacklisted with any of the Government or Public Sector Units or Local Governments</li> <li>• PQ Form 8 - Manufacturers Authorization Form (For any products being offered)</li> <li>• Copy of Certificate of Incorporation</li> <li>• Extracts from the audited Balance sheet and Profit &amp; Loss statements for FY, 2014-15 and 2015-16 and 2016-17</li> <li>• Documentary evidences for Bidder's experience</li> <li>• Proof of IPCSA membership</li> <li>• Demand Draft of Tender fees</li> <li>• Tech Form 12 - Power of Attorney / Authorization letter</li> </ul>
2.	Technical Bid	<ul style="list-style-type: none"> <li>• Tech Form 1 - Technical Bid - Covering Letter</li> <li>• Tech Form 2 - Particulars of the Bidder (please fill separate sheet for each consortium members)</li> <li>• Tech Form 3 - Profile of Proposed Resources</li> <li>• Tech Form 4 - Technical Solution</li> <li>• Tech Form 5 - Approach &amp; Methodology</li> <li>• Tech Form 6 - Project Plan &amp; Deployment of Personnel</li> <li>• Tech Form 7 - Format of Deployment of Personnel</li> <li>• Tech Form 8 - Unpriced Bill of Material</li> <li>• Tech Form 9 - Details of Experience of Bidder in Various projects</li> <li>• Tech Form 10 - Manufacturers Authorization Form (For Hardware Equipment)</li> <li>• Tech Form 11 - Format for Power of Attorney to Authorize Signatory</li> <li>• Tech Form 12 – Format for Power of Attorney for Bidder of Consortium</li> <li>• Tech Form 13 – Compliance for Requirement Specifications</li> </ul>

Section #	Category	Response
3.	Commercial Bid	<ul style="list-style-type: none"> <li>Commercial bid/proposal as per the pre-defined format</li> </ul>

19. **Clause A5 of Volume I (Page 32)** shall be read as

The bidder / any member of the consortium must have experience in designing, developing and integrating mobile applications on diverse platforms (Android, iOS, Windows, etc.) during the last seven years.

“20 marks will be awarded for each mobile project subject to a maximum of 4 projects for a total score of 80”

20. **Clause A6 of Volume I (Page 32)** shall be read as

a. Bidder/any member of consortium being a member of IPCSA

b. Bidder/any member of consortium being ISO 27001 Standard certified

c. Bidder/any member of consortium being minimum of CMMi-Level 3 standard certified

(For Level 3 – 10, Level 4 – 15 & Level – 20)

21. **Clause 4.6 Technical Bid Evaluation of Volume I (Page 36)**

The following

“Wherever self-certification or certification by statutory auditor has been submitted by the bidder and he happens to be successful bidder, he has to produce either work order or agreement or certification from the client for the purpose “

shall be read as

“Wherever self-certification not certified by statutory auditor has been submitted by the bidder and he happens to be successful bidder, he has to produce either work order or agreement or certification from the client for the purpose”

22. **Request for Proposal Data Sheet of Volume I (Page 7)**

The following

Last date and time (deadline) for receipt of proposals in response to tender notice is 19.03.2018 15:00 HRS

shall be read as

Last date and time (deadline) for receipt of proposals in response to tender notice is 22.03.2018 15:00 HRS

## **Annexure - A**

### **PCS 1x Project Schedule**

Milestone Activity	Timeline
Bid Award	T
Completion of system study with recommendations for process optimization and Submission of the report	T + 2 Weeks
Design and submit Proto-type of the proposed community system to the Stakeholders	T + 3 Weeks
Setting up Cloud space/Development environment and subsequent migration of existing PCS 1.0 functionality to Cloud ( including UAT + Training )	T + 15 Weeks
Development , Integration and Implementation of the value added solution ( including UAT+Training)	T + 25 Weeks
Go-Live	T + 30 Weeks
Operation and Maintenance (O&M )Phase*	2 Years after Go-Live

**\*O&M phase can be extended by maximum of three more years at the same rate quoted by the bidder at the discretion of IPA subject to satisfactory performance of the bidder during initial two year of O&M phase.**

**Annexure – B**

**8.6 PQ Form 6 - Format for Consortium Agreement**

**<<On non-judicial stamp paper of appropriate value to be purchased in the name of executants companies or as required by the jurisdiction in which executed>>**

This Consortium Agreement executed on this ..... day of..... Two Thousand ..... By:

M/s. ....a Company incorporated under the laws of.....and having its registered office at..... (Hereinafter called the “Bidder” which expression shall include its successors);

And

M/s. .... a Company incorporated under the laws of .....and having its registered office at..... (Hereinafter called the “Second Member of the consortium” which expression shall include its successors)

And

M/s. .... a Company incorporated under the laws of .....and having its registered office at..... (Hereinafter called the “Third Member of the consortium” which expression shall include its successors)

The Bidder the Second Member and the Third Member shall collectively hereinafter be called as the “Consortium Members” for the purpose of submitting a proposal (hereinafter called as “Bid”) for the work of .....(Name of project) of IPA (hereinafter called the “Owner”) in response to Request for Proposal Document (hereinafter called as “tender” Document) Dated..... for the purposes of submitting the bid no. ....and entering into a contract in case of award for the work of ..... (Name of work).....

WHEREAS, the Owner invited bids vide its tender document no. ....for the work of.....AND WHEREAS as per document, Consortium bids will also be considered by the Owner provided they meet the specific requirements in that regard.

AND WHEREAS the bid is being submitted to the Owner vide proposal dated ..... based on the Consortium Agreement and the bid with its forms and submission documents, in accordance with the requirement of tender conditions and requirements have been signed by all the partners and submitted to the Owner.

AND WHEREAS Clause <> of tender document stipulates that a Consortium of maximum <3> companies, meeting the requirements stipulated in the tender document may submit a Proposal

signed by Lead Member of the Consortium Members known as Lead Bidder so as to legally bind the Lead Bidder to be liable for the performance and all obligations thereunder to IPA and duly signed Consortium Agreement shall be attached to the Proposal.

NOW THEREFORE, in consideration of the mutual covenants of the members of the Consortium, the sufficiency whereof is hereby acknowledged and other good valuable consideration, we agree as follows:

1. We the members in the Consortium hereby confirm that the name and style of the Consortium shall be..... Consortium.
2. M/s. ....shall act as Lead Member for self, and for and on behalf of M/s ..... (Second Member) and ..... (Third Member) and further declare and confirm that we shall jointly and severally be bound unto the Owner for the successful performance of the obligations under the Request for Proposal (tender) and resulting Contact Agreement(s) submitted / executed by the Lead Member in the event of the selection of Consortium. Further, the Lead member is authorized to incur liabilities and receive instructions for and on behalf of any or all partners of the consortium.
3. The composition or the constitution of the consortium shall not be altered without the prior consent of IPA.
4. The roles and responsibilities of the lead bidder and the other members of the consortium for execution of various components/activities as defined in the tender document shall be as under:

S. No.	Project Component/Activity	Roles&Responsibilityof Lead Bidder	Roles& Responsibility of Second Member	Roles & Responsibility of Third Member
1				
2				
3				
4				

5. It is expressly agreed by the members that the lead member shall be held responsible for the specific roles/responsibilities undertaken by other members of the consortium.
6. For the purpose of this Agreement, the tender Document and the Contract, the lead bidder shall be the single point of contact for the IPA, shall have the overall responsibility of the management of the Project and shall have single point responsibility for ensuring that all members of the consortium are complying with the terms and conditions set out in the Contract and the tender Document.
7. If IPA suffers any loss or damage on account of any breach in the stipulation of the Agreements to be entered into by the Consortium Members, upon its selection pursuant to tender (the "Agreements") or any shortfall in the performance of the Transaction or in meeting the performances guaranteed as per the tender and the Agreements, the Consortium Members hereby jointly and severally undertake to promptly make good such loss or damages caused to IPA on its demand without any demur or contest. The Owner shall have the right to proceed against anyone of the partners and it shall neither be necessary nor obligatory on the part of

- the Owner to proceed against the Lead bidder before proceeding against or dealing with the other Member.
8. The financial liability of the Consortium Members to the IPA, with respect to any of the claims arising out of the performance or non-performance of obligations under the tender and the resulting Agreement(s) shall not be limited so as to restrict or limit the liabilities of any of the Members.
  9. It is expressly agreed by the Members that all the due payments shall be made by the Owner to Lead Bidder only.
  10. This Consortium agreement shall be construed and interpreted in accordance with the laws of India and the Courts of Delhi shall have the exclusive jurisdiction in all matters arising there under.
  11. It is also hereby agreed that the Lead Bidder shall, on behalf of the Consortium shall submit the Bid and performance Security as specified by owner in the tender document.
  12. It is further agreed that this Consortium Agreement shall be irrevocable and shall continue to be enforceable till the same is discharged by IPA
  13. This Agreement shall come into force as of the date of signing and shall continue in full force and effect until the complete discharge of all obligations, concerning the carrying out of the Project, which have been taken on by the Parties under the Contract, tender Document and under this Agreement.
  14. Any other terms and conditions not in contradiction to the tender and above mentioned terms and conditions.

IN WITNESS WHEREOF, the Members to the Consortium agreement have through their authorised representatives executed these presents and affixed common seal of their companies, on the day, month and year first mentioned above.

<p>Common Seal of.....has been affixed in my/our Bidder presence pursuant to Board of Director's resolution dated .....</p> <p>1) Witness</p> <p>2) Witness</p>	<p>For and on behalf of M/s.....</p> <p>(Bidder)</p> <p>(Signature of authorized representative ) Name:</p> <p>Designation:</p>
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<p>Common Seal of.....has been affixed in my/our Bidder presence pursuant to Board of Director's resolution dated .....</p> <p>1) Witness</p> <p>2) Witness</p>	<p>For and on behalf of M/s.....</p> <p>(Second member)</p> <p>(Signature of authorized representative ) Name:</p> <p>Designation:</p>
<p>Common Seal of.....has been affixed in my/our Bidder presence pursuant to Board of Director's resolution dated .....</p> <p>1) Witness</p> <p>2) Witness</p>	<p>For and on behalf of M/s.....</p> <p>(Third member)</p> <p>(Signature of authorized representative ) Name:</p> <p>Designation:</p>

**Annexure C**

**10.2 Summary of Commercial Proposal**

#	Component	Unit Rate A	Total price during implementation	Total price during Operations and Maintenance (O&M)*		Total O&M price	Total Amount	Total Amount in Words
			B	Year 1	Year 2	C = (Year1+Year2)	D=B+C	
1	Migration of PCS 1.0 functionality to Cloud Environment	X		X	X			
2	Development of Value added Services	X		X	X			
3	O&M Phase	X	X	X	X	X	X	X
3a	Cloud Services	X	X				X	X
3b	Application Support	X	X				X	X
3c	Facility Management	X	X				X	X
3d	Central Helpdesk	X	X				X	X
3e	Sub Total (O&M)	X	X					
4	Training & Capacity Building	X		X	X			
5	Change Request (500 Person Days)**		X					
6	Other Items							
7	<b>Total (Sum of components)</b>	X						
8	<b>GST /Applicable Taxes</b>							
9	<b>Grand Total i.e. Contract price inclusive of all taxes</b>							

**\*O&M phase can be extended by maximum of three more years at the same rate quoted by the bidder at the discretion of IPA subject to satisfactory performance of the bidder during initial two year of O&M phase.**

**Sr. 9 will be considered for commercial evaluation**

Authorised signatory on behalf of the bidder:

Full name: .....

Address: .....

Seal of the Firm:

## Annexure D

### **Operations and Maintenance for two (2) years post Go-Live (Part of Volume 2)**

Bidder will operate and maintain all the components of the envisaged system for a period of two (2) years after Go-Live date. During O&M phase, Bidder shall ensure that service levels are monitored on continuous basis; service levels are met and are reported to IPA.

Following is the broad scope for maintenance and support functions with regard to software.

#### **1. Application Software Maintenance:**

- a. Application support includes, but not limited to, production monitoring, troubleshooting and addressing the functionality, availability and performance issues, implementing the system change requests etc. The Bidder shall keep the application software in good working order; perform changes and upgrades to applications as requested by the IPA team. All tickets related to any issue/complaint/observation about the system shall be maintained in an ITIL compliant comprehensive ticketing solution.
- b. The Bidder shall address all the errors/bugs/gaps in the functionality offered by solution (vis-à-vis the FRS & SRS signed off for Project) at no additional cost during the operations & maintenance period.
- c. All patches and upgrades from OEMs shall be implemented by the Bidder ensuring customization done in the solution as per the IPA's requirements are applied. Technical upgrade of the installation to the new version, as and when required, shall be done by the Bidder. Any version upgrade of the software / tool / appliance by Bidder to be done after taking prior approval of IPA and after submitting impact assessment of such upgrade.
- d. Any changes/upgrades to the software performed during the support phase shall subject to the comprehensive and integrated testing by the Bidder to ensure that the changes implemented in the system meets the specified requirements and doesn't impact any other function of the system. Release management for application software will also require IPA's approval. A detailed process in this regard will be finalised by Bidder in consultation with IPA.
- e. Issue log for the errors and bugs identified in the solution and any change done in the solution shall be maintained by the Bidder and periodically submitted to the IPA.

- f. Bidder, at least on a monthly basis, will inform IPA about any new updates/upgrades available for all software components of the solution along with a detailed action report. In case of critical security patches/alerts, the Bidder shall inform about the same immediately along with his recommendations. The report shall contain Bidder's recommendations on update/upgrade, benefits, impact analysis etc. The Bidder shall need to execute updates/upgrades through formal change management process and update all documentations and Knowledge databases etc. For updates and upgrades, Bidder will carry it out free of cost by following defined process.
- g. Bidder to upgrade the system if any latest version of software is available either nationally or internationally within 45 days of launch in India or 12 months from launch internationally or as agreed with IPA. All updates and patches will be provided at no extra cost to IPA.

If IPA decides to opt for upgrade of the system, any additional effort required for the Bidder associated with the required upgrade will be validated and approved by IPA or IPA appointed independent Experts' Committee.

## **2. Annual Technology Support:**

- a. The Bidder shall be responsible for arranging for annual technology support for the OEM products to IPA provided by respective OEMs during the entire O&M phase.
- b. For performing of any functional changes to system that are deviating from the signed-off Functional Requirements/System Requirements, a separate Change Control Note (CCN) shall be prepared by Bidder and the changes in the software shall be implemented accordingly at no additional cost to IPA. The time period for implementation of change shall be mutually decided between Bidder and IPA.
- c. It is clarified that changes in software, hardware and other infrastructure required as a result of any legislative, administrative, policy changes in the business process and workflow shall not constitute change of 'Scope of Work'. The changes, if any, shall therefore fall under the CCN and not CNS. Further, such changes which are required to be done across all ports will have to be treated as one change request.

Bidder shall provision for an additional effort of 500 person days to handle any change requests to be carried out after GO-LIVE. No payments shall be made to Bidder against such change requests.

The bidder shall quote this price as a separate line item under 10.2 (volume 1) component and shall be considered during commercial evaluation. The decision on the

effort requirement as per the change requests shall be as defined under Change Control. This unit rate (blended) discovered shall be applicable for subsequent change requests till the end of contract. However, the payment on this account will be made on the basis of actual consumption of person days.

An internal mechanism by framing a committee will be in place to decide about the change request process after a Change Request is initiated by the user or Bidder.

- d. In case there is a change request in the scope of work, the Bidder shall prepare the “CNS (change note on scope of work)” and get it approved by the IPA for the additional cost, effort and implementation time.
- e. The decision of IPA on change being a CCN or CNS would be final & binding on Bidder.

### **3. Problem identification and Resolution:**

- a. Identification and resolution of application problems (e.g. system malfunctions, performance problems and data corruption etc.) shall be part of Bidder’s responsibility.
- b. The Bidder shall also be responsible to rectify the defects pointed out by the designated agency of IPA and carry out the enhancements suggested by the agency, as a result of the Field Assessments carried out by the agency, during the O&M period. This shall be at no additional cost to the IPA, in so far as the enhancements relate to items of work falling within the purview of the defined Scope of Work for Bidder.
- c. Resolution of incidents/problem logs created by the users of the application in the PCS Helpdesk.

### **4. Software Change & Version Control**

- a. All planned changes to application systems shall be coordinated within established Change Control processes to ensure that:
  - i. Detailed impact analysis
  - ii. Appropriate communication on change required has taken place
  - iii. Proper approvals have been received
  - iv. Schedules have been adjusted to minimize impact on the production environment
  - v. All associated documentations are updated post stabilization of the change
  - vi. Version control maintained for software changes
- b. The Bidder shall define the Software Change Management & Version control process and obtain approval for the same from IPA. For any changes to the software, Bidder has to prepare detailed documentation including proposed changes, impact to the system in

terms of functional outcomes/additional features added to the system etc. Bidder is required to obtain approval from IPA for all the proposed changes before implementation of the same into production environment and such documentation is subject to review at the end of each quarter of operations & maintenance support.

**5. Maintain configuration information:**

Maintain version control and configuration information for application software and any system documentation.

**6. Maintain System documentation:**

Bidder shall maintain at least the following minimum documents with respect to the IPA PCS1x:

- a. High level design of whole system
- b. Low Level design for whole system / Module design level
- c. System requirements Specifications (SRS)
- d. Any other explanatory notes about system
- e. Traceability matrix
- f. Compilation environment
- g. Maintain and update documentation of the software system. Ensure that:
- h. Source code is documented
- i. Functional specifications are documented
- j. Application documentation is updated to reflect on-going maintenance and enhancements including FRS and SRS
- k. User manuals & training manuals are updated to reflect on-going
- l. Changes / enhancements
- m. Standard practices are adopted & followed for version control and management.

**7. Compliance to Standards and Certifications:**

- a. For a large set up as envisaged by IPA, it is imperative that the highest standards applicable are adhered to. In this context, the Bidder will ensure that the entire solution setup is certified and is in compliance with the applicable standards.

- b. Bidder must design the system following open standards, to the extent possible and in line with the requirements described in this RFP, in order to provide for interoperability with multiple platforms and other initiatives/projects of IPA and participating Ports.
- c. The solution has to be compliant with industry standards wherever applicable. This will apply to all the aspects of solution including but not limited to design, development, security, installation, and testing. There are many standards that are indicated throughout this volume as well as summarised below. However the list below is just for reference and is not to be treated as exhaustive.

<b>Component / Application / System</b>	<b>Prescribed Standard</b>
Workflow Design	WFMC / BPM Standard
Portal Development	W3C Specification, GIGW
Information Access/Transfer Protocols	SOAP, HTTP/HTTPS
Interoperability	Web Services, Open Standard
Scanned Documents	TIFF (Resolution of 600 X 600 dpi)
Document Encryption	PKCS specification
Information Security	ISO 27001 certified system
Operational Integrity & Security Management	ISO 27002 certified system
Operation	ISO 9001 certified
IT Infrastructure Management	ITIL/ EITM specification
Service Management	ISO 20000 specifications or latest
Project Documentation	IEEE/ISO specifications for documentation

**8. Administration of System, Database and Network**

- a. Bidder will be required to perform tasks including but not limited to setting up servers, configuring and apportioning storage space, setting up of e-mail accounts and mailing lists, management and integration of databases, implementing security on the Internet / Intranet,

- setting up of firewalls and authorization systems, performing periodic backup of data and automating reporting tasks, and executing hardware and software updates when necessary in accordance with guidelines as specified by the IPA/Port.
- b. The Bidder shall be responsible for tasks including but not limited to setting up servers, configuring and apportioning storage space, account management, performing periodic backup of data and automating reporting tasks, and executing hardware and software updates when necessary.
  - c. The Bidder shall provision skilled and experienced manpower resources to administer and manage the entire IT Infrastructure solution at the Cloud enabled Data Centre.
  - d. Bidder may be required to assist the system users in performing periodic health check of the systems, troubleshooting problems, analyzing and implementing rectification measures.
  - e. The Bidder shall implement and maintain standard operating procedures for the maintenance of the IT infrastructure based on the policies formulated in discussion with Port/IPA and based on the industry best practices / frameworks. The Bidder shall also create and maintain adequate documentation / checklists for the same.
  - f. The Bidder shall be responsible for managing the user names, roles and passwords of all the relevant subsystems, including, but not limited to servers, other devices, etc. The Bidder will be required to set up the Directory server
  - g. Bidder should be responsible for identification, diagnosis and resolution of problem areas pertaining to the solution and maintaining assured SLA levels.
  - h. The Bidder shall be responsible for management of passwords for all relevant components and devices under his purview and implement a password change mechanism in accordance with the security policy formulated in discussion with Purchaser and based on the industry best practices / frameworks like ISO 27001, ISO 20000 etc.
  - i. The administrators will also be required to have experience in latest technologies like virtualisation and cloud computing so as to provision the existing and applicable infrastructure on a requirement based scenario
  - j. Bidder may be required to manage the user names, roles and passwords of all the relevant systems, including, but not limited to servers, applications, devices, etc. Bidder may be required to manage passwords for all relevant components and devices under their purview and implement a password change mechanism in accordance with the security policy of the Ports/IPA. User account management includes and is not limited to:

- a. Setting up new user accounts for all system users
- b. Granting access and review
- c. Removal of user accounts
- d. Password management
- e. Access to OS, databases and applications
- f. Monitoring access and usage
- g. Loggings
- h. Session time-out
- k. Track key technology trends and determine key technology refresh areas e.g. Cloud management suite, Hypervisor, Operating System and upgraded/ advanced IT Infrastructure components at the Data Centre sites. Track key technology trends and determine key technology refresh areas e.g. new OS and upgraded/advanced IT Infrastructure components Identify potential alternative technologies and solutions that can be deployed in the DC sites and co-develop analysis parameters with the IPA/Port
- l. Bidder should be responsible for maintenance of logs of user Internet activity, failed login attempts, etc.
- m. Bidder will be required to download the patches and updates for OS, Anti-virus, RDBMS and other systems using a two-step procedure. In the first step, patches and updates should be downloaded to a standalone system. In the second step, the patches and updates should be updated to the relevant systems.
- n. Bidder should provision a dedicated team consisting of Operations Centre Manager, System Administrator, Network Administrator and Database Administrator etc. to perform the activities mentioned in the following sections:

#### **9. System Administration**

- a. System administration services for management of server environment to maintain performance at optimum levels.
- b. 24\*7\*365 monitoring and management of the servers in the Cloud enabled Data Center.
- c. The Bidder shall ensure proper configuration of server parameters. The Bidder shall be the single point of accountability for all hardware maintenance and support the IT infrastructure at the Data Centre.
- d. Operating system administration, including but not limited to management of users, processes, resource contention, preventive maintenance and management of patches to

ensure that the system is properly updated. Bidder is also responsible for re-installation in the event of system crash/ failures.

- e. Bidder shall also ensure that the bottlenecks in the infrastructure are identified and fine tuning is done for optimal performance.
- f. Facilitate application migration in coordination with application owners/Purchasers
- g. The Bidder shall appoint system administrators to regularly monitor and maintain a log of the monitoring of servers to ensure their availability to the Purchaser at all times.
- h. Regular analysis of events and logs generated in all the sub systems including but not limited to servers, operating systems, databases, applications, security devices, messaging, etc. Bidder shall undertake actions in accordance with the results of the log analysis. The system administrators shall also ensure that the logs are backed up and truncated at regular intervals.
- i. Adopt a defined process for change and configuration management in the areas including, but not limited to, changes in parameter settings for application, servers, operating system, devices, etc., applying patches, etc.
- j. Managing the trouble tickets, diagnosis of the problems, reporting, managing escalation, and ensuring rectification of server problems as prescribed in SLA.
- k. Bidder shall provide administration services related to user access including administrative support for user registration, creating and maintaining user profiles, granting user access and authorization, providing ongoing user password support for users.
- l. The system administrators should provide hardening of servers in line with the defined security policies
- m. The system administrators should provide integration and user support on all supported servers, data storage systems etc.
- n. The system administrators should provide directory services such as local LDAP services and DNS services and user support on all supported servers, data storage systems etc.
- o. The system administrators will be required to trouble shoot problems with web services, application software, desktop/server relationship issues and overall aspects of a server environment like managing and monitoring server configuration, performance and activity of all servers.
- p. Documentation regarding configuration of all servers IT Infrastructure etc.

- q. The administrators will also be required to have experience in latest technologies like virtualization and cloud computing so as to provision the existing and applicable infrastructure on a requirement based scenario

#### **10. Storage Administration**

Certain minimum deliverables sought from the Bidder with regards to Storage Administration are provided below:-

- a. The Bidder shall be responsible for the management of the storage solution including, but not limited to, storage management policy, configuration and management of disk array, SAN fabric / switches, tape library, etc.
- b. The Bidder shall be responsible for storage management, including but not limited to management of space, SAN/NAS volumes, RAID configuration, LUN, zone, security, business continuity volumes, performance, etc
- c. Bidder would additionally remotely manage the storage system and components and appropriate setup should be provided by the Bidder
- d. The storage administrator will be required to identify parameters including but not limited to key resources in the storage solution, interconnects between key resources in the storage solution, health of key resources, connectivity and access rights to storage volumes and the zones being enforced in the storage solution.
- e. The storage administrator will be required to create/delete, enable/disable zones in the storage solution
- f. The storage administrator will be required to create/delete/modify storage volumes in the storage solution
- g. The storage administrator will be required to create/delete, enable/disable connectivity and access rights to storage volumes in the storage solution
- h. To facilitate scalability of solution wherever required.
- i. The administrators will also be required to have experience in latest technologies like virtualisation and cloud computing so as to provision the existing and applicable infrastructure on a requirement based scenario

#### **11. Security administration**

- a. Management of security environment to maintain performance at optimum levels.

- b. Address ongoing needs of security management including, but not limited to, monitoring of various devices/tools such as content filtering and blocking, virus protection and vulnerability protection through implementation of proper patches and rules.
- c. Maintain an updated knowledge base of all the published security vulnerabilities and virus threats for related software, including, but not limited to, operating systems, application servers, web servers, databases, security solutions, messaging solutions, etc.
- d. Ensure that patches/workarounds for identified vulnerabilities are patched/ blocked immediately.
- e. Respond to security breaches or other security incidents and coordinate with respective OEM in case of a new threat is observed to ensure that workaround/patch is made available for the same.
- f. Maintenance and management of security devices, including, but not limited to detecting intrusions or unauthorized access to networks, systems, services, applications or data, protecting email gateways, servers, desktops from viruses.
- g. Operating system hardening through appropriate configuration and patch updates on a regular basis.

## **12. Database administration**

- a. Management of database environment to maintain performance of each database at optimum levels
- b. End-to-end management of the databases on an ongoing basis to ensure smooth functioning of the same.
- c. Tasks including, but not limited to managing changes to database schema, disk space, storage, user roles.
- d. Conduct code and configuration reviews to provide inputs to the Port in order to improve the performance or resolve bottlenecks if any.
- e. Performance monitoring and tuning of the databases on a regular basis including, preventive maintenance of the database as required.
- f. Back up of data. Report backup status on a regular basis.
- g. Manage database patch update as and when required with minimal downtime.
- h. Bidder shall co-ordinate with Data center operators/engineers for back-up activities.
- i. Use of DBA tools to perform database creation, maintenance and database monitoring related tasks.

- j. Management of storage environment to maintain performance at optimum levels.
- k. Management of the storage solution including, but not limited to, storage management policy, configuration and management of disk array, SAN, tape library, etc.
- l. Storage management, including but not limited to management of space, volume, RAID configuration, LUN, zone, security, business continuity volumes, performance, etc

### **13. Backup / Restore**

- a. The Bidder shall be responsible for backup of storage of PCS 1x at the cloud enabled Data Centre. These policies would be discussed with the Bidder at the time of installation and configuration.
- b. The Bidder shall be responsible for monitoring and enhancing the performance of scheduled backups, schedule regular testing of backups and ensuring adherence to related retention policies
- c. The Bidder shall be responsible for prompt execution of on-demand backups of volumes and files whenever required by IPA/Port or in case of upgrades and configuration changes to the system.
- d. The Bidder shall be responsible for real-time monitoring, log maintenance and reporting of backup status on a regular basis. The Bidder shall appoint administrators to ensure prompt problem resolution in case of failures in the backup processes.
- e. The administrators shall undertake media management tasks, including, but not limited to, tagging, cross-referencing, storing, logging, testing, and vaulting in fire proof cabinets (onsite and offsite).
- f. The Bidder shall also provide a 24 x 7 support for file and volume restoration requests at the Data Centre.

### **14. Network Monitoring**

- a. Provide services for management of network environment to maintain performance at optimum levels.
- b. The Bidder shall provide services for management of network environment to maintain performance at optimum levels on a 24 x 7 basis.

- c. The Bidder shall be responsible for monitoring and administering the network within the Data Centre up to the integration points with WAN. The Bidder will be required to provide network related services for routers, switches, load balancer, etc.
- d. The Bidder shall be responsible for creating and modifying VLAN, assignment of ports to appropriate applications and segmentation of traffic.
- e. The Bidder shall co-ordinate with the Data Centre Site Preparation agency in case of break fix maintenance of the LAN cabling or maintenance work requiring civil work.
- f. Coordinating with the Network Provider and ensure integration and monitoring of the network within the DC sites..
- g. Polling / collecting of server, devices and desktops security logs from all the systems on Network at pre-defined intervals.
- h. Ensure smooth routing of network traffic to the active cloud enabled DC site in case of disaster / drill.

#### **15. Cloud enabled DC Operations & Administration**

- a. The Bidder shall provide comprehensive onsite support to Port on a 24 x 7 x 365 basis to ensure an uptime of 99.5% for the IT infrastructure solution at the Cloud enabled Data Centre in accordance with the Service Level Agreement mentioned as part of this tender.
- b. The Bidder shall commit to provide all necessary manpower resources onsite to resolve any issues/incidents and carry out required changes, optimizations and modification.
- c. Co-ordinate with the Data Centre Provider to resolve any problems and issues related to the data center.
- d. Any breach of security or non-compliance on part of the data center vendor and/or data center facilities should be immediately brought to the notice of the Port with suggestions for improvements.
- e. Maintain at the data center, a log of all Bidder personnel entering or visiting the data center. Such a log should be provided to the Port whenever required.
- f. Provide necessary access to IPA / IPA designated agency to audit setup for acceptance of the system

#### **16. Disaster Administration**

- a. Bidder shall provide services for management of disaster environment to maintain performance at optimum levels and as required in case of a disaster or drill.
- b. Bidder shall ensure that Disaster documentation is up to date and the site is in full readiness for switch over in case of any disaster.
- c. Bidder shall manage the data synchronization processes in co-ordination with the DC provider to ensure that data and application is updated at DC site.
- d. Bidder shall ensure that configuration of equipment and application maintained at the Cloud enabled DC 1 site is replicated regularly at the DC2 site and vice versa.
- e. Mock drills and plan updates shall be carried out once/twice in a year and report submitted to the Port.
- f. Bidder shall test, review and monitor the business continuity plan bi-annually for its effectiveness and provide test results to the Port.
- g. Bidder shall provide training to the Port users in order to apprise them of the Disaster plan and of their involvement for business continuity.
- h. Bidder has to ensure restoring all databases, servers etc. as per disaster and recovery policy of the Port.

## **17. Software Change Management**

- a. Bidder shall be responsible for managing the changes that happen to the Cloud enabled DC sites setup on an ongoing basis, including but not limited to, changes in hard/soft configurations, changes to system software, changes to policies, applying of updates/patches, etc.
- b. Bidder shall undertake planning required for changes, draw up a task list, decide on responsibilities, co-ordinate with the Port users, establish and maintain communication with the Port to identify and mitigate risks, manage the schedule, execute the change, ensure and manage the port change tests and documentation.

## **18. MIS Reports**

- a. The following is an indicative list of MIS reports. The Bidder should draw an exhaustive list of reports along with the Bidder. Bidder should submit the reports on a regular basis in a mutually decided format.
- b. Weekly reports

- i. Log of backup and restoration undertaken.
  - ii. Log of component-wise downtime, replaced components at the Cloud enabled Data centers
  - iii. Summary of resource utilization of critical components
- c. Fortnightly reports
- i. Project Progress Report with schedule slippage details
  - ii. Overall performance reports including the analysis of queries completed, queries pending, queries escalated, completion time, responsiveness, concern areas, etc.
  - iii. Network availability report
  - iv. Summary of resource utilization of all components in the Cloud enabled Data Centers
  - v. Summary of measured end user application response time for selected business transaction
- d. Monthly reports
- i. Network Availability and Utilization Report
  - ii. Asset modification report at Operations Centre, State Call Centres, Field locations (for MDT devices) and Cloud enabled DC locations.
  - iii. Summary of component wise uptime in the DC sites
  - iv. Summary of resource utilization of all components in the DC sites
  - v. Log of preventive / break-fix maintenance undertaken
  - vi. Summary of usage of tape media provisioned.
  - vii. Summary of changes undertaken in the DC sites including major changes like configuration changes, release of patches, database reorganization, storage reorganization, etc. and minor changes like log truncation, volume expansion, user creation, user password reset, etc.
  - viii. Consolidated SLA / non-conformance report
- e. Quarterly Reports
- i. Asset database report and Asset Audit report

- ii. Summary of incidents reported like Application down, Components down, overall downtime, security vulnerabilities detected, hacker attacks / security threats, peaking of utilization etc.
  - iii. Feedback report from users for the services rendered.
- f. Incident Reporting (as and when it occurs)
- i. Complete system down – with root cause analysis
  - ii. Peaking of resource utilization on any component
  - iii. Bottlenecks observed in the system and the possible solutions and workarounds.
- g. Security Incident Reporting (as and when it occurs)
- i. Detection of security vulnerability detection with the available solutions / workarounds for fixing
  - ii. Hacker attacks, Virus attacks, unauthorized access, security threats, etc. – with root cause analysis and plan to fix the problems.
  - iii. Any hazards or events like fire, environmental conditions, physical security, etc. at the Data Centers.
- h. SLA Reports
- i. All type of reporting should be submitted periodically as per SLA measurement interval to the purchaser

## **19. Vendor Management Services**

Certain minimum deliverables sought from the Bidder with regards to vendor management are provided below: -

- a. The Bidder should coordinate with all the relevant vendors to ensure that the user problems and issues are resolved in accordance with the SLA of the vendor. The Bidder should also ensure that unresolved items are escalated in accordance with the escalation matrix.
- b. Maintain database of the various vendors with details like contact person, telephone nos., escalation matrix, response time and resolution time commitments etc.

## **20. IT Maintenance Services**

- a. Bidder shall be responsible for providing 24\*7 IT maintenance services (ITMS) for addressing any issues related to basic IT Infrastructure like Desktops, networking and Telephony services.

- b. Bidder shall ensure that the ITMS staff is conversant with issue resolution and troubleshooting of IT Infrastructure, networking concepts and telephony and should be able to provide prompt responses.

#### **21. IT facility management services across all Port locations**

The Bidder is expected to extend IT facility management services to Port for the facilities provided by the Bidder. Scope of work under IT facility management services include:

- a. Overall management and maintenance of desktops, thin clients, peripherals, printers, scanners.
- b. Overall management and maintenance of Networking (LAN and WAN) by checking and managing network status and taking remedial action in case of problems
- c. Co-ordination with OEM/vendor for resolution of issues for components which are under warranty.
- d. Setting up a central IT helpdesk and attending to problems faced by users

#### **22. Cloud Services**

The Bidder is expected to provide the cloud services (as part of O&M) as per the scope of work and as agreed.

#### **23. General Conditions**

Service Provider will carry out necessary knowledge transfer and impart training to IPA/Port designated officials for managing the operations of the system till one year after go-live. Depending on their readiness, IPA/Ports may take over few or entire operations in consultation with the Bidder and apportion subsequent support cost accordingly.

