

Request for Proposal (RFP) for
**“Selection of Managed Service Provider for
Implementation of Enterprise Business
System in Five Major Indian Ports”**

Volume 1 - Instruction to Bidders

Date: 26 December 2016

Bid Reference # IPA/ICTD/ERP/2016



Indian



Ports



Association

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Disclaimer

1. This Request for Proposal ("tender") is issued by Indian Port Association (IPA) on behalf of Ministry of Shipping
2. The information contained in this Request for Proposal document ("tender") or subsequently provided to Bidders, whether verbally or in documentary or any other form by or on behalf of the Indian Port Association (the Purchaser) or any of its employees or advisors, is provided to Bidders, on the terms and conditions set out in this tender.
3. This tender is not a Contract and is not an offer by the Purchaser to the prospective Bidders or any other person. The purpose of this tender is to provide interested parties with information that may be useful to them in the formulation of their Proposals in pursuant to this tender. This tender includes statements, which reflect various assumptions and assessments arrived at by the Purchaser, in relation to the project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This tender may not be appropriate for all persons, and it is not possible for the Purchaser, its employees or advisers to consider the objectives, technical expertise and particular needs of each party, who reads or uses this tender. The assumptions, assessments, statements and information contained in this tender, may not be complete, accurate, adequate or correct. Each Bidder should, therefore, conduct his own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments and information contained in this tender and obtain independent advice from appropriate sources.
4. Information provided in this tender to the Bidders is on a wide range of matters, some of which depends upon interpretation of law. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Purchaser accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on the law expressed herein. The Purchaser, its employees and advisers make no representation or warrants and shall have no liability to any person including any Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this tender or otherwise, including the accuracy, adequacy, correctness, reliability or completeness of the tender and any assessment, assumption, statement or information contained therein or deemed to form part of this tender or arising in any way in this selection process.
5. The Purchaser also accepts no liability of any nature, whether resulting from negligence or otherwise, however caused, arising from reliance of any applicant upon the statements contained in this tender.
6. The Purchaser may, in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumption contained in this tender. The issue of this tender does not imply that the Purchaser is bound to select a Bidder or to appoint the Selected Bidder, as the case may be, for this project and the Purchaser reserves the right to reject all or any of the proposals, without assigning any reason whatsoever.

7. IPA or its authorized officers / representatives / advisors reserve the right, without prior notice, to change the procedure for the selection of the Successful Bidder or terminate discussions and the delivery of information at any time before the signing of any agreement for the Project, without assigning reasons thereof.
8. The tender Document does not address concerns relating to diverse investment objectives, financial situation and particular needs of each party. The tender Document is not intended to provide the basis for any investment decision and each Bidder must make its / their own independent assessment in respect of various aspects of the techno-economic feasibilities of the Project. No person has been authorized by IPA to give any information or to make any representation not contained in the tender Document.
9. The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Proposal including but not limited to preparation and expenses associated with any demonstrations or presentations which may be required by the Purchaser or any other costs incurred in connection with or relating to its Proposal. All such costs and expenses shall remain with the Bidder and the Purchaser shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder, in preparation for submission of the Proposal, regardless of the conduct or outcome of the selection process.

Invitation to Proposal

Tender Notice No: IPA/ICTD/ERP/2016

Date: 26 December 2016

From:

Indian Ports Association,

1st Floor, South Tower, NBCC Place,
Bhishma Pitamah Marg, Lodhi Road,
Institutional Area, New Delhi 110003

To:

All Prospective bidders

1. Indian Ports Association (IPA), an apex body of Major Ports under administrative control of Ministry of Shipping, Govt invites responses ("Proposals"/"Bids") to this Request for Proposal (Tender) from eligible reputed, competent and professional Information Technology companies who meet the minimum eligibility criteria as specified in this bidding document for implementation of an **Enterprise Business System for FIVE major ports in India i.e. Kandla, Kolkata, Mumbai, Paradip and Chennai**
2. The complete bidding document shall be published on 26 December 2016 for the purpose of downloading.
3. A bidder will be selected based on the Pre-Qualification, Technical and Commercial evaluation criteria and procedures described in this tender.
4. Bidder is advised to study this tender document carefully before submitting their proposals in response to the tender Notice. Submission of a proposal in response to this notice shall be deemed to have been done after careful study and examination of this document with full understanding of its terms, conditions and implications.
5. The time, date and venue details related to the pre-bid conference and proposal submission are mentioned in the Key Events and Dates Sheet. Proposals that are received after the deadline will not be considered in this procurement process.
6. To obtain first-hand information on the assignment, bidders are encouraged to attend the pre-bid meeting. However, attending the pre-bid meeting is optional.

Thanks & Regards

A. Janardhana Rao

Managing Director

Indian Port Association

Request for Proposal Data Sheet

S. No.	Information	Details
1.	Tender Issuing Authority	Indian Port Association
2.	Purpose of Tender	Selection of Managed Service Provider (MSP) for implementation of Enterprise Business System in Five major Indian Ports
3.	Tender Issue Date	26 December 2016
4.	Availability of tender documents	The tender is available and downloadable on e-Tendering Website: www.eprocure.gov.in and www.ipa.nic.in All Subsequent changes to the Bidding document shall be published on the above mentioned website.
5.	Non Refundable Tender Cost	Non-refundable INR 50,000 (Rs. Fifty Thousand only) in form of Demand Draft issued by a Indian Nationalized / Scheduled Bank, in favour of Indian Ports Association
6.	Earnest Money Deposit	Rs. 2,50,00,000 (Rupee Two Crores fifty lakhs only), in the form of Bank Guarantee issued by a Indian Nationalized / Scheduled Bank and drawn in favour of Indian Ports Association, payable at New Delhi valid for 12 months from the date of submission of bid
7.	Visit to ports	Refer to IPA website www.ipa.nic.in
8.	Last date and time for submission of queries for clarifications	All the queries/clarification requests should be received on or before 06 January 2017, through email only with subject line as follows: "Pre-Bid queries -<Bidder's Name>_EBS_IPA". The queries shall be submitted in an excel file as per the format prescribed in Volume I of the tender The Pre-Bid queries to be sent to the following Email Ids: Email ID 1: chakraborty.ipa@gov.in Email ID 2: sivalingam.ipa@gov.in
9.	Date, time and venue of pre-bid meeting	10 January 2017 15:00 HRS Indian Ports Association 1st floor, South tower, NBCC place, Bhisham Pitamah Marg, Lodi road, New Delhi 110 003
10.	Last date and time (deadline) for receipt of proposals in response to tender notice	07 February 2017 15:00 HRS

Volume 1 - Request for Proposal (RFP) for "Selection of Managed Service Provider (MSP) for Enterprise Business System in Five Major Indian Ports"

S. No.	Information	Details
11.	Last date and time (deadline) for receipt of Bid fees and EMD in response to tender notice	07 February 2017 15:00 HRS
12.	Date, time and venue of opening of Technical Proposals received in response to the tender notice	07 February 2017 at 16:00 HRS Indian Ports Association 1st floor, South tower, NBCC place, Bhisham Pitamah Marg, Lodi road, New Delhi 110 003
13.	Place, time and date of opening of Financial Proposals received in response to the tender notice	To be intimated later
14.	Language	Proposals should be submitted in English only.
15.	Bid validity	Proposals must remain valid up to 180 (One Hundred & Eighty) days from the last date of submission of the Bid.

1 Introduction

1.1 About IPA

1. Indian Ports Association (IPA) was constituted in 1966 under Societies Registration Act, primarily with the idea of fostering growth and development of all Major Ports which are under the supervisory control of Ministry of Shipping. Over the years, IPA has consolidated its activities and grown strength by strength and considered to be a think tank for the Major Ports with the ultimate goal of integrating the maritime sector.
2. India has 13 major ports, which are administered by the Central Government under Ministry of Shipping. These major ports significantly contribute towards the development of national growth in terms of economy, trade & commerce and influence the national integration to the world economic market.
3. As per the statistics published by Ministry of Shipping, Major ports within India are operating at more than 90% capacity utilization which is just adequate to meet the current requirements. Despite having adequate capacity and modern handling facilities, the ports are not able to ensure a quicker turnaround of ships.
4. The cargo handling capacity of each port is given below:

Year	2012-13	2013-14	2014-15	2015-16
	Traffic Handled at Ports (In Thousand Tonnes)			
Kolkatta	11,844	12,874	15,283	16,688
Haldia	28,084	28,511	31,010	33,507
Paradip	56,552	68,003	71,011	76,386
Chennai	53,405	51,105	52,541	50,058
Kandla	93,619	87,004	92,947	1,00,051
Mumbai	58,038	59,184	61,660	61,110

5. Also, as per Maritime Agenda the capacity of the Major Ports is likely to increase to 1459.5 Million Tonnes by 2019-2020 which was 871.5 Million Tonnes as on March 2015 and traffic at Major Ports is likely to reach at the level of 1214.82 Million Tonnes.
6. Modernization and automation of port operations is one of the factors that can drive port efficiency by effective dissemination of information and reducing paper-based manual workflows.
7. The maritime agenda for 2020 has recommended implementation of Enterprise Resource Planning (ERP) solution covering all functional areas within ports including port operations. The resulting ERP system is expected to interact with operational technology consisting of automated equipment and other systems such as VTMS, AIS, RFID, surveillance and other security systems.

1.2 Structure of Tender

IPA invites online bids from eligible parties (hereafter referred as "Managed Service Provider (MSP)"). This Request for Proposal (tender) document comprises of the following three volumes:

Volume 1: Instruction to bidders

This provides instruction to bidders, key requirements of the Bid, Evaluation of Bids, Constitution of Team, Payment Terms, Roles & Responsibilities and Bid Formats

Volume 2: Terms of Reference

This provides information regarding the scope of work including business requirements, software and services to be covered and corresponding related documentation, infrastructure requirements, scope of work for the selected bidder and functional requirements and Technical requirements

Volume 3: Master Service Agreement

This contains the Service level Agreements, contractual, legal terms & conditions applicable for the proposed engagement.

The bidders are expected to respond to the requirements as completely and in as much relevant detail as possible, and focus on demonstrating bidders' suitability to be selected. The bidders are expected to examine all instructions, forms, terms, Project requirements and other information in the tender documents. Failure to furnish all information required as mentioned in the tender documents or submission of a proposal not substantially responsive to the tender documents in every respect will be at the Bidders risk and may result in rejection of the proposal.

The whole project is required to be completed and maintained by the bidder. Accordingly, bidder is understood to have assessed and quoted for all the items required for successful completion of the Project. It will be the responsibility of the bidder to provide such items on free of cost basis which are not quoted in the bid but otherwise required at the time of installation for completion and successful commissioning of the project.

2 Instructions to Bidders

This section specifies the procedures to be followed by Bidders in the preparation and submission of their Bids. Information is also provided on the submission, opening and evaluation of bids and on the award of contract. It is important that the Bidder carefully reads and examines the tender document.

2.1 General

1. IPA invites proposals ("Bids") to this Request for Proposal ("tender") for Implementing an Enterprise Business System at the ports envisaged in the tender" as described in the Scope of work in Volume 2 of this tender.
2. The tenure of the contract of the successful bidders shall be for a term of Implementation Period plus 5 years of Operations & Maintenance phase ("the Term"). IPA reserves the right to extend the contract by 2 years on the same terms & conditions and on the contract prices decided pursuant to this tender for each cluster
3. While every effort has been made to provide comprehensive and accurate background information and requirements and specifications, bidders must form their own conclusions about the solution needed to meet the requirements. Bidders and recipients of this tender may wish to consult their own legal advisers in relation to this tender.
4. All information supplied by the successful bidder may be treated as contractually binding on the bidder after successful award of the assignment is made on the basis of this tender.
5. No commitment of any kind, contractual or otherwise shall exist unless and until a formal written contract has been executed by or on behalf of IPA.
6. IPA may cancel this public procurement at any time prior to a formal written agreement being executed by or on behalf of IPA.
7. Proposals must be received not later than time, date and venue mentioned in the Proposal Data Sheet. Proposals that are received late shall not be considered in this procurement process.
8. No oral conversations or agreements with any official, agent, or employee of IPA shall affect or modify any terms of this tender and any alleged oral agreement or arrangement made by a bidder with any port, agency, official or employee of IPA shall be superseded by the definitive agreement that results from this tender process.
9. Neither the bidder nor any of bidder's representatives shall have any claims whatsoever against IPA or any of their respective officials, agents, or employees arising out of or relating to this tender or these procedures (other than those arising under a definitive service agreement with the bidder in accordance with the terms thereof).
10. All proposals and accompanying documentation of the Technical proposal will become the property of IPA and will not be returned after opening of the technical proposals.
11. The Bidder commits himself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of his bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it.

2.2 Eligible bidders

1. Bidder should be eligible to operate in conformity with the provisions of the laws in India and shall have a registered office within India.
2. Bidder should not have any conflict of interest with any parties included in the Bidding process.
3. Bids may be submitted in either of the following categories of bidders only:

2.2.1 Sole Bidder

The Sole Bidder must be a System Integrator (SI) company which has the capabilities to deliver the entire scope as mentioned in the tender. The Sole Bidder cannot bid as a part of any other consortium bid under this tender.

2.2.2 Consortium of Firms

Bids can be submitted by a consortium of firms. The total number of consortium members cannot exceed three, including the lead bidder of the consortium. One of the consortium member has to be Port Operations Solution provider. The consortium must provide the details of formation of the consortium, percentage of stake of each consortium member and the role of each member of the consortium with reference to this project.

Bids submitted by a consortium should comply with the following requirements also:

- i. Any of the Lead Bidders cannot be a Consortium Member with another bidder in a separate bid or a sole bidder in separate bid.
- ii. The list of Consortium Members needs to be declared in the bid which cannot be changed by the bidder later on.
- iii. No consortium member should be blacklisted by any governing authority.
- iv. Any change in the consortium member at a later date should not be allowed for cases where the consortium has benefited from the non-lead bidders credentials/ experience
- v. The lead bidder shall be responsible for software development, customization/ configuration and delivery of the core ERP software required for meeting the requirements of the tender
- vi. Lead Bidder shall be responsible and liable for the successful completion of the entire project. Please note that the consortium together will be jointly and severally liable for all the deliverables .
- vii. The Lead Bidder should confirm unconditional acceptance of full responsibility for executing the 'Scope of Work' and meeting all obligations of this tender. This confirmation should be furnished as part of the Technical Bid.
- viii. The Lead Bidder and the Consortium Members shall enter into a tri-partite agreement with the IPA.
- ix. The lead bidder and consortium members shall clearly define the roles and responsibilities/scope of work in the Memorandum of Understanding (MoU) to be signed and submitted to IPA. The MoU shall be prepared on a stamp paper of requisite value and shall be submitted along with the Technical. It shall be the responsibility of the bidders to adhere to the MoU being submitted and no interchange of responsibilities later shall be considered by IPA
- x. MoU / Agreement should also be addressed to the IPA clearly stating the following at the minimum:
 - o Names of Lead Bidder and Consortium members
 - o The MoU / Agreement is applicable to this tender and shall be binding on the Consortium members for the contract period.
 - o Consortium members have read and examined in detail all the bidding documents in respect of the above mentioned tender, in respect to product(s) / services offered / supplied.
 - o Roles and Responsibilities of the Consortium members shall be clearly defined.
 - o The Lead Bidder must be authorized to receive instruction / communications from IPA, authorized to incur liabilities and shall deliver all the provisions of the contract on behalf of consortium members.
 - o 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.

- o The Bidder and any of its consortium members should not be involved in any major litigation that may have an impact of affecting or compromising the delivery of services as required under this contract.
- o The bidder and any of the Consortium members should not have been black-listed by any Central / State Government or Public Sector Undertakings.
- xi. IPA reserves the right to review, approve and amend the terms of the Consortium Contract or any contract or agreements entered into by and between the members of such Consortium and no such agreement/contract shall be executed, amended, modified and/or terminated without the prior written consent of IPA. An executed copy of each of such agreements/contracts shall, immediately upon execution be submitted by the Lead Bidder to IPA.

2.3 Sub-Contracting

The bidder may use the services of a sub-contractor to leverage their specialized experience in respect of following tasks/areas:

- i. Cloud services
- ii. Establishment of network infrastructure
- iii. Call Centre services
- iv. Data scanning and digitization services
- v. Civil Work required for the project

Sub-contracting would be subject to the following conditions:

- i. All sub-contracting arrangements must form part of the bid.
- ii. All sub-contracting contracts must be entered into by the bidder / lead bidder.
- iii. Sub-contracting should not dilute the responsibility and liability of the bidder.
- iv. Any changes in sub-contractors must be approved by IPA prior to conclusion of any contract between the bidder and the sub-contractor.
- v. IPA retains the right to request discontinuation of sub-contracting of activities at any time during the contract period.
- vi. IPA reserves its right to subject the sub-contractors to security clearances as it deems necessary.

2.4 Inclusion of MSMEs in Project Delivery

Bidders are encouraged to include Micro, Small and Medium Enterprises (MSMEs) in the delivery of the project. Bidders are encouraged to earmark a minimum of 20% of the total contract for procuring goods and services from MSEs. The procurement through MSEs should be in line with Order dated 23rd March 2014 regarding procurement policy for Micro and Small Enterprises (MSEs). Activities that can be sub-contracted to MSME/MSE partners are restricted to those defined under Sub-Contracting Clause 2.3 above.

2.5 Contacting the IPA

- i. No Bidders shall contact the IPA on any matter relating to its bid, from the time of the bid opening to the time the Contract is awarded.
- ii. If a Bidder tries to directly influence the Purchaser or otherwise interfere in the bid submission and evaluation process and the Contract award decision, its bid may be rejected.

2.6 Right to Terminate the Process

- i. IPA may terminate the tender process at any time and without assigning any reason. IPA makes no commitments, express or implied, that this process will result in a business transaction with anyone.

- ii. This tender does not constitute an offer by IPA. The bidder's participation in this process may result in IPA selecting the bidders to engage towards execution of the contract.

2.7 Right to Vary Scope of Contract

- i. IPA may at any time, by a written order given to the bidder, make changes within the quantities, specifications, services or scope of the Contract as specified.
- ii. If any such change causes an increase or decrease in the cost of, or the time required for the bidder's performance of any part of the work under the Contract, whether changed or not changed by the order, an equitable adjustment shall be made in the Contract Price or time schedule, or both, and the Contract shall accordingly be amended. Any claims by the bidder for adjustment under this Clause must be asserted within thirty (30) days from the date of the bidder's receipt of the IPA's changed order.

2.8 Rejection Criteria

Besides other conditions and terms highlighted in the tender document, bids may be rejected under following circumstances:

- i. Bids not qualifying under eligibility criteria.
- ii. Bids submitted without or improper EMD or tender fees
- iii. Bids received through any platform other than e-tendering platform as mentioned in the tender
- iv. Bids which do not confirm unconditional validity of the bid as prescribed in the Tender
- v. If the information provided by the Bidders is found to be incorrect / misleading at any stage / time during the Tendering Process
- vi. Any effort on the part of a Bidders to influence the purchaser's bid evaluation, bid comparison or contract award decisions
- vii. Bids received by the IPA after the last date for receipt of bids prescribed in the data sheet.
- viii. Bids without signature of person (s) duly authorized on the bid
- ix. Bids without power of authorization and any other document consisting of adequate proof of the ability of the signatory to bind the Bidders.
- x. Technical Bid containing commercial details or any such hints/ calculations /extrapolations/ records.
- xi. Revelation of Prices in any form or by any reason before opening the Commercial Bid
- xii. Failure to furnish all information required by the Tender Document or submission of a bid not substantially responsive to the Tender Document in every respect.
- xiii. Bidders not quoting for the complete scope of Work as indicated in the Tender documents, addendum (if any) and any subsequent information given to the Bidders.
- xiv. Bidders not complying with the General Terms and conditions as stated in the Tender Documents.
- xv. The Bidders not confirming unconditional acceptance of full responsibility of providing services in accordance with the Scope of work, General Terms & Conditions and Service Level Agreements of this tender.
- xvi. If it is found that firms have tendered separately under different names for the same contract, all such tender(s) shall stand rejected and tender deposit of each such firm/ establishment shall be forfeited. In addition, such firms/ establishments shall be liable at the discretion of the IPA for further penal action including blacklisting.
- xvii. If it is found that multiple bidders have uploaded separate tenders/ quotations under different names of firms/ establishments but with common address for such establishments/ firms, are managed or governed by the same person/ persons jointly or severally, such tenders shall be liable for penal and legal action including blacklisting.

- xviii. If after awarding the contract, it is found that the accepted bid violated any of the directions pertaining to the participation, the contract shall be liable for cancellation at any time during its validity in addition to penal action including blacklisting against the bidders.
- i. Price Bids that do not conform to the Tender's price bid format.
 - ii. Total price quoted by the Bidders does not include all statutory taxes and levies applicable.
 - iii. Financial Bids that are less than 50% of the average bid price will be disqualified. The average bid price is computed by adding all Financial Bid values of ALL the technically qualified bidders and dividing the same by the number of technically qualified bidders.

3 Key Requirements of the Bid

3.1 Tender Document Fees and Purchase

- i. The Bidders shall download the tender document from the e-Tendering website as mentioned in the Proposal Data Sheet.
- ii. The Bidders has to upload the scanned image of the demand draft towards cost of tender document (mentioned in the Proposal Data Sheet) along with the online bid submission. The actual DD will be submitted at the address, date and time mentioned in Data Sheet.
- iii. The downloading of the tender documents shall be carried out strictly as provided on the web site.
- iv. The tender document fee is non-refundable and not exempted.

3.2 Pre-bid meeting and clarifications

3.2.1 Bidders queries

- i. Any clarification regarding the tender document and any other item related to this project can be submitted to IPA as per the submission mode and timelines mentioned in the Proposal Data sheet.
- ii. Any requests for clarifications post the indicated date and time shall not be entertained by IPA. Further IPA will reserve the right to issue clarifications.
- iii. The queries of only those bidders would be considered who shall send the same across e-mail ID's/ in writing at the Purchaser's address indicated in the proposal Data sheet.
- iv. It is necessary that the pre-bid queries must be submitted in spreadsheet format, along with name and details of the organization submitting the queries as mentioned below. In no event IPA will be responsible for ensuring that bidders' inquiries have been received by IPA
- v. IPA may at its option share the answers with all the bidders either at the Pre bid meeting or send the clarifications to all the designated representatives of the bidders through emails. The responses to the queries from the individual bidders will be distributed to all the bidders. IPA will endeavour to provide responses to all questions. However, the purchaser makes no representation or warranty as to the completeness of any response, nor does the purchaser undertake to answer all the queries that have been posed by the bidders.

Bidder's Request for Clarification		
Name & address of the Bidder Submitting Request	Name and Position of Person submitting request	Contact Details of the Organization / Authorized Representative
		Telephone:
		Fax:
		Mobile:
		E-Mail:

S. No	Tender Reference			Content of tender requiring Clarification	Points of Clarification Required
	Section	Page #	Clause #		

3.2.2 Pre-Bid Meeting

IPA shall hold a pre-bid meeting with the prospective bidders as mentioned in the Proposal Data Sheet.

3.2.3 Responses to Pre-Bid Queries and Issue of Corrigendum

- i. IPA will formally respond to the pre-bid queries after the pre-bid conference.
- ii. IPA will endeavour to provide timely response to all queries. However, IPA makes no representation or warranty as to the completeness or accuracy of any response made in good faith, nor does IPA undertake to answer all the queries that have been posed by the bidders.
- iii. At any time prior to the last date for receipt of bids, IPA may, for any reason, whether at its own initiative or in response to a clarification requested by prospective Bidders, modify the tender Document by a corrigendum.
- iv. The Corrigendum (if any), notifications regarding extensions (if any) and clarification to the queries from all bidders will be posted on the website mentioned in the Proposal Data Sheet or emailed to all participants of the pre-bid meeting.
- v. Any such corrigendum shall be deemed to be incorporated into this tender.
- vi. In order to provide prospective Bidders reasonable time for taking the corrigendum into account, IPA may, at its discretion, extend the last date for the receipt of Proposals.
- vii. Notifications regarding extensions, corrigendum, will be published on the website mentioned in the tender schedule and there shall be no paper advertisement.

3.3 Preparation of Proposals

3.3.1 Bidder Preparation Conditions

- i. The bidder shall prepare the bid based on details provided in the tender documents. It must be clearly understood that the quantities, specifications and diagrams that are included in the tender document are intended to give the bidder an idea about the scope and magnitude of the work and are not in any way exhaustive and guaranteed by IPA.
- ii. The bidder shall carry out the sizing of the solution based on internal assessment and analysis, which may include the use of modelling techniques wherever necessary.
- iii. The bidder must propose a solution best suited to meet the requirements of the IPA. If, during the sizing of the solution, any upward revisions of the specifications and/or quantity as given in this tender document, are required to be made to meet the conceptual design and/or requirements of tender, all such changes shall be included in the technical proposal and their commercial impact, thereof, included in the commercial bid.
- iv. If, during the sizing of the solution, any additional product that is not listed in the tender document is required to be included to meet the conceptual design, performance requirements and other requirements of tender, all such product(s) should be included by the bidder in the technical proposal and their commercial impact, thereof, included in the commercial bid.
- v. IPA will in no case be responsible or liable for any costs associated with the design/sizing of the proposed solution, regardless of the conduct or outcome of the Tendering process.
- vi. If at any stage during the currency of the contract, the solution proposed does not meet the functional requirements, conceptual design, performance requirements/SLA, and other requirements of tender, the bidder shall revise the required specifications and/or quantities as proposed by the bidder in his bid in order to meet the said objectives/targets. All such provisions shall be made by the bidder within the lump sum contract price, at no extra cost to IPA and without any impact to IPA whatsoever.

3.3.2 Proposal preparation costs

- i. The bidder shall be responsible for all costs incurred in connection with participation in the tender process, including, but not limited to, costs incurred in conduct of informative and other diligence activities, participation in meetings/discussions/presentations, preparation of proposal, in providing any additional information required by purchaser to facilitate the evaluation process and in negotiating a definitive contract or all such activities related to the bid process.
- ii. IPA will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

3.3.3 Earnest Money Deposit (EMD)

- i. Bidders shall submit, along with their bids, EMD as per the details mentioned in the Data Sheet.
- ii. EMD of all bidders would be refunded by IPA after submission of Performance Bank Guarantee by the successful bidder.
- iii. EMD of technically disqualified bidders would be refunded by IPA after completion of technical evaluation.
- iv. The EMD amount is interest free and will be refundable without any accrued interest on it.
- v. In case bid is submitted without the EMD then IPA will reject the bid without providing opportunity for any further correspondence to the bidder concerned.
- vi. The EMD may be forfeited:
 - If a bidder withdraws its bid during the period of bid validity.
 - Bidder fails to provide required information during the evaluation process or is found to be non-responsive.
 - If the successful bidder fails to provide the Performance Bank Guarantee as required at the time of signing of the Agreement.
 - If the successful bidder fails to sign the Agreement in accordance with this tender within 30 days from the issue of Letter of Intent (LOI) by IPA.
- vii. The Bidder has to upload the scanned image of the BG towards EMD (mentioned in the Proposal Data Sheet) along with the online bid submission. The actual BG shall be submitted at the address, time and date as mentioned in Data Sheet.

3.3.4 Bidders Authorization

- i. The "Bidders" as used in the tender documents shall mean the one who has signed the Tender Forms. The Bidders may be either the Principal Officer or his duly Authorized Representative, in either cases, he/she shall submit a power of attorney. All certificates and documents (including any clarifications sought and any subsequent correspondences) received hereby, shall be furnished and signed by the representative and the principal.
- ii. The authorization shall be indicated by written power-of-attorney accompanying the bid in the name of the signatory of the Proposal.
- iii. Any change in the Principal Officer shall be intimated to IPA in advance.

3.3.5 Address for Correspondence

- i. The Bidders shall designate the official mailing and e-mail address to which all correspondence shall be sent.

3.3.6 Local Conditions

- i. It will be incumbent upon each Bidder to fully acquaint itself with the local conditions and other relevant factors such as legal conditions which would have any effect on the preparation of the bid and performance of the contract and / or the cost. IPA shall not entertain any request for clarification from the Bidders regarding such conditions.
- ii. Failure to obtain the information necessary for preparing the bid and/or failure to perform activities that may be necessary for the providing services before entering into contract will in no way relieve the successful Bidders from performing any work in accordance with the Tender documents.
- iii. Neither any change in the time schedule of the contract nor any financial adjustments to the contract awarded under the bidding documents shall be permitted by the IPA on account of failure of the Bidders to apprise themselves of local laws and site conditions.

3.3.7 Port Visits by Bidder

- i. The Bidder may visit and examine the envisaged ports as per the following schedule and obtain all information on the existing processes, setup and functioning of ports that may be necessary for preparing the Bid document. The schedule for Port Visits by bidder will be made available on IPA website (www.ipa.nic.in)
- ii. The visit may be used to seek clarification on the tender. It shall be used as a medium of understanding the exact needs and requirements for completing the technical and commercial response of the bid. The cost of such visits to the site(s) shall be at the Bidder's own expense.

3.3.8 Language

The proposal should be filled by the bidders in English language only. If any supporting documents submitted are in any language other than English, translation of the same in English language is to be duly attested by the bidders. For purposes of interpretation of the documents, the English translation shall govern.

3.3.9 Bid validity period

Bid shall remain valid for the time mentioned in the Proposal Data Sheet. Bid validity may be extended by the bidder by submitting a letter to IPA in writing on receipt of request from IPA.

3.3.10 Discount

The Bidders are advised not to indicate any separate discount. Discount, if any, should be merged with the quoted prices. Discount of any type, indicated separately, will not be taken into account for evaluation purpose. However, in the event of such an offer, without considering discount, is found to be the lowest, IPA shall avail such discount at the time of award of Contract. For future purposes, Unit prices of all individual components will be discounted accordingly (by the overall discount % in case overall discount % is given or by the individual component discount % in case item wise discount given) to arrive at component-wise unit prices.

3.3.11 Only One Proposal and One Solution

If a Bidder submits or participates in more than one Proposal and / or presents more than one Solution, such a Bidder shall be disqualified.

3.3.12 Additional Conditions

- i. No oral conversations or agreements with any official, agent, or employee of IPA shall affect or modify any terms of this tender and any alleged oral agreement or arrangement made by a bidder with any port, agency, official or employee of IPA shall be superseded by the definitive agreement that results from this tender process. Oral communications by IPA to bidders shall not be considered binding nor shall any written materials provided by any person other than IPA.
- ii. Neither the bidder nor any of bidder’s representatives shall have any claims whatsoever against IPA or any of their respective officials, agents, or employees arising out of or relating to this tender or these procedures (other than those arising under a definitive service agreement with the bidder in accordance with the terms thereof).
- iii. All proposals and accompanying documentation of the Technical proposal will become the property of IPA and will not be returned after opening of the technical proposals.
- iv. The Bidder commits himself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of his bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it

3.3.13 Right to Terminate the Process

- i. IPA may terminate the tender process at any time and without assigning any reason. IPA makes no commitments, express or implied, that this process will result in a business transaction with anyone.
- ii. This tender does not constitute an offer by IPA. The bidder's participation in this process may result in IPA selecting the bidders to engage towards execution of the contract.

3.4 Submission of Proposal

3.4.1 Bidder Registration & Proposal Submission

- i. Bidders are required to enrol on the e-Tendering website on the link provided in the Proposal Data sheet
- ii. As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- iii. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the e-Tendering Portal.
- iv. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India with their profile.
- v. Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC’s to others which may lead to misuse.
- vi. Bidder shall then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.
- vii. The proposal should contain ATLEAST the following submission for on the e-Tendering Portal. However this is not an exhaustive list, bidder is expected to go through the tender and provide documents as necessary:

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

Section #	Category	Response
		<ul style="list-style-type: none"> • PQ Form 3 - Financial Capability • PQ Form 4 - Proforma for EMD • PQ Form 5 - Details of Experience of Bidder in Various projects • PQ Form 6 - Format for Consortium Agreement • PQ Form 7 - Details of ineligibility for corrupt or fraudulent practices / blacklisted with any of the Government or Public Sector Units or Local Governments • PQ Form 8 - Manufacturers Authorization Form (For ERP) • Copy of Certificate of Incorporation • Extracts from the audited Balance sheet and Profit & Loss statements for FY 2013-14, 2014-15 and 2015-16 • Copy of valid CMMi Level 5 certificate issued to the Bidding Organization by respective agencies • Documentary evidences for Bidder's experience • Undertaking from authorized signatory for number of ERP consultants • Copy of certificate of registration of Product OEM • Demand Draft of Tender fees • Tech Form 12 - Power of Attorney / Authorization letter
2.	Technical Proposal	<ul style="list-style-type: none"> • Tech Form 1 - Technical Bid - Covering Letter • Tech Form 2 - Particulars of the Bidder (please fill separate sheet for each consortium members) • Tech Form 3 - Profile of Proposed Resources • Tech Form 4 - Technical Solution • Tech Form 5 - Approach & Methodology • Tech Form 6 - Project Plan & Deployment of Personnel • Tech Form 7 - Format of Deployment of Personnel • Tech Form 8 - Unpriced Bill of Material • Tech Form 9 - Details of Experience of Bidder in Various projects • Tech Form 10 - Manufacturers Authorization Form (For Hardware Equipment) • Tech Form 11 • Tech Form 12
3.	Commercial Proposal	<ul style="list-style-type: none"> • Commercial bid/proposal as per the pre-defined format

viii. During Online Bid Preparation stage, bidders are allowed to make any changes or modifications in the bid data uploaded by them in Technical as well as Commercial envelope. Once a bidder successfully completes the Bid Preparation stage (by generating the Hash Values), system won't allow him/her to make any further changes or modifications in the bid data.

3.4.2 Compliant proposals/Completeness of response

- i. Bidders are advised to study all instructions, forms, terms, requirements and other information in the tender documents carefully. Submission of the bid shall be deemed to have been done after careful study and examination of the tender document with full understanding of its implications.
- ii. Failure to comply with the requirements of this paragraph may render the proposal non-compliant and the proposal may be rejected. Bidders must:
 - o Include all documentation specified in this tender;
 - o Follow the format of this tender and respond to each element in the order as set out in this tender
 - o Comply with all requirements as set out within this tender.
- iii. Bidder should not propose multiple options for any system software or other infrastructure proposed as part of the bid.
- iv. For all the components, wherever applicable, bidder needs to provide the data sheets of the product.

3.4.3 Deviations and Exclusions

Bids shall be submitted strictly in accordance with the requirements and terms & conditions of the tender. No Deviations and Exclusions to the tender are allowed. In the absence of any specific provision in the agreement on any issue the guidelines issued/to be issued by the Dean, IPA shall be applicable.

3.4.4 Modification and Withdrawal of Bids

- i. No bid may be altered / modified after submission to the IPA. Unsolicited correspondences in this regard from Bidders will not be considered.
- ii. No bid may be withdrawn in the interval between the last date for receipt of bids and the expiry of the bid validity period specified by the Bidders in the Bid.
- iii. Withdrawal of a bid during this interval may result in the Bidders forfeiture of its EMD.
- iv. Prices in any form or by any reason before opening the Commercial Bid should not be revealed. If price change is envisaged due to any clarification, revised Bids can be called from all the bidders by IPA.

3.4.5 Late Bids

- i. Bids received after the due date and the specified time (including the extended period if any) for any reason whatsoever, shall not be entertained
- ii. The bids submitted by telex/telegram/fax/e-mail etc. shall not be considered. No correspondence will be entertained on this matter.
- iii. IPA reserves the right to modify and amend any of the above-stipulated condition/criterion depending upon project priorities vis-à-vis urgent commitments.

4 Evaluation of Bids

4.1 Opening of Bids

- i. The bids that are submitted online successfully shall be opened online as per date and time given in Proposal Data Sheet, through e-Tendering procedure only in the presence of bidders.
- ii. Bids shall be opened either in the presence of bidders or it's duly authorized representatives. The bidder representatives who are present shall sign a register evidencing their attendance. Two representatives per applicant shall be permitted to be present at the time of opening the tender.
- iii. Total transparency will be observed and ensured while opening the Proposals/Bids.

- iv. IPA reserves the rights at all times to postpone or cancel a scheduled Bid opening.
- v. Bid opening will be conducted in two stage
 - In the first stage, Pre-qualification Proposals would be opened. The EMD of the Bidders will be opened on the same day and time, on which the Pre-qualification Proposal is opened. Technical Proposals of Bidders who pass the Pre-qualification criteria will be opened.
 - In the second stage, Commercial Proposal of those Bidders who's Technical Proposals qualify, would be opened.
 - In the event of the specified date of Bid opening being declared a holiday for IPA, the bids shall be opened at the same time and location on the next working day. In addition to that, if there representative of the Bidder remains absent, IPA will continue process and open the bids of the all Bidders

4.2 Evaluation of Bids

- i. IPA will constitute a Proposal Evaluation Committee to evaluate the responses of the bidders.
- ii. The Proposal Evaluation Committee constituted by the IPA shall evaluate the responses to the tender and all supporting documents / documentary evidence. The Bidders' technical solution will be evaluated as per the requirements and evaluation criteria as spelt out in the tender document.
- iii. The Committee may seek inputs from their professional and technical experts in the evaluation process.
- iv. IPA reserves the right to do a reference check of the past experience stated by the Bidder. Any feedback received during the reference check shall be taken into account during the Technical evaluation process.
- v. The decision of the Proposal Evaluation Committee in the evaluation of responses to the tender shall be final. No correspondence will be entertained outside the process of negotiation/ discussion with the Committee.
- vi. The Proposal Evaluation Committee reserves the right to reject any or all proposals on the basis of any deviations without assigning any reason thereof.
- vii. Proposal Presentations: The Tender Evaluation Committee may invite each pre-qualified Bidder to make a presentation to IPA at a date, time and venue decided by IPA. The purpose of such presentations would be to allow the Bidders to present their proposed solutions to the Committee and orchestrate the key points in their Proposals.
- viii. Unnecessarily elaborate brochures or other promotional materials beyond those sufficient to present a complete and effective proposal are considered undesirable and may be construed as an indication of the bidder's lack of cost consciousness. IPA's interest is in the quality and responsiveness of the proposal.

4.3 Clarification on Bids

- i. During the bid evaluation, IPA may at its discretion, ask the bidder for a clarification of its bid. The request for clarification and the response shall be in writing, and no change in the price or substance of the bid shall be sought, offered, or permitted. IPA is entitled to ask for clarifications as many times as possible from the bidders to the satisfaction of the Technical Evaluation committee.
- ii. If the bidder fails to provide the clarification or additional information sought, the information provided in the technical proposal only will be used for evaluation. It is clearly understood that the additional information or clarification on the technical proposal provided by the bidders will not be the basis for affecting any changes in the Commercial Proposal already submitted by the bidders.

4.4 Preliminary Examination of Bids

- i. IPA will examine the bids to determine whether they are complete, whether required EMD has been furnished, whether the documents have been properly signed, and whether the bids are generally in order. Any bids found to be non-responsive for any reason or not meeting any criteria specified in the tender, will be rejected by IPA and shall not be included for further consideration. Any deviations in proposal response may make the bid liable for rejection. Initial Bid scrutiny will be held and bids will be treated as non-responsive, if bids are:
 - Not submitted in format as specified in the tender document
 - Received without the Letter of Authorization (Power of Attorney)
 - Found with suppression of details
 - With incomplete information, subjective, conditional offers, and partial offers submitted
 - Submitted without the documents requested
 - Non-compliant to any of the clauses mentioned in the tender
 - With lesser validity period
 - All eligible bids will be considered for further evaluation by an Evaluation Committee according to the evaluation process defined in this Bidding document.

4.5 Pre-Qualification Criteria

- i. The prospective Bidders shall enclose documentary evidences in support of the Pre-Qualification Criteria along with the Bid.
- ii. An indicative format for the Pre-Qualification Proposal is as follows [Please customize this list on the basis of Pre-Qualification Criteria Finalized below]

S. No	Criteria	Pre-qualification Criteria description	Supporting Document	Response (Yes / No)	Reference in Response to Pre-Qualification Bid (Section # and Page #)

- i. The Pre-Qualification criteria for Bidders is as follows:

Pre-qualification criteria

S. No	Criteria	Pre-qualification Criteria description	Required documentary evidence	Applicability
1.	Financial Strength	<p>The bidder should have an average annual turnover of at least INR 500 Crores in last 3 financial years (FY 2013-14, 2014-15 and 2015-16).</p> <p>* For conversion of US Dollars to Rupees, the rate of conversion shall be Rupees 68.37 [Rupees Sixty eight point three seven] to a US Dollar. In case of any other currency, the same shall first be converted to US Dollars as on the date 60 (sixty) days prior to the Application Due Date, and the amount so derived in US Dollars shall be converted into Rupees at the aforesaid rate. The conversion rate of such currencies shall be the daily representative exchange rates published by the International Monetary Fund for the relevant date.</p>	<ul style="list-style-type: none"> • Extracts from the audited Balance sheet and Profit & Loss statements <p>And</p> <ul style="list-style-type: none"> • Certificate from the Statutory Auditor as per format "PQ Form 3" 	<p>Single Bidder- Bidder</p> <p>Consortium- All Consortium members jointly</p>
2.		<p>The bidder should have positive net worth for last three years as of March 31, 2016.</p> <p>For the purpose of this criterion, net-worth of only the bidding entity will be considered. Net-Worth of any parent, subsidiary, associated or other related entity will not be considered.</p> <p>Net Worth shall mean (Subscribed and Paid-up Equity + Reserves) less (Revaluation reserves + miscellaneous expenditure not written off + reserves not available for distribution to equity shareholders).</p>	<p>Duly certified statement from the auditor for the last 3 financial years as per format "PQ Form 3"</p>	<p>Single Bidder- Bidder</p> <p>Consortium- Lead Bidder</p>

S. No	Criteria	Pre-qualification Criteria description	Required documentary evidence	Applicability
3.	Incorporation of the Firm, Legal Entity	<p>The bidder could be</p> <ul style="list-style-type: none"> A company incorporated in India under the Companies Act, 1956 or Companies Act 2013 (as amended till date), and subsequent amendments thereto <p>Or</p> <ul style="list-style-type: none"> An entity registered under LLP Act 2008 and subsequent amendments thereto. <p>Or</p> <ul style="list-style-type: none"> Partnership firms registered under Indian Partnership Act, 1932 <p>The bidder should have been operating for the last five years as on the date of publishing of tender notice (including name change/ impact of mergers or acquisitions).</p>	Copy of Certificate of Incorporation	<p>Single Bidder- Bidder</p> <p>Consortium- Lead Bidder</p>
4.	Criteria related to Government Regulation	The Bidder shall not be declared ineligible for corrupt & fraudulent practices either indefinitely or for a particular period of time by any State/Central Government/ PSU/ Autonomous Body (Under Any government law) in India as on last date of submission of the Bid.	An undertaking from Authorized Signatory as per format “PQ Form 7”	<p>Single Bidder- Bidder</p> <p>Consortium- All Consortium members</p>
5.	Criteria related to Quality of Service Delivery	<p>The bidder should have been assessed for a Capability Maturity Model Integration (CMMi) Level 5.</p> <p>The assessment should be valid as on the last date of bid submission. In case of expiry of current assessment within nine months, the bidder shall provide a certificate from the Software Engineering</p>	<p>Copy of valid certificate issued to the Bidding Organization by respective agencies.</p> <p>Note: Organizations that are being currently assessed for the requisite certification level shall not be considered.</p>	<p>Single Bidder- Bidder</p> <p>Consortium- Lead Bidder</p>

S. No	Criteria	Pre-qualification Criteria description	Required documentary evidence	Applicability
		<p>Institute (SEI), USA auditor that reassessment for the same or higher level is commenced.</p>		
6.	Large Turnkey Project	<ul style="list-style-type: none"> • The Bidder must have experience of successful Go-Live / completed project during the last TEN years (as on the last date of bid submission) in one project having large IT system integration projects and related IT services implementation of project value of INR 160 crores and above <p>Or</p> <ul style="list-style-type: none"> • The Bidder must have experience of successful Go-Live / completed project during the last TEN years (as on the last date of bid submission) in two projects having large IT system integration projects and related IT services implementation of project value of INR 120 crores and above <p>Or</p> <ul style="list-style-type: none"> • The Bidder must have experience of successful Go-Live / completed project during the last TEN years (as on the last date of bid submission) in three projects having large IT system integration projects and related IT services implementation of project value of INR 100 crores and above <p>The IT system integration projects shall necessarily include Application development/customization/</p>	<ul style="list-style-type: none"> • Work Order + Completion Certificates from the client; <p>OR</p> <ul style="list-style-type: none"> • Work Order + Self Certificate of Completion (Certified by the Statutory Auditor); <p>OR</p> <ul style="list-style-type: none"> • Work Order + Phase Completion Certificate (for ongoing projects) from the client <p>Please provide project details as per format “PQ Form 5”</p>	<p>Single Bidder- Bidder</p> <p>Consortium- Lead Bidder</p>

S. No	Criteria	Pre-qualification Criteria description	Required documentary evidence	Applicability
		<p>configuration, IT infrastructure procurement, deployment and maintenance including DC and DR environment management.</p> <p>For the project cited, the IT infrastructure should have been deployed and the project should be successfully operational (after project Go-Live).</p>		
7.	Project Experience- ERP	<p>The Bidder must have System Integrator experience of successful Go-Live / completed project during the last TEN years (as on the last date of bid submission) in one project having ERP and related IT services implementation of project value of INR 40 crores and above</p> <p>Or</p> <p>The Bidder must have System Integrator experience of successful Go-Live/ completed project during the last TEN years (as on the last date of bid submission) in two projects having ERP and related IT services implementations, each of project value of Rs 30 crores and above</p> <p>Or</p> <p>The Bidder must have System Integrator experience of successful Go-Live/ completed project during the last TEN years (as on the last date of bid submission) in three projects having ERP and related IT services implementations , each of project value of Rs 20 crores and above</p>	<ul style="list-style-type: none"> • Work Order + Completion Certificates from the client; <p>OR</p> <ul style="list-style-type: none"> • Work Order + Self Certificate of Completion (Certified by the Statutory Auditor); <p>OR</p> <ul style="list-style-type: none"> • Work Order + Phase Completion Certificate (for ongoing projects) from the client • <p>Please provide project details as per format “PQ Form 5”</p>	<p>Single Bidder- Bidder</p> <p>Consortium- Lead Bidder</p>
8.	Criteria related to Man-Power Capability of Bidder	The bidder should have a team of at least 100 full time ERP consultants on its payroll having experience	Undertaking from authorized signatory	Single Bidder- Bidder

S. No	Criteria	Pre-qualification Criteria description	Required documentary evidence	Applicability
		in implementing the major modules / solution components of any ERP product.		Consortium- Lead Bidder
9.	Criteria related to the ERP Product Proposed by the Bidder	The bidder should have an active partnership agreement with the OEM of the proposed ERP solution to provide implementation services to implement the proposed solution in India.	Copy of Agreement OR Authorization Letter with document duly self-attested by Bidder and OEM Please provide as per format “PQ Form 8”	Single Bidder- Bidder Consortium- Lead Bidder
10.		The proposed ERP product should have been successfully implemented in at least 5 large ports (each of them catering to at least 50 MMT per annum or 1 M TEU container traffic) over the last TEN years as on last date of bid submission.	Details of Experience of OEM / Project Citation for projects supported with Work order and Proof of Go-live / Project completion certificates from client Please provide details as per format “PQ Form 5”	Single Bidder- ERP OEM Consortium- ERP OEM
11.	Criteria for ERP OEM	The OEM for ERP should have a registered office in India.	Copy of certificate of registration of Product OEM	Single Bidder- ERP OEM Consortium- ERP OEM
12.	Other Criteria	The bidder / Lead Bidder in case of consortium must submit EMD (Refer Proposal Data Sheet for amount) to IPA as per tender format	Bank Guarantee against EMD shall be submitted by Bidder Please provide as per format “PQ Form 4”	Single Bidder- Bidder Consortium- Lead Bidder
13.		MoU between lead bidder and Consortium members shall have to be submitted as per the conditions of consortium	MoU agreement Please provide as per format “PQ Form 6”	Single Bidder- Not Applicable Consortium- All

S. No	Criteria	Pre-qualification Criteria description	Required documentary evidence	Applicability
				consortium members jointly
14.		The bidder must submit Tender fees in form of Demand Draft (DD) to IPA.	Demand Draft of Tender fees shall be submitted by Bidder	Single Bidder- Bidder Consortium- Lead Bidder
15.	Criteria for Port Operations Solution	As per table	As per table	Single Bidder – Bidder Consortium – Port Operations Solution Provider

Pre-qualification criteria for Port Operations Solution (POS) Provider

##	Criteria	Criteria description	Required documentary evidence	Applicability
1	Financial Strength	The bidder should have an average annual turnover of at least INR 50 Crores or USD 7.5 Million in last 3 financial years (FY 2013-14, 2014-15 and 2015-16).	<ul style="list-style-type: none"> • Extracts from the audited Balance sheet and Profit & Loss statements And • Certificate from the Statutory Auditor 	Single Bidder – Bidder Consortium – Port Operations Solution Provider
2	POS solution	<p>The POS solution should have been successfully implemented in at least 5 ports / terminals covering following over the last TEN years as on last date of bid submission.</p> <p>a. Marine Operations b. Cargo Operations involving different types of cargo Break-bulk OR Bulk OR Cargo OR Liquid</p>	<ul style="list-style-type: none"> • Work Order + Completion Certificates from the client; OR • Work Order + Self-Certificate of Completion (Certified by the Statutory Auditor); OR • Work Order + Phase Completion Certificate (for ongoing projects) from the client 	Single Bidder – Bidder Consortium – Port Operations Solution Provider
3	Manpower Capability	The bidder should have a team of at least 60 Port Operation Solution consultants on its payroll having experience in implementing the POS solution	<ul style="list-style-type: none"> • Undertaking from authorized signatory 	Single Bidder – Bidder Consortium – Port Operations Solution Provider

##	Criteria	Criteria description	Required documentary evidence	Applicability
4	Integration capabilities	<p>At least 5 projects where POS solution has been integrated with one of the industry leading ERP solutions. These include:</p> <ul style="list-style-type: none"> • Classified under leaders or challengers quadrant as per latest Gartner’s report in the last one year as on day of submission of bid <p>OR</p> <ul style="list-style-type: none"> • Classified as leaders as per latest Forrester’s wave in the last one year as on day of submission of bid <p>OR</p> <ul style="list-style-type: none"> • Classified as leaders as per latest IDC MarketScape in the last one year as on day of submission of bid 	<ul style="list-style-type: none"> • Work Order + Completion Certificates from the client; <p>OR</p> <ul style="list-style-type: none"> • Work Order + Self-Certificate of Completion (Certified by the Statutory Auditor); <p>OR</p> <ul style="list-style-type: none"> • Work Order + Phase Completion Certificate (for ongoing projects) from the client 	<p>Single Bidder – Bidder Consortium – Port Operations Solution Provider</p>

Note:

All self-certificates shall be duly signed and Stamped by Authorized signatory of the Bidder Firm unless specified otherwise

4.6 Technical bid Evaluation

- i. This shall be the second stage of the evaluation. Only those bidders who cross the threshold level of Technical Evaluation indicated below and adhere to the purchaser’s technical requirements shall be considered for commercial evaluation.
- ii. In case of no response by the bidder to any of the requirements with regard to the contents of the Technical Bid, he shall not be assigned any marks for the same
- iii. Technical bid of the bidder shall be opened and evaluated for acceptability of Techno-functional requirements, deviations and technical suitability. The bidders shall respond to the requirements as explained below for their evaluation with regard to experience and qualification. Also, the bidder shall refer and respond to all technical requirements as mentioned in the tender document. The evaluation process would also include a presentation of technical proposal by the bidder.
- iv. Method of evaluation of selection of successful Bidder and award of Contract to bidder shall be on QCBS basis. Ratio of technical score from Schedule I (Port-EBS) will be 60% and 40% for Schedule II (POS). The bidder would be technically evaluated out of 1,000 marks for each schedule. All the bidders who secure overall minimum of 75% (750 Marks out of 1,000 across all the components together for each schedule) will be considered as technically qualified
- v. The Evaluation Committee shall indicate to all the Bidders the results of the technical evaluation through a written communication. The technical scores of the Bidders will be announced prior to the opening of the Commercial Proposals.
- vi. The technical qualification criteria is based on the following components

Schedule I – Evaluation criteria for Port-EBS solution

#	Evaluation Criteria for overall EBS solution	Max Marks
A	Bidder Experience	300
A.1	Large Scale Project Implementation	80
A.2	ERP Project Implementation	80
A.3	Cloud Experience	60
A.4	Networking Experience	40
A.5	Mobile Application Development	40
B	Resources Requirements	240
B.1	Project Manager (nos. 1)	30
B.2	Port Lead (nos. 6)	90
B.3	ERP expert for modules proposed- (nos. 10)	90
B.4	Solution Architect (nos. 1)	10
B.5	Network Architect (nos. 1)	10
B.6	Data Centre Specialist (nos. 1)	10
C	EBS Solution	360
C.1	Presentation	120
C.2	Functional Requirement Specifications - Non-POS	120
C.3	Technical Requirement Specifications	120
D	Approach and Methodology	100
	TOTAL	1000

Schedule II: Evaluation criteria for Port Operations Solution

Section	Evaluation Criteria for Port operations solution	Max Marks
A	Bidder Experience	500
1	No of implementations for the port operations solution being proposed. Implementation should include either Marine Operations or Cargo Operations	150
2	Must have a minimum of five years’ experience operating a maritime terminal operation or comparable experience.	100
3	Integration with leading ERP software	50
4	Previous Implementation of mobile applications for functions including Pilots, Tugs/craft, operators, Tally clerks, Gate Operators, Customer	100
B	POS solution	500
1	Fitness to functional requirement specifications. Previous implemented features shall get higher marks	200
2	Demonstration of solution across mentioned points Specific scenarios will be provided along with the invite for demonstrations	150
3	IT continuity solution for port operations solution in case of network failures, etc.	25
4	User friendliness of the interface with graphical assistance, etc. Requirement to reduce the number of inputs required to be carried out by the operators	100
5	Innovative suggestions provided to cater to various needs within the system	25
	TOTAL	1000

Technical Evaluation Criteria - Port Enterprise Business System (Port-EBS)

Sr. No.	PARAMETER	MAX. MARKS	EVIDENCE TO BE SUBMITTED
TOTAL		1,000	
A	Bidder Experience	300	
A.1	<p>The Bidder / Lead bidder must have System Integrator experience of large successful Go-Live/ completed project during the last ten years (as on the last date of bid submission). The implementation must include application development/ customization and any 2 of the following:</p> <ul style="list-style-type: none"> • Third Party Cloud Data center setup and operations • Network Setup and Management • Training & Capacity Building • Operation and maintenance services <p>All the above listed aspects shall be covered across a single project.</p> <p><u>15% marks per project will be allotted. The bidder can submit a maximum of 4 projects. Maximum 60% marks will be awarded.</u></p> <p><u>Additionally marks will be awarded as follows for the above considered projects:</u></p> <ul style="list-style-type: none"> • In case the above said experience is for a State/ Central Government / PSU / Autonomous Body (Under Any government law) – 5% Additional Marks per project. Maximum 20% marks will be awarded. • In case the value of the above cited experience is > 250 Crores each – 5% Additional Marks per project. Maximum 20% marks will be awarded. 	80	<ul style="list-style-type: none"> • Work Order + Completion Certificates from the client; OR • Work Order + Self Certificate of Completion (Certified by the Statutory Auditor); OR • Work Order + Phase Completion Certificate (for ongoing projects) from the client <p>Please provide project details as per format “Tech Form 9”</p>
A.2	<p>The Bidder / Any member of consortium must have System Integrator experience of successful Go-Live / completed project during the last ten years (as on the last date of bid submission) having ERP and related IT services implementation of project. Each implementation must include any 4 of the following:</p> <ul style="list-style-type: none"> • Human Resources Management • Material Management • Finance Management 	80	<ul style="list-style-type: none"> • Work Order + Completion Certificates from the client; OR • Work Order + Self Certificate of Completion (Certified by the Statutory Auditor); OR

Sr. No.	PARAMETER	MAX. MARKS	EVIDENCE TO BE SUBMITTED
	<ul style="list-style-type: none"> • Project Management • Asset Management • Estate Management • Plant Maintenance • Procurement Management <p>All the above listed aspects shall be covered across a single project.</p> <p><u>30% marks per project will be allotted. A bidder can submit maximum of 2 projects. Maximum 60% marks will be awarded.</u></p> <p><u>Additionally marks will be awarded as follows for the above considered projects:</u></p> <p style="padding-left: 40px;">In case the above said experience is for a State/ Central Government / PSU / Autonomous Body (Under Any government law) – 20% Additional Marks per project. Maximum 40% marks will be awarded.</p> <p>Here, System Integrator shall necessarily mean projects where scope of work includes Application Development / Customization Services and Maintenance Services.</p>		<ul style="list-style-type: none"> • Work Order + Phase Completion Certificate (for ongoing projects) from the client <p>Please provide project details as per format “Tech Form 9”</p>
A.3	<p>The Bidder / Any member of the consortium should have experience in setting-up cloud solution in India during the last ten years.</p> <p>Cloud Solution set-up would mean where the Bidder has, procured, installed and commissioned Cloud Infrastructure (Hardware and Software).</p> <p><u>50% marks per project will be allotted. A bidder can submit maximum of 2 projects.</u></p>	60	<ul style="list-style-type: none"> • Work Order + Completion Certificates from the client; <li style="text-align: center;">OR • Work Order + Self Certificate of Completion (Certified by the Statutory Auditor); <li style="text-align: center;">OR • Work Order + Phase Completion Certificate (for ongoing projects) from the client <p>Please provide project details as per format “Tech Form 9”</p>
A.4	<p>The bidder / Any member of the consortium should have been carrying/ carried out WAN/ LAN System Integration (Supply, installation, management & support of Active & Passive System) and related services in networking field in India in the last ten years.</p>	40	<ul style="list-style-type: none"> • Work Order + Completion Certificates from the client; <li style="text-align: center;">OR • Work Order + Self Certificate of Completion

Sr. No.	PARAMETER	MAX. MARKS	EVIDENCE TO BE SUBMITTED
	<p><u>50% marks per project will be allotted. A bidder can submit maximum of 2 projects.</u></p>		<p>(Certified by the Statutory Auditor);</p> <p>OR</p> <ul style="list-style-type: none"> • Work Order + Phase Completion Certificate (for ongoing projects) from the client <p>Please provide project details as per format “Tech Form 9”</p>
A.5	<p>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 ten year.</p> <p><u>50% marks per project will be allotted. A bidder can submit maximum of 2 projects.</u></p>	40	<ul style="list-style-type: none"> • Work Order + Completion Certificates from the client; <p>OR</p> <ul style="list-style-type: none"> • Work Order + Self Certificate of Completion (Certified by the Statutory Auditor); <p>OR</p> <p>6Work Order + Phase Completion Certificate (for ongoing projects) from the client</p> <p>Please provide project details as per format “Tech Form 9”</p>
B	Resource Requirements	240	
B.1	<p>Project Manager (Full Time)</p> <ul style="list-style-type: none"> • BE / B.Tech / MCA / M.Tech / MBA with at least 20 years’ of Total work experience (Mandatory Conditions) <p>Award of marks will be as follows:</p> <ul style="list-style-type: none"> • Experience of implementing end to end Projects for scope as defined in the criteria A.1.1 <ul style="list-style-type: none"> ○ ≥ 2 Projects – 30% Marks ○ < 2 – 0 Marks • Experience of implementing end to end Projects for scope as defined in the criteria A.1.2 <ul style="list-style-type: none"> ○ ≥ 2 Projects – 30% Marks ○ < 2 – 0 Marks 	30	<p>Signed Technical Bid</p> <p>Please provide resource details as per format “Tech Form 3”</p>

Sr. No.	PARAMETER	MAX. MARKS	EVIDENCE TO BE SUBMITTED
	<ul style="list-style-type: none"> • Experience of Projects dealing with Sea Port Sector <ul style="list-style-type: none"> ○ ≥ 2 Projects – 10% Marks ○ > 1 Project – 5% Marks • Experience of implementing a single project across more than 3 locations within the same country- 10% Marks. If no such experience- 0 Marks • Experience of implementing end to end Projects in PSU/ Government Bodies/ Autonomous Organizations (Under any Indian Government law) in India <ul style="list-style-type: none"> ○ ≥ 2 Projects – 10% Marks ○ < 2 – 0 Marks • Certifications: PMP / Prince2 Certification. Documentary proof to be submitted. <ul style="list-style-type: none"> ○ Certified: 5% Marks ○ Not Certified: 0 Marks 		
B.2	<p>Project Lead- Port 1 (nos. 6 – 15 marks for each individual profile)</p> <ul style="list-style-type: none"> • BE / B.Tech / MCA / M.Tech / MBA with atleast 10 years’ of total work experience <p>Award of Marks shall be as follows:</p> <ul style="list-style-type: none"> • Experience of leading large scale ICT projects each worth atleast INR 20 Crores <ul style="list-style-type: none"> ○ ≥ 2 Projects – 20% Marks ○ < 2 – 0 Marks – 0 Marks • Experience of managing projects in government /PSU/ Private Sector <ul style="list-style-type: none"> ○ >3 Projects- 30% Marks ○ 1 to 2 Projects- 20% Marks ○ 0 Projects- 0 • Experience of working for sea port projects <ul style="list-style-type: none"> ○ 2 Projects- 20% Marks ○ 1 Project- 10% Marks ○ 0 Project- 0 Marks 	90	<p>Signed Technical Bid</p> <p>Please provide resource details as per format “Tech Form 3”</p>
B.3	<p>Functional Leads- ERP expert for modules proposed (nos. 10 – 9 marks for each individual profile)</p> <ul style="list-style-type: none"> • BE / B.Tech / MCA / M.Tech / MBA with atleast 8 years’ of total work experience <p>Award of Marks shall be as follows:</p> <ul style="list-style-type: none"> • Experience in end to end implementation of HR Module of the proposed ERP Product. 	90	<p>Signed Technical Bid</p> <p>Please provide resource details as per format “Tech Form 3”</p>

Sr. No.	PARAMETER	MAX. MARKS	EVIDENCE TO BE SUBMITTED
	<ul style="list-style-type: none"> ○ ≥ 5 Projects- 50% Marks ○ ≥ 3 Projects- 30% Marks ○ < 3 Projects- 0 marks ● Certifications: Certification in proposed function / Product offered. Documentary proof to be submitted. Documentary proof to be submitted. <ul style="list-style-type: none"> ○ Certified: 20% Marks ○ Not Certified: 0 Marks 		
B.4	<p>Solution Architect with 12 years' work experience (nos. 1)</p> <p>Award of marks will be as follows:</p> <ul style="list-style-type: none"> ● Experience as Solution Architect in large Turnkey projects each of them being of value more than 25 Cr. <ul style="list-style-type: none"> ○ Number of projects ≥ 5 - 30% Marks ○ 3 to 4 – 15% Marks ○ < 3 – 0 Marks ● Experience: Number of Government / PSU Projects <ul style="list-style-type: none"> ○ ≥ 4 – 30% Marks ○ 1 to 3 – 20% marks ○ < 1 – 0 Marks ● Certifications: TOGAF Documentary proof to be submitted. <ul style="list-style-type: none"> ○ Certified: 5% Marks ○ Not Certified: 0 Marks 	10	<p>Signed Technical Bid</p> <p>Please provide resource details as per format “Tech Form 3”</p>
B.5	<p>Network Architect (nos. 1)</p> <ul style="list-style-type: none"> ● BE / B.Tech / MCA / M.Tech with atleast 10 years' work experience <p>Award of marks will be as follows:</p> <ul style="list-style-type: none"> ● Years of Experience- <ul style="list-style-type: none"> ○ More than 15 years- 50% marks ○ ≥ 10 and < 15 Years- 30% Marks ○ < 10 years- 0 Marks ● Certification- CCNA/CWNA/CCNP <ul style="list-style-type: none"> ○ Certified- 20% Marks ○ Not Certified- 0 Marks 	10	<p>Signed Technical Bid</p> <p>Please provide resource details as per format “Tech Form 3”</p>
B.6	<p>Data Centre Specialist (nos.1)</p> <p>Engineer with experience in Cloud Computing technologies (IAAS/ PAAS/ SAAS) with atleast 10 years' of work experience.</p>	10	<p>Signed Technical Bid</p> <p>Please provide resource details as per format “Tech Form 3”</p>

Sr. No.	PARAMETER	MAX. MARKS	EVIDENCE TO BE SUBMITTED
	<p>Award of marks will be as follows:</p> <ul style="list-style-type: none"> • Experience in large scale Data Centre design and implementation. <ul style="list-style-type: none"> ○ ≥ 8 years – 50% Marks ○ ≥ 5 years < 8 years – 25% Marks ○ < 3 years – 0 Marks • Experience of managing projects where third party cloud data centre was integral part of the project scope of work <ul style="list-style-type: none"> ○ ≥ 3 Projects – 20% Marks ○ 1 to 2 Projects – 10% Marks ○ 0 Projects- 0 Marks • Cloud Certification from any leading Cloud OEMs <ul style="list-style-type: none"> ○ Certified–5% Marks ○ Not certified – 0 Marks 		
C	Technical Solution	360	
C.1	<p>Technical Presentation (Additional Marks shall be awarded on the basis of specific information submitted by the bidder, clarifications by bidder during the presentation)</p> <ul style="list-style-type: none"> • Understanding of the challenges • Governance framework • Demo of the proposed system • Question and Answers 	120	Presentation, demonstration and Q&A
C.2	<p>Compliance to Functional Requirement Specifications as per Volume II of the Tender</p> <ul style="list-style-type: none"> • Functionality can be provided by the proposed solution out of the box = 10 • Functionality can be provided by customization to the proposed solution = 7 • Functionality will be developed = 2 <p>Marks will be awarded for all requirements as per the above marking scheme and the Total shall be pro-rated against a maximum score of 120 to arrive at the final Score</p>	120	Signed Technical Bid
C.3	Compliance to Technical Requirement Specifications as per Volume II of the tender		1. MAF provided by OEM stating that product being proposed meets the

Sr. No.	PARAMETER	MAX. MARKS	EVIDENCE TO BE SUBMITTED																										
	<table border="1"> <thead> <tr> <th>Critical Components</th> <th>Max marks</th> <th>Evaluation</th> </tr> </thead> <tbody> <tr> <td>ERP software</td> <td>30</td> <td rowspan="12"> 50% of the marks will be deducted if the product supplied doesn't meet the following criteria – “Criteria for Additional Marks” <ul style="list-style-type: none"> Classified under leaders or challengers quadrant as per latest Gartner's report in the last one year as on day of submission of bid OR Classified as leaders as per latest Forrester's wave in the last one year as on day of submission of bid OR Classified as leaders as per latest IDC MarketScape in the last one year as on day of submission of bid </td> </tr> <tr> <td>Core switch</td> <td>10</td> </tr> <tr> <td>Core router</td> <td>10</td> </tr> <tr> <td>Distribution & other network switches</td> <td>10</td> </tr> <tr> <td>Other routers</td> <td>10</td> </tr> <tr> <td>Servers in Port on premise site</td> <td>10</td> </tr> <tr> <td>API manager</td> <td>10</td> </tr> <tr> <td>Storage (SAN)</td> <td>10</td> </tr> <tr> <td>Desktops, thin clients and laptops</td> <td>10</td> </tr> <tr> <td>Security infrastructure - Firewalls & Intrusion Prevention Systems, SIEM, DDoS, UTM)</td> <td>10</td> </tr> <tr> <td>Total</td> <td>120</td> </tr> </tbody> </table>	Critical Components	Max marks	Evaluation	ERP software	30	50% of the marks will be deducted if the product supplied doesn't meet the following criteria – “Criteria for Additional Marks” <ul style="list-style-type: none"> Classified under leaders or challengers quadrant as per latest Gartner's report in the last one year as on day of submission of bid OR Classified as leaders as per latest Forrester's wave in the last one year as on day of submission of bid OR Classified as leaders as per latest IDC MarketScape in the last one year as on day of submission of bid 	Core switch	10	Core router	10	Distribution & other network switches	10	Other routers	10	Servers in Port on premise site	10	API manager	10	Storage (SAN)	10	Desktops, thin clients and laptops	10	Security infrastructure - Firewalls & Intrusion Prevention Systems, SIEM, DDoS, UTM)	10	Total	120		<p>requirement criteria as mentioned in the RFP including changes issued</p> <ol style="list-style-type: none"> Declaration by OEM that proposed products comply with the “Criteria for Additional Marks” Copy of the relevant report (Gartner / Forrester / IDC) All related documents to be provided as part of the technical proposal response meeting the compliance against the product specifications asked as part of this RFP
Critical Components	Max marks	Evaluation																											
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Security infrastructure - Firewalls & Intrusion Prevention Systems, SIEM, DDoS, UTM)	10																												
Total	120																												
D	Program Management Methodology		100																										
D.1	<p>Will be evaluated across following:</p> <ul style="list-style-type: none"> Understanding of Port-EBS objectives and challenges with port specific implementation Approach for implementation of EBS within project timelines 	100	Signed Technical Bid. This could be in the form of a write-up elaborating the implementation, support and maintenance, roll out methodology to be adopted for this project.																										

Sr. No.	PARAMETER	MAX. MARKS	EVIDENCE TO BE SUBMITTED
	<ul style="list-style-type: none"> Approach and Methodology for implementation and maintenance Support Detailed Project Plan covering scope of work, activities & deliverables as per timelines Change Management and Training Approach for real-time information capture and display for Port operations Approach for standardization of port solution, deployment and IT continuity Approach for integration between various sub-systems including POS, ERP and other systems as defined within RFP 		<p>Presentation and demonstrations</p> <p>Please provide details as per format “Tech Form 4 to 8”</p>

Technical Evaluation Criteria – Port Operations Solution Specific

The Port Operations Solution needs to score a minimum of 70% marks in the criteria mentioned below for technical qualification

#	Criteria	Max Marks	Evaluation
A	Previous relevant experience	400	Evaluation of response provided in conformance to format provided
1	<p>No of implementations for the port operations solution being proposed. Implementation should include either Marine Operations or Cargo Operations</p> <p>Up to 10: 70% marks Between 11 and 30: 80% marks Greater than 30: 100% marks</p>	150	<ul style="list-style-type: none"> Work Order + Completion Certificates from the client; OR Work Order + Self-Certificate of Completion (Certified by the Statutory Auditor); OR Work Order + Phase Completion Certificate (for ongoing projects) from the client <p>Please provide project details as per format “Tech Form 9”</p>
2	<p>Must have a minimum of five years’ experience operating a Port operations solution within a maritime terminal operation or comparable experience. Project before FIVE years to be submitted against the criteria</p> <p>Up to 5: 70% marks Between 5 and 10: 80% marks Greater than 10: 100% marks</p>	100	<ul style="list-style-type: none"> Work Order + Completion Certificates from the client; OR Work Order + Self-Certificate of Completion (Certified by the Statutory Auditor); OR Work Order + Phase Completion Certificate (for ongoing projects) from the client

#	Criteria	Max Marks	Evaluation
			Please provide project details as per format “Tech Form 9”
3	<p>Integration with leading ERP software. Leading ERP software which comply with the following:</p> <ul style="list-style-type: none"> Classified under leaders or challengers quadrant as per latest Gartner’s report in the last one year as on day of submission of bid OR Classified as leaders as per latest Forrester’s wave in the last one year as on day of submission of bid OR Classified as leaders as per latest IDC MarketScape in the last one year as on day of submission of bid <p>None: 0 marks At least one: 70% marks Between 1 and 4: 80% marks More than 4: 100% marks</p>	50	<ul style="list-style-type: none"> Work Order + Completion Certificates from the client; OR Work Order + Self-Certificate of Completion (Certified by the Statutory Auditor); OR Work Order + Phase Completion Certificate (for ongoing projects) from the client <p>AND Copy of the relevant report (Gartner / Forrester / IDC)</p>
4	<p>Previous Implementation of mobile applications for following functions:</p> <ul style="list-style-type: none"> Pilots Tugs/craft operators Tally clerks Gate Operators Customer <p>Up to THREE functions: 70% Between 3 and 4: 80% All functions: 100%</p>	100	<ul style="list-style-type: none"> Work Order + Completion Certificates from the client; OR Work Order + Self-Certificate of Completion (Certified by the Statutory Auditor); OR Work Order + Phase Completion Certificate (for ongoing projects) from the client <p>Please provide project details as per format “Tech Form 9”</p>
B	Solution	500	
1	<p>Fitness to functional requirement specifications.</p> <ul style="list-style-type: none"> Functionality can be provided by the proposed solution out of the box =10 Functionality can be provided by customization to the proposed solution = 7 	200	Signed technical bid

#	Criteria	Max Marks	Evaluation
	<ul style="list-style-type: none"> Functionality will be developed = 2 <p>Marks will be awarded for all requirements as per the above marking scheme and the Total shall be pro-rated against a maximum score of 200 to arrive at the final Score</p>		
2	<p>Demonstration of solution across following points</p> <ul style="list-style-type: none"> Port Customer interface portal Port partner portal Port operations team portal Mobile Applications Dashboards <p>Specific scenarios will be provided along with the invite for demonstrations</p>	150	Presentation, demonstration and Q&A
3	IT continuity solution for port operations solution in case of network failures, etc.	25	Signed technical bid
4	User friendliness of the interface with graphical assistance, etc. Requirement to reduce the number of inputs required to be carried out by the operators	100	Signed technical bid, Presentation, demonstration and Q&A
5	Innovative suggestions provided to cater to various needs within the system	25	Signed technical bid, Presentation, demonstration and Q&A

4.7 Commercial Bid Evaluation

- i. The commercial bids shall not be opened by IPA until the evaluations of Technical bids have been completed. The technically shortlisted Bidders will be informed of the date and venue of the opening of the Commercial Proposals through email or written communication
- ii. Prices quoted indicating total price for all the deliverables and services must be fixed and final and shall remain constant throughout the period of the contract and shall not be subject to any upward modifications, on any account whatsoever. The Bid Prices shall be indicated in Indian Rupees (INR) only and payments shall be made to successful bidders in Indian currency only
- iii. The bid should clearly indicate the price to be charged without any qualifications whatsoever and should include all taxes, duties, fees, levies, works contract tax and other charges as may be applicable in relation to the activities proposed to be carried out. IPA reserves the right to ask the Bidder to submit proof of payment against any of the taxes, duties, levies indicated.
- iv. The taxes quoted in the offer should be as per the prevailing tax rates. Any subsequent increase in the tax rates or introduction of new tax will be paid by IPA. Similarly any benefits arising due to downward revision in tax rates, or any exemptions availed by the Bidders organization should be passed on to IPA.
- v. The individual cost components as detailed later in the tender shall be uploaded as scanned copy in the commercial envelope. The summary of all components shall be uploaded as BoQ format in excel.
- vi. An adjustable price quotation or conditional proposal shall be treated as non-responsive and the bid may be rejected.

- vii. Bidders are advised to exercise adequate care in quoting the prices. No excuse for corrections in the quoted figures will be entertained after the commercial proposals are received.
- viii. Errors & Rectification: Arithmetical errors will be rectified on the following basis:
 - If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected.
 - If there is a discrepancy between words and figures, the amount in words will prevail.
- ix. Bidder should provide all prices as per the prescribed format provided in Volume I of the tender
- x. Bidders shall indicate the unit rates and total Bid Prices of the equipment/ services, it proposes to provide under the Contract. Prices should be shown separately for each item as required in the tender.
- xi. Bidder should not leave any field blank. In case the field is not applicable, Bidder must indicate "0" (Zero) in all such fields.
- xii. If there is no price quoted for certain material or service, the bid shall be declared as disqualified.
- xiii. The Bidder needs to account for all Out of Pocket expenses related to Boarding, Lodging and other related items in the commercial bids. Any additional charges have to be borne by the bidder. For the purpose of evaluation of Commercial Bids, IPA shall make appropriate assumptions as mentioned below to arrive at a common bid price for all the Bidders. This however shall have no co-relation with the Contract value or actual payment to be made to the Bidder.
- xiv. The price quoted in the Commercial Proposal shall be the only payment, payable by IPA to the successful Bidder for completion of the contractual obligations by the successful Bidder under the contract, subject to the terms of payment specified as in the proposed commercial bid or the one agreed between IPA and the Bidder after negotiations.
- xv. It is mandatory to provide break-up of all taxes, duties and levies wherever applicable and/or payable. All the taxes of any nature whatsoever shall be borne by the Bidder including any additional taxes/levies due to change in tax rates through the validity of the bid and contract. The bid amount shall be inclusive of packing, forwarding, transportation, insurance till Go Live, delivery charges and any other charges as applicable. Any other charges as applicable shall be borne by the Bidder.
- xvi. Percentage (%) of taxes etc. if any, to be claimed shall be indicated in the Price bid, otherwise it will be presumed that rates are inclusive of all taxes and no plea would be accepted in this regard after opening of the tenders and during the validity of the contract.
- xvii. The Bidders are advised not to indicate any separate discount. Discount, if any, should be merged with the quoted prices. Discount of any type, indicated separately, will not be taken into account for evaluation purpose. However, in the event of such an offer, without considering discount, is found to be the lowest, IPA shall avail such discount at the time of award of Contract. For future purposes, Unit prices of all individual components will be discounted accordingly (by the overall discount % in case overall discount % is given or by the individual component discount % in case item wise discount given) to arrive at component-wise unit prices.

4.8 Award Criteria

- i. Evaluation criteria proposed to be adopted will be Quality cum Cost Based System (QCBS) where Technical Bid Score will get a weightage of 70% and Commercial Bid Score a weightage of 30%.
- ii. The bidder would be technically evaluated out of 1000 marks. All the bidders who secure overall minimum of 75% (750 Marks out of 1000 across all the components together) will be considered as technically qualified. Technical score of all bidders will be calculated on the basis of the following formula:
- iii. Technical Score of bidder (TS) = Technical Marks received by the bidder x 70%
- iv. The Bid having the Lowest Commercial Quote shall be termed as the Lowest Evaluated Bid and will be awarded 1000 marks. Commercial score of all the other bidders will be calculated on the basis of the following formula:

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- v. Commercial score of bidder (CS) = Commercial Quote of the lowest bidder x 1000 x 30%

Commercial Quote of the bidder

- vi. Final Score of the bidder: Final Score of the each bidding party will be computed by adding the Technical score and Commercial Score on the basis of the following formula:
- vii. Total Score = TS + CS
- viii. The bidder whose bid has secured the “Highest Total Score” out of 1000 as per above evaluation will be considered as best evaluated Bid.
- ix. In case of a tie where two or more bidders achieve the same highest overall score, the bidder with the higher technical score will be invited first for negotiations
- x. IPA is not bound to accept the best evaluated bid or any bid and reserves the right to accept any bid, wholly or in part.
- xi. Example demonstrating the calculation of Technical Score and Commercial Scores is provided below:

Bidder	Marks Received by bidder	Calculations	Technical Score of bidder (TS)
Bidder 1	880	880*70%	616
Bidder 2	900	900*70%	630
Bidder 3	800	800*70%	560
Bidder 4	950	950*70%	665

Bidder	Commercial Quote Provided by Bidder	Calculation of commercial score	Commercial Score of Bidder (CS)
Bidder 1	110	(110/110)*1000*30%	300
Bidder 2	140	(110/140)*1000*30%	235.7
Bidder 3	160	(110/160)*1000*30%	306.3
Bidder 4	130	(110/130)*1000*30%	253.8

Total Score for each bidder

Bidder	Technical Score (TS)	Commercial Score (CS)	Total Score
Bidder 1	616	300	916
Bidder 2	630	235.7	865.7
Bidder 3	560	306.3	866.3
Bidder 4	665	253.8	918.8

The bidder with the highest final score shall be treated as the best evaluated Bid. In the above example, Bidder 4 will be treated as best evaluated Bid.

4.8.1 Notification of Award

- i. Prior to the expiration of the validity period, IPA will notify the successful bidders in writing or by fax or email, that its proposal has been accepted. In case the tendering process / public

procurement process has not been completed within the stipulated period, IPA may like to request the bidders to extend the validity period of the bid. Upon the selected bidder's furnishing of Performance Bank Guarantee, the Client will notify all other bidders who are not selected.

- ii. The notification of award will constitute the formation of the contract. At the time, IPA notifies the successful bidder that its bid has been accepted, IPA will send the bidders the proforma of contract, incorporating all clauses/ agreements between the parties. The successful bidder shall sign and date the contract and return it to IPA.

4.8.2 Contract Finalization and Award

- i. The written advice to any change shall be issued by IPA to the bidders up to 4 (four) weeks prior to the due date of commencement of services.
- ii. The selected Bidder/s should convey acceptance of the award of contract by returning duly signed and stamped duplicate copy of the award letter within 7 days of receipt of the communication.
- iii. Upon notification of award to the successful Bidder, IPA will promptly notify each unsuccessful Bidder.

4.8.3 Negotiations with the successful bidder

- i. If required, negotiations will be held at the date, time and address intimated to the 1st Ranked Bidder. Representatives conducting negotiations on behalf of the bidder must have written authority to negotiate and conclude a Contract.
- ii. If the negotiations fail, the Client shall inform the bidder in writing of all pending issues and disagreements and provide a final opportunity to the bidder to respond. If disagreement persists, the Client shall terminate the negotiations informing the bidder of the reasons for doing so. The Client will invite the next-ranked bidder to negotiate the Contract.

4.8.4 Performance Bank Guarantee

- i. The PBG shall be submitted within 30 days of notification of award done through issuance of the Work Order/ Letter of Acceptance valid for the entire period of the project. IPA shall facilitate the signing of contract within the period of 30 days of notification of award. However, it is to be noted that the date of commencement of project and all contractual obligations shall commence from the date of issuance of Work order/ letter of acceptance, whichever is earlier. All reference timelines as regards execution of project and payments to bidder shall be considered as beginning from date of issuance of Work Order/ letter of acceptance, whichever is earlier.
- ii. An amount equivalent of 10 % of total contract value shall be payable by the bidder. All charges whatsoever such as commission, etc. with respect to the Performance Bank guarantee shall be borne by the bidder.
- iii. The Performance bank guarantee may be discharged / returned by IPA upon being satisfied that there has been due performance of the obligations of bidder under contract. However, no interest shall be payable on the PBG. The selected bidder shall be responsible for extending the validity date and claim period of the Performance Bank Guarantee as and when it is due on account of non-completion of the project and warranty period. In case the selected bidder fails to submit performance bank guarantee with the time stipulated, IPA at its discretion may cancel the work order placed on the selected bidder without giving any notice.
- iv. IPA shall invoke the performance guarantee in case the selected bidder fails to discharge their contractual obligations during the period or purchaser incurs any loss due to bidder's negligence in carrying out the project implementation as per the agreed terms & conditions. Notwithstanding and without any prejudice to any rights whatsoever of IPA under contract in Matter, the proceeds of PBG shall be payable to IPA as compensation for any loss resulting from bidder's failure to complete its obligations under the Contract. IPA shall notify the bidder in writing of the exercise of its right to receive such compensation within 14 days, indicating the contractual obligations for which the bidder is in default.

- v. The purchaser shall also be entitled to make recoveries from the bidder's bills, PBG, or from any other amount due to the bidder, the equivalent value of any payment made to the bidder due to inadvertence, error, collusion, misconstruction or misstatement.

4.8.5 Signing of Contract

- i. After the IPA notifies the successful bidders that its proposal has been accepted, IPA shall enter into a contract, incorporating all clauses, pre-bid clarifications and the proposal of the bidders between IPA and the successful bidders. The Draft Legal Agreement is provided as a separate document as a template.
- ii. After completing negotiations the Purchaser shall issue a Letter of Intent to the selected bidder and promptly notify all other bidders who have submitted proposals about the decision taken.

4.8.6 Failure to Agree with the Terms and Conditions of the tender

- Failure of the successful bidders to agree with the Draft Legal Agreement and Terms & Conditions of the tender shall constitute sufficient grounds for the annulment of the award, in which event IPA may award the contract to the next best evaluated bidder or call for new proposals from the interested bidders.
- In such a case, the IPA shall invoke the PBG of the successful bidder.

5 Constitution of Team

- i. Key Personnel involved in the project shall be on the payrolls of the Lead Bidder or any of the consortium members.
- ii. The bidder should have a defined hierarchy and reporting structure for various teams that would be part of the project.
- iii. All the concerned staff should log an attendance on a daily basis at their respective reporting location.
- iv. The bidder shall ensure that all the personnel identified for this project have high level of integrity. The bidder shall undertake necessary due diligence to ensure that the personnel have high standard of trustworthiness. The bidder should obtain an undertaking from each of the personnel assigned and the same should be submitted to the IPA or its nominated agencies/ partners as and when demanded by IPA or its nominated agencies/ partners. In addition, IPA could also get the background verification checks of the bidder personnel. Any information needed for this activity by IPA should be provided immediately by bidder.
- v. Bidder can provide additional manpower on the basis of their estimate of effort required to complete the scope of work given in of the tender.
- vi. The bidder should provide sufficient Non-Key Personnel to complete the scope of work. Bidder need not submit the names of such Non-Key Personnel along with the tender.
- vii. Bidder can offer more than one key personnel for a role to improve the quality of key personnel keeping in mind the scope of work as provided in the tender.
- viii. For a project of such a large scale and complexity, it is imperative that the bidder should deploy best of class professionals to ensure successful execution of this project. The bidder will in its proposal include the names and detailed curriculum vitae of their key personnel who will be working full time on this project. For successful completion and execution of project the bidder shall have to deploy minimum resources as provided in the table below.
- ix. The bidder is free to propose and deploy as many resources apart from the below list for the successful and timely completion of the project. IPA or its nominated agencies/ partners will provision space for 15 Bidder personnel in its premises. For the key personnel working out of IPA's/ its nominated agencies/ partners office, IPA will provide them with basic office infrastructure like seating space, Fan, etc. The bidder team is expected to bring their own laptops and data cards (as required). The port leads will have to work out of the respective port locations.

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Sr. No.	Level	Min. No. of People	Minimum Onsite Deployment	
			Phase I & II	During Phase III
1.	Project Director	1	10%	10%
2.	Project Manager	1	100%	100% for first 6 months after Go-Live, 25% afterwards
3.	Project Leads at each Port location (Haldia is considered as sixth location)	6	100%	
4.	Functional Leads	10	100%	100% for first 6 months after Go-Live, 25% afterwards
5.	Network Architect	1	100%	100% for first 6 months after Go-Live, 25% afterwards
6.	Solution Architect	1	100%	100% for first 6 months after Go-Live, 25% afterwards
7.	Data Centre Specialist	1	100%	100% for first 6 months after Go-Live, 25% afterwards
8.	Database Administrators	2	100%	100% for first 6 months after Go-Live, 25% afterwards
9.	Trainers/ Change Management Specialists	12	100%	100% for first 6 months after Go-Live, 25% afterwards
10.	Technical Support Team at each Port	12	100%	100% for first 6 months after Go-Live, 25% afterwards
11	IT Helpdesk executives at centre	5	As required	100%
12	IT Helpdesk executives at ports (Minimum 3 per port)	18	As required	100%

6 Payment Terms

6.1 Payment components

The tender envisages a cafeteria model which consists of central infrastructure and port specific infrastructure. The break-up of these components along with their description is given subsequently. The tender provides minimum indicative Bill of material in Volume II of this tender.

Code	Component	Type of component	Pricing	Cafeteria Model for Ports	
				Component	Underlying units
Central Infrastructure					
APP.1	Application 1 - Supply	Shared	PORT SHARE	Mandatory	Not-Modifiable
APP.2	Application 1 - Supply – ATS & AMC	Shared	PORT SHARE	Mandatory	Not-Modifiable
APP.3	Application 2 - Bespoke + Configuration + Migration	Shared	PORT SHARE	Mandatory	Not-Modifiable
MAS	Application Support - Manpower	Shared	PORT SHARE	Mandatory	Not-Modifiable
TCB	Training & Capacity Building	Shared	PORT SHARE	Mandatory	Not-Modifiable
CIH	Central IT Helpdesk	Shared	PORT SHARE	Mandatory	Not-Modifiable
CCI	Central Compute Infrastructure	Shared	PORT SHARE	Mandatory	Not-Modifiable
BWR.1	Bandwidth requirements - @Centre	Shared	PORT SHARE	Mandatory	Not-Modifiable
CAC	Call Centre	Shared	PORT SHARE	Mandatory	Not-Modifiable
Port-specific Infrastructure					
PSR	Port Server Room	Port-specific	As opted by port	Optional	Not-Modifiable
NWI	Networking Infrastructure	Port-specific	As opted by port	Mandatory	Modifiable
BWR.2	Bandwidth requirements - @Port	Port-specific	As opted by port	Mandatory	Modifiable
PSC	Port Service Centre	Port-specific	As opted by port	Optional	Modifiable
PIH	Port-specific IT helpdesk	Port-specific	As opted by port	Mandatory	Modifiable
PCC	Port Command Centre	Port-specific	As opted by port	Mandatory	Modifiable
TRI	Training Room Infrastructure	Port-specific	As opted by port	Optional	Modifiable
EUC	End User Computing	Port-specific	As opted by port	Mandatory	Modifiable
DIC	Dispatch centres	Port-specific	As opted by port	Optional	Modifiable
DNS	Digitization & Scanning	Port-specific	As opted by port	Optional	Modifiable
MOP	Manpower - Operations	Port-specific	As opted by port	Optional	Modifiable

Where

Cafeteria Model – Component	
Value	Description
Optional	Port may or may not opt for the component
Mandatory	Each port has to opt for the component
Cafeteria Model - Underlying units	
Value	Description
Modifiable	Port may increase or decrease the component count or underlying units count
Not-Modifiable	The component count or underlying units count shall not be modified by port

Note:

- The tender envisages FIVE major ports, however, it includes of 6 specific installations with Kolkata Port Trust split at Kolkata and Haldia. There are also certain locations such as Vadinar in case of Kandla which are part of scope of this tender. The bidder is expected to carry out detailed assessment of port specific locations for these ports through port website or port visits before submitting the bid.
- The Bill of Material as provided in the Volume II of this tender consists cumulative count of components across ports. With reference to the above table, certain components may or may not be opted for by some ports i.e. if the BOM mentions the Quantity as ‘6’ for a component, it may be possible that the component could be required at 5 locations only with one location requiring more than one in quantity. The bidder is expected to make a note of the same
- Ports are expecting significant reduction in the number of employees due to retirement in the coming years. Due this the requirements for software licenses and related infrastructure shall have to be reduced accordingly. In such scenario, certain software licenses / infrastructure shall be surrendered and payments related to these will be readjusted accordingly. The bidder is expected to keep a note of the same.
- Bidder must factor in a $\pm 15\%$ in the minimum indicative quantity for port-specific infrastructure as indicated in the Volume II of this tender
- Cafeteria model envisages that a particular port may opt for additional components during the contract period. Unit rates of these components are being discovered as part of the price bid. The bidder will be expected to provide these components at the discovered unit rate as per the price bid.
- In future, there may be a need wherein a new port may be added in the scope of work for the MSP. Such changes may take place with mutually agreed terms and conditions.

Description of cost components in as given below:

Code	Cost component	Description
Central Infrastructure		
APP.1	Application 1 - Supply	Costs associated with all software and related licenses required for the project
APP.2	Application 1 - Supply – ATS & AMC	Costs associated with Annual Technical Support including warranty, patches, etc. as required for the project and Annual Maintenance Contract
APP.3	Application 2 - Bespoke + Configuration + Migration	Costs associated with development, configuration / customization, testing, deployment and support of the application for the project

Code	Cost component	Description
MAS	Application Support - Manpower	Costs associated with deployment of manpower as required for the project
TCB	Training & Capacity Building	Costs associated with training and capacity building as required for the project including but not limited to trainer, training material, consumables, etc.
CIH	Central IT Helpdesk	Costs associated with establishment of central IT helpdesk for the project. Central IT helpdesk will be placed out of IPA office at Delhi and shall manage IT operations remotely
CCI	Central compute infrastructure	Costs associated with establishment and operations of central compute infrastructure including primary site and disaster recovery site as required for the project
BWR.1	Bandwidth requirements - @Centre	Costs associated with necessary bandwidth requirements for central infrastructure as required for the project
CAC	Call Centre	Costs associated with implementing and managing call centre and operations as required for the project. Call centre services will be provided by MSP remotely for port external users on per seat basis
Port-specific Infrastructure		
PSR	Port On-premise Site	Costs associated with establishment of Port On premise site at port. This is an IT continuity site expected to be provisioned at port, in case there is a severe outage of central compute infrastructure and / or network connectivity to central compute infrastructure. Depending on business needs, ports may or may not opt for creation of a port on premise site, however underlying components shall be decided and provisioned for by MSP
NWI	Networking Infrastructure	Costs associated with establishment of network backbone within port as specified within the RFP
BWR.2	Bandwidth requirements - @Port	Costs associated with bandwidth requirements for links specific to each ports
PSC	Port Service Centre	Costs associated with establishment of Port Service Centre at port. It is envisaged that there will be ATLEAST ONE port service centre at each port. Number of personnel at each centre may be decided by the port. Port Service Centre shall be the single window service centre for all port services. It includes all locations where port users are expected to interact with the port. As per the revised port processes, all interactions will be carried out through port portal and port service centre
PIH	Port-specific IT helpdesk	Costs associated with establishment of IT helpdesk at port. Establishment of at least one IT helpdesk is mandatory for the port. It will house personnel from MSP who are expected to manage IT operations at the port.
PCC	Port Command Centre	Costs associated with establishment of IT helpdesk at port. Establishment of at least one Command Centre is mandatory for the port. It will be central control centre for overlooking operations remotely through administration office within the port with links to reports, CCTV, etc.
TRI	Training Room Infrastructure	Costs associated with establishment of training room at port. Port may opt to provide training room to avoid this costs, however, this means risks and dependencies related to training room infrastructure availability are accepted by the port.
EUC	End User Computing	Costs associated with supply, installation and maintenance of end user computing devices as required for the project. It is expected that MSP will supply the computing devices as per counts provided by the port. Unit rates for the

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Code	Cost component	Description
		devices will be discovered through this tender, ports may ask for additional devices at this rate.
DIC	Dispatch centres	Costs associated with establishment of dispatch centres at port. Establishment of at least one dispatch centre is mandatory for the port. Dispatch centre is expected to be the location where scanning of correspondences / documents received are expected to take place.
DNS	Digitization & Scanning	Costs associated with scanning & digitization as may be required for the project. It is expected that costs associated with data entry as required for port functioning will be taken care within the Migration costs under APP.3. Unit rates for page scanning will be discovered through this tender. Port may ask for additional documents to be scanned at this rate. This is OPTIONAL service for port
MOP	Manpower - Operations	Costs associated with supply of manpower of business operations IF required for port. This is an OPTIONAL service available for port in case there is shortage of manpower within port. Personnel related to data entry and front desk officials will be supplied by MSP based on the unit rates discovered along with this tender.

All payments will be done at actuals against accepted deliverables along with supporting invoices and documentation as needed by IPA/ports in accordance to the SLA compliance. Based on the price quoted by the MSP, before contract signing, cost share of each port (read: PORT-SHARE) will be derived for each component. The following table provides the payment terms for the MSP during the entire duration of the contract from EACH port from this PORT-SHARE. MSP is expected to raise invoices against the port as per the PORT-SHARE for the component as per applicability conditions. Payment will be made to MSP after deliverable / milestone acceptance as defined within the acceptance criteria. The formulae will be used to derive the contract value for the tender.

PORT SHARE related calculations and conditions are illustrated as below:

Code	Component Type	Quantity	Cost quoted	PORT-SHARE of Mumbai	PORT-SHARE of Kolkata	PORT-SHARE of Chennai	PORT-SHARE of Haldia	PORT-SHARE of Kandla	PORT-SHARE of Paradip
APP.1	Shared	Q1	C1	Mb% x C1	Ko% x C1	Ch% x C1	Hd% x C1	Ka% x C1	Pd% x C1
APP.2	Shared	Q2	C2	Mb% x C2	Ko% x C2	Ch% x C2	Hd% x C2	Ka% x C2	Pd% x C2
APP.3	Shared	Q3	C3	Mb% x C3	Ko% x C3	Ch% x C3	Hd% x C3	Ka% x C3	Pd% x C3
MAS	Shared	Q4	C4	Mb% x C4	Ko% x C4	Ch% x C4	Hd% x C4	Ka% x C4	Pd% x C4
TCB	Shared	Q5	C5	Mb% x C5	Ko% x C5	Ch% x C5	Hd% x C5	Ka% x C5	Pd% x C5
CIH	Shared	Q6	C6	Mb% x C6	Ko% x C6	Ch% x C6	Hd% x C6	Ka% x C6	Pd% x C6
CCI	Shared	Q7	C7	Mb% x C7	Ko% x C7	Ch% x C7	Hd% x C7	Ka% x C7	Pd% x C7
BWR.1	Shared	Q8	C8	Mb% x C8	Ko% x C8	Ch% x C8	Hd% x C8	Ka% x C8	Pd% x C8
CAC	Shared	Q9	C9	Mb% x C9	Ko% x C9	Ch% x C9	Hd% x C9	Ka% x C9	Pd% x C9
PSR	Port specific	Q10	C10	Mb-n x (C10 / Q10)	Ko-n x (C10 / Q10)	Ch-n x (C10 / Q10)	Hd-n x (C10 / Q10)	Ka-n x (C10 / Q10)	Pd-n x (C10 / Q10)
NWI	Port specific	Q11	C11	Mb-n x (C11 / Q11)	Ko-n x (C11 / Q11)	Ch-n x (C11 / Q11)	Hd-n x (C11 / Q11)	Ka-n x (C11 / Q11)	Pd-n x (C11 / Q11)
BWR.2	Port specific	Q12	C12	Mb-n x (C12 / Q12)	Ko-n x (C12 / Q12)	Ch-n x (C12 / Q12)	Hd-n x (C12 / Q12)	Ka-n x (C12 / Q12)	Pd-n x (C12 / Q12)
PSC	Port specific	Q13	C13	Mb-n x (C13 / Q13)	Ko-n x (C13 / Q13)	Ch-n x (C13 / Q13)	Hd-n x (C13 / Q13)	Ka-n x (C13 / Q13)	Pd-n x (C13 / Q13)
PIH	Port specific	Q14	C14	Mb-n x (C14 / Q14)	Ko-n x (C14 / Q14)	Ch-n x (C14 / Q14)	Hd-n x (C14 / Q14)	Ka-n x (C14 / Q14)	Pd-n x (C14 / Q14)
PCC	Port specific	Q15	C15	Mb-n x (C15 / Q15)	Ko-n x (C15 / Q15)	Ch-n x (C15 / Q15)	Hd-n x (C15 / Q15)	Ka-n x (C15 / Q15)	Pd-n x (C15 / Q15)
TRI	Port specific	Q16	C16	Mb-n x (C16 / Q16)	Ko-n x (C16 / Q16)	Ch-n x (C16 / Q16)	Hd-n x (C16 / Q16)	Ka-n x (C16 / Q16)	Pd-n x (C16 / Q16)
EUC	Port specific	Q17	C17	Mb-n x (C17 / Q17)	Ko-n x (C17 / Q17)	Ch-n x (C17 / Q17)	Hd-n x (C17 / Q17)	Ka-n x (C17 / Q17)	Pd-n x (C17 / Q17)
DIC	Port specific	Q18	C18	Mb-n x (C18 / Q18)	Ko-n x (C18 / Q18)	Ch-n x (C18 / Q18)	Hd-n x (C18 / Q18)	Ka-n x (C18 / Q18)	Pd-n x (C18 / Q18)
DNS	Port specific	Q19	C19	Mb-n x (C19 / Q19)	Ko-n x (C19 / Q19)	Ch-n x (C19 / Q19)	Hd-n x (C19 / Q19)	Ka-n x (C19 / Q19)	Pd-n x (C19 / Q19)
MOP	Port specific	Q20	C20	Mb-n x (C20 / Q20)	Ko-n x (C20 / Q20)	Ch-n x (C20 / Q20)	Hd-n x (C20 / Q20)	Ka-n x (C20 / Q20)	Pd-n x (C20 / Q20)

Where

- PORT-SHARE for a component shall be derived using the following formula:
 - For Shared Component: PORT% x CX
 - PORT% i.e. Mb%, Ko%, Ch%, Hd%, Ka% and Pd% denote the port contribution percentage
 - Mb% + Ko% + Ch% + Hd% + Ka% + Pd% = 100%
 - For Port Specific Component:
 - PORT-n i.e. Mb-n, Ko-n, Ch-n, Hd-n, Ka-n and Pd-n denote the quantity of units used for the port
 - Mb-n + Ko-n + Ch-n + Hd-n + Ka-n + Pd-n will not be greater than QX unless specifically asked by IPA or port
- QX denotes the quantity as quoted by MSP in the price bid

- CX denotes the cost quoted by MSP in the price bid
- Above formulae for QX and CX might apply to the total component or the underlying item as provided within the price bid. Eg. C13 could refer to cost of Port Service Centre OR Cost of underlying subcomponent within Port service centre similarly for Q13.

6.2 Payment terms for a port

The table below provides the payment terms for a port.

Code	Component	Max pay-out percentage of PORT-SHARE of the component	Payment applicability condition	Payment applicability not before
APP.1	Licenses	80% (3 equal pay-outs during Phase I)	Milestone Pay-out- Supply of Licenses for respective wave on actuals Pay-out will not exceed 80% of the component cost Payment for Wave 1 cannot exceed 40% of PORT-SHARE and 70% for Wave 2	Wave 1: T + 6 months Wave 2: T + 12 Months Wave 3: T + 15 Months
		1% x 20 (20 equal pay-outs during Phase III)	Milestone Pay-Out- Balance for APP.1 at completion of Phase II Pay-out will not exceed 20% of the component cost	T+ 18 Months
APP.2	Annual Technical Support	5% x 20 (20 equal pay-outs during Phase III)	Quarterly Pay-Out- Phase III: Operations & Maintenance Phase at the end of Every Quarter Pay-out will not exceed 100% of component cost	Every Quarter during Phase III

Code	Component	Max pay-out percentage of PORT-SHARE of the component	Payment applicability condition	Payment applicability not before
APP.3	Installation/ Configuration/ Customization/ Development (Including Data Migration/ Interfacing)	10% x 1 (1 pay-out during Phase I)	Milestone Pay-Out Submission of Master Design document (Deliverable D4) Submission of equivalent Advance Bank Guarantee (ABG) valid for 24 months Pay-out will not exceed 10% of component cost	T + 1 Months
		3% X 3 (3 equal pay-outs during Phase I)	Milestone pay-out- Commencement of User Acceptance Testing for each wave at port Pay-out will not exceed 9% of component cost	Wave 1- T + 5 months Wave 2- T+11 Months Wave 3- T+14 Months
		6% X 3 (3 equal pay-outs during Phase I)	Milestone pay-out- Completion of User Acceptance Testing for each wave at port Pay-out will not exceed 18% of component cost	Wave 1- T + 6 months Wave 2- T+12 Months Wave 3- T+15 Months
		18% (1 pay-out at end of Phase II)	Milestone pay-out Go-Live of Phase II of the project for all ports together Pay-out will not exceed 18% of component cost And Advance Bank Guarantee shall be released	T+18 Months

Code	Component	Max pay-out percentage of PORT-SHARE of the component	Payment applicability condition	Payment applicability not before
		2.25% (20 equal pay-outs during Phase III)	Quarterly Pay-Out- Phase III: Operations & Maintenance Phase at the end of Every Quarter	
INF.1	Procurement of Required compute and Storage Infrastructure (including end user computing and Port Specific Server Room Infrastructure)	80% (3 equal pay-outs during Phase I)	Milestone Pay-out- Pay-out will not exceed 80% of the component cost Supply of required infrastructure for respective wave on actuals	Wave 1- T + 4.5 months Wave 2- T+10.5 Months Wave 3- T+13.5 Months
		20% (20 equal pay-outs during Phase III)	Quarterly Pay-Out- Balance for INF.1 to be released during Operations & Maintenance Phase Pay-out will not exceed 20% of the component cost	Phase II end: T+18 Months
INF.2	Annual Maintenance	5% (20 equal pay-outs during Phase III)	Quarterly Pay-Out- Phase III: Operations & Maintenance Phase at the end of Every Quarter	Phase II end: T + 18 Months
CCI	Primary Data Centre	4% (24 equal pay-outs during Phase I)	Quarterly Pay-Out- Phase III: Operations & Maintenance Phase at the end of Every Quarter	Wave 1 – T + 6 months
CCI	Disaster Recovery Center	4%	Quarterly Pay-Out-	Wave 1- T + 6 months

Code	Component	Max pay-out percentage of PORT-SHARE of the component	Payment applicability condition	Payment applicability not before
		(24 equal pay-outs during Phase I)	Phase III: Operations & Maintenance Phase at the end of Every Quarter	
NWI.1	Procurement of Required Networking Infrastructure	80% (3 equal pay-outs during Phase I)	Milestone Pay-out- Supply of required infrastructure for respective wave on actuals Pay-out will not exceed 80% of the component cost	Wave 1- T + 4.5 months Wave 2- T+10.5 Months Wave 3- T+13.5 Months
		20% (20 equal pay-outs during Phase III)	Milestone Pay-Out- Balance for NWI.1 at Go-Live of Phase II Pay-out will not exceed 20% of the component cost	End of Phase II: T+ 18 Months
NWI.2	Annual Maintenance	5% (20 equal pay-outs during Phase III)	Quarterly Pay-Out- Phase III: Operations & Maintenance Phase at the end of Every Quarter	
NWI.3	Set-up of Network Infrastructure and Readiness for network availability	18% (3 equal pay-outs during Phase I)	Milestone Pay-Out- Go-Live of Phase I of each wave at each port Pay-out will not exceed 54% of the component cost	Wave 1- T + 6 months Wave 2- T+12 Months Wave 3- T+15 Months
		10% (1 pay-out during Phase II)	Milestone Pay-Out- Go-Live of Phase II of all Ports Together	End of Phase II: T+18 Months

Code	Component	Max pay-out percentage of PORT-SHARE of the component	Payment applicability condition	Payment applicability not before
			Pay-out will not exceed 10% of the component cost	
		1.8% (20 equal pay-outs during Phase III)	Quarterly Pay-Out- Phase III: Operations & Maintenance Phase at the end of Every Quarter	
BWR.1 BWR.2	Bandwidth Services	Payment will be done to ISP by IPA on actuals (24 pay-outs during Phase III)	Quarterly Pay-Out- From First Quarter of Go-Live of Wave 1 at each Port Pay-out will not exceed 100% of component cost	End of Wave 1: T+6 Months
CAC	Call Centre (Seat Basis)	5% (20 equal pay-outs during Phase III)	Quarterly Pay-Out- Phase III: Operations & Maintenance Phase at the end of Every Quarter	
DNS	Data Scanning	As per actuals	Quarterly Pay-Out- Phase III: Operations & Maintenance Phase at the end of Every Quarter	
CIH PSR NWI	Operations Centre (Implementation Cost)	80% on acceptance in Phase 1 Balance 20% during Phase III	Milestone Pay-Out Acceptance of set-up for Port on-site premise at each port	T+8 Months

Code	Component	Max pay-out percentage of PORT-SHARE of the component	Payment applicability condition	Payment applicability not before
PSC PIH		(20 equal pay-outs during Phase III)		
PCC TRI EUC DIC		80% on acceptance in Phase 1 Balance 20% during Phase III (20 equal pay-outs during Phase III)	Milestone Pay-Out Acceptance of Set-up of Training Room for each port	T + 4.5 months
		80% on acceptance in Phase 1 Balance 20% during Phase III (20 equal pay-outs during Phase III)	Milestone Pay-Out Acceptance of Set-up of Port Service Centre for each port	T+ 6 Months
		80% on acceptance in Phase 1 Balance 20% during Phase III (20 equal pay-outs during Phase III)	Milestone Pay-Out Acceptance of Set-up of Command Control Centre at each port	T+ 8 Months
		80% on acceptance in Phase 1 Balance 20% during Phase III (20 equal pay-outs during Phase III)	Milestone Pay-Out Acceptance of Set-up of helpdesk and remaining locations not covered above at each port	T+ 6 Months

Code	Component	Max pay-out percentage of PORT-SHARE of the component	Payment applicability condition	Payment applicability not before
		80% on acceptance in Phase 1 Balance 20% during Phase III (20 equal pay-outs during Phase III)	Milestone Pay-Out Acceptance of set-up of helpdesk for central location at IPA, Delhi	T+6 Months
CIH PSR NWI PSC PIH PCC TRI EUC DIC	Operations Centre (O&M Cost)	5% (20 equal pay-outs during Phase III)	Quarterly Pay-Out- Phase III: Operations & Maintenance Phase at the end of Every Quarter	Phase II end: T + 18 Months
MAS.1	Man-Power Deployment for Project Implementation as per tender	80%	Milestone Pay-Out- Go-Live of Phase I Pay-out will not exceed 80% of the component cost	End of Phase I: T+15 Months
		20% (20 equal pay-outs during Phase III)	Milestone Pay-Out- Balance payment of MPD.1 upon Go-Live of Phase II Pay-out will not exceed 20% of the component cost	T+ 18 Months

Code	Component	Max pay-out percentage of PORT-SHARE of the component	Payment applicability condition	Payment applicability not before
MAS.2	Man-Power Deployment for Project during O&M phase	4% (24 pay-outs during Phase III)	Quarterly Phase III: Operations & Maintenance Phase at the end of Every Quarter Pay-out will not exceed 100% of the component cost	T+ 18 Months
MOP	Man-Power Deployment for Ports (people sought from the bidder for business operations of the project)	At Actuals	Quarterly Phase III: Operations & Maintenance Phase at the end of Every Quarter Pay-out will not exceed 100% of the component cost	T+ 18 Months

Note:

- The bidder(s) has to ensure that their financial proposal is structured in such a way that the costs during Implementation Phase quoted in the project do not exceed more than 45% of total costs of the project. In case the bidder quotes higher figures towards capital costs the same shall be restricted to 40% while making payments towards Implementation Cost. Any value quoted towards Implementation Costs over and above 40% limit will be paid in equal quarterly instalments for next five years along with quarterly payment for each quarter during the Operations and Maintenance Phase.
- Payment for bandwidth would be directly made by IPA or its nominated agencies / partners to the connectivity service provider as per the tripartite agreement to be signed by the parties involved after award of contract to the successful bidder. If the payment exceeds the quoted amount, the same will be recovered from quarterly payment being made to the MSP.

7 Roles & Responsibilities of Stakeholders

7.1 Bidder / Managed Service Provider

- i. Preparation of Detailed Project Plan in line with the overall plan provided in the tender. The same should be prepared in consultation with IPA.
- ii. Procure, install, commission, operate and maintain:
 - a. Requisite hardware & system software at IPA's and port's HO, Data Center, Disaster Recovery Site, and other port locations as per the requirements mentioned in this tender
 - b. Networking equipment, connectivity and LAN as per the requirements mentioned in this tender,
 - c. Meet the defined SLAs for the performance of the system.
- iii. Addressing technology obsolescence by appropriate upgradation, replacement and / or replenishment of systems deployed at various locations (data center, locations as required in the tender).
- iv. Insure the entire hardware against the infrastructure deployed at various locations for the entire duration of the contract against vandalism, theft, fire and lightening.
- v. Keep all system software i.e. OS, antivirus, office applications etc., for Servers, PCs etc. at Data Centre and various locations, up to date by installing regular upgrades / patches.
- vi. Rectification of system software problems due to crashing or malfunctioning of the OS, RDBMS or front end within the time limits to meet the SLAs as defined in tender.
- vii. Develop / customize, deploy and maintain the requisite Software Solution as per the requirements of IPA or its nominated agencies/ partners at appropriate locations.
- viii. Provide necessary support for the resolution of bugs, patches & upgrades of the software solution.
- ix. Provide necessary manpower for managing the Change Requests.
 - x. Design various manuals like User manual, Trouble Shooting manual etc. for the system.
 - xi. Provide computer basic skills training and advanced training on application modules to the staff members and stakeholders of the entities involved In this tender
- xii. Maintain the business continuity.
- xiii. Deploy requisite manpower and infrastructure for the digitization of the existing data.
- xiv. Deploy the required manpower to manage the operations.
- xv. Ensuring the SLAs for downtime of system, software development / customization, procurement and delivery of hardware & networking equipment.
- xvi. Management and quality control of all services and infrastructure.
- xvii. Any other services which is required for the successful execution of the project.
- xviii. Regular Backup as per the schedule and Disaster Recovery.
- xix. Generation of MIS reports as per the requirements.
- xx. Generation of the report for the monitoring of SLAs
- xxi. Meet the defined Technical Specifications for the IT Infrastructure including Hardware and networking equipment keeping in mind the application and future requirements of IPA or its nominated agencies/ partners.

7.2 IPA / Port

- i. Provide adequate space at the IPA's / Port's HO for setting up of infrastructure, software development and other activities to be carried out by the Bidder.
- ii. Coordination between all the ports for providing necessary information for the study and development / customization of the necessary solution.
- iii. Co-ordination with other departments/ agencies, if required to assist the selected bidder in execution of the project.
- iv. Coordinate with Bidder for conducting workshops for the port stakeholders
- v. Monitoring of overall timelines, SLAs and calculation of penalties accordingly.
- vi. Issuing the Acceptance Certificate on successful deployment of the software application, hardware deployed, and for other components of the Scope of Work (wherever required).
- vii. Any other requirements that could arise during operations for effective governance and to meet any

administrative requirement.

- viii. Apprise Bidder of updates from the Central Government on various facets related to the project.

8 Formats for submission of technical bids

The bidders are expected to respond to the tender using the forms given in this section and all documents supporting Proposal Evaluation Criteria.

8.1 PQ Form 1 - Supporting Information for Pre-Qualification Conditions

The Bidder is required to fill relevant information in the format given below. The pre-qualification bid must contain documentary evidences and supporting information to enable purchaser to evaluate the eligibility of the Bidder without ambiguity.

1. Information of the Bidder

S. No	Criteria	Pre-qualification Criteria description	Supporting Document	Response (Yes / No)	Reference in Response to Pre-Qualification Bid (Section # and Page #)

8.2 PQ Form 2 - Certificate of Conformity/No Deviation

<<To be submitted on the Company Letter head of the Lead Bidder>>

Date:

To
Managing Director,
Indian Ports Association,
1st Floor, South Tower, NBCC Place,
Bhishma Pitamah Marg,
Lodhi Road, Institutional Area,
New Delhi – 110003

1. This is to certify that, the specifications of Software which I/ We have mentioned in the Technical bid, and which I/ We shall supply if I/ We am/ are awarded with the work, are in conformity with the minimum specifications of the bidding document and that there are no deviations of any kind from the requirement specifications.
2. Also, I/ we have thoroughly read the tender and by signing this certificate, we hereby submit our token of unconditional acceptance to all the terms & conditions of the bidding document without any deviations.
3. I/ We also certify that the price I/ we have quoted is inclusive of all the cost factors involved in the end-to-end implementation and execution of the project, to meet the desired Standards set out in the bidding Document.

Thanking you,
Yours faithfully

(Signature of the Authorized signatory of the Bidding Organization)

Name :
Designation :
Date :
Company Seal :
Business Address :

8.3 PQ Form 3 - Financial Capability

<<To be completed by the Bidder / In case of consortium, by each partner as appropriate to demonstrate that they meet the requirements>>

<<On the letterhead of the Chartered Accountant >>

<<To be submitted along with Audited Financial Statements>>

Date:

To
Managing Director, Indian Ports Association,
1st Floor, South Tower, NBCC Place,
Bhishma Pitamah Marg,
Lodhi Road, Institutional Area,
New Delhi – 110003

Dear Sir,

We have examined the books of accounts and other relevant records of <<Bidder / consortium Partner Name along with registered address>>. On the basis of such examination and according to the information and explanation given to us, and to the best of our knowledge & belief, we hereby certify that the annual turnover for the three years i.e. from FY 2013-14 to FY 2015-16 was as per details given below:

Information from Balance Sheets (in Indian Rupees)			
	2013-14	2014-15	2015-16
Annual Turnover			
Network			

(Signature of the Chartered Accountant)

Name :
Designation :
Membership Number :
Date :
Company Seal :
Business Address :

8.4 PQ Form 4 - Proforma for EMD

To,

WHEREAS..... (Name of Bidder) hereinafter called "The Bidder" has decided to participate in the tender number , hereinafter called "Tender" published by Indian Ports Association, hereinafter called "IPA".

AND WHEREAS it has been stipulated by you in the said Tender that the Bidder shall furnish you with a Demand Draft or Pay Order or Bank Guarantee (of Nationalized Bank) for the sum specified therein as Security Deposit for compliance with the Bidder's obligations in accordance with the Tender.

AND WHEREAS we have agreed to give the Bidder a guarantee

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Bidder, up to a total of Rs. _____/- (Rupees <in words> only) and we undertake to pay you, upon your first written demand declaring the Bidder to be in default of the tender conditions and without cavil or argument any sums within the limit of Rs. _____/- as aforesaid, without your needing to prove or to show this grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until theday of.....200....

(Signature and Seal of Bank)

Date: _____

Address: _____

Witness: _____

8.5 PQ Form 5 - Details of Experience of Bidder in Various projects

As per the format below, the bidder should provide information for each project on similar assignments required for pre-qualification and technical evaluation criteria.

Credential for < Prequalification Criteria No. / Technical Criteria No>		
Sr. No.	Name of the Organization - <<Name of the Bidder / Consortium Member that have executed / executing the project>>	
Parameter	Details	
General Information		
1.	Customer Name	
2.	Name of the contact person and contact details for the client of the assignment	
3.	Whether client visit can be organized	(YES / NO)
Project Details		
4.	Project Title	
5.	Start Date and End Date	
6.	Government/Private/PSU/Others please specify	
7.	Geographical Coverage (No. of locations the project covers)	
8.	Date of Go-Live	
9.	Total Cost of the project	
10.	Current Status (Live / completed / on-going / terminated / suspended)	
11.	No of staff provided by your company	
12.	Please indicate the current or the latest AMC period with the client (<i>From Month – Year to Month-Year</i>)	
13.	Please indicate whether the client is currently using the implemented solution	
Size of the project		
14.	Order Value of the project (in lakhs)	
15.	Capital Expenditure involved (in lakhs)	
16.	Cost of services provided by the bidder (in Lakhs)	
17.	Cost of services provided by the partners if involved (in Lakhs)	
18.	Number of total users and concurrent users of the solution at the client location(s):	Total users
		Concurrent users

Credential for < Prequalification Criteria No. / Technical Criteria No>		
Sr. No.	Name of the Organization - <<Name of the Bidder / Consortium Member that have executed / executing the project>>	
	Parameter	Details
19.	Training responsibilities of Bidder	
20.	Any other information to be shared with IPA	
Narrative Description of the Project:		
Detailed Description of actual services provided by Bidder:		
Documentary Proof:		
Highlights of the Key Result Areas expected and achieved		
List of modules and sub-modules implemented		

Certification: I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe the Projects implemented by our Company.

(Signature)

(Name of Authorized Signatory)

(Designation)

(Date)

(Name and address of the bidder)

(Company Seal)

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 "Lead Member/First Member" which expression shall include its successors);

And

M/s. a Company incorporated under the laws ofand having its registered office at..... (Hereinafter called the "Second Member" which expression shall include its successors)

And

M/s. a Company incorporated under the laws ofand having its registered office at..... (Hereinafter called the "Third Member" which expression shall include its successors)

The Lead Member/First Member, 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 so as to legally bind all the Members of the Consortium who will be jointly and severally 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 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 bidder 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 second member 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 & Responsibility of Lead Bidder	Roles & Responsibility of Consortium Member
1			
2			
3			
4			

5. It is expressly agreed by the members that all members of the consortium shall be held equally responsible for the obligations under the tender Document, Contract and this Agreement, irrespective of the specific roles/responsibilities undertaken by them.
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 and the Members shall be jointly and severally liable to IPA.
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 Mumbai shall have the exclusive jurisdiction in all matters arising there under.
11. It is also hereby agreed that Lead Member 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.

Volume 1 - Request for Proposal (RFP) for "Selection of Managed Service Provider (MSP) for Enterprise Business System in Five Major Indian Ports"

<p>Common Seal of has been affixed in my/our Lead Member 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>(Lead Bidder)</p> <p>(Signature of authorized representative) Name : Designation:</p>
<p>Common Seal of has been affixed in my/our Lead Member 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 : Designation:</p>
<p>Common Seal of has been affixed in my/our Lead Member 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 : Designation:</p>

8.7 PQ Form 7 - Details of ineligibility for corrupt or fraudulent practices/ blacklisted with any of the Government or Public Sector Units or Local Governments

<<On the letterhead of the Bidding Organization>>

<<In case of consortium, separate certificates to be submitted from respective authorized representatives>>

Date:

To
Managing Director, Indian Ports Association,
1st Floor, South Tower, NBCC Place,
Bhishma Pitamah Marg,
Lodhi Road, Institutional Area,
New Delhi – 110003

Subject: Declaration for not being under an ineligibility for corrupt or fraudulent practices or blacklisted with any of the Government or Public Sector Units or Local Governments in India

Dear Sir,

In response to the tender No. _____ Dated _____ for "< >", I/ We hereby declare that presently our Company/ Firm _____ is having unblemished record and is not declared ineligible for corrupt & fraudulent practices either indefinitely or for a particular period of time by any State/ Central Government/ PSU/Autonomous Body. We further declare that presently our Company/ firm _____ is not blacklisted and not declared ineligible for reasons other than corrupt & fraudulent practices by any State/ Central Government/ PSU/ Autonomous Body on the date of Bid Submission. If this declaration is found to be incorrect then without prejudice to any other action that may be taken, my/ our security may be forfeited in full and the tender if any to the extent accepted may be cancelled.

Thanking you,
Yours faithfully

(Signature of the Authorized signatory of the Bidding Organization)

Name :
Designation :
Date :
Company Seal :
Business Address :

8.8 PQ Form 8 - Manufacturers Authorization Form (For ERP)

<<To be submitted on the Company Letter head of the OEM>>

[Date]

To

Managing Director, Indian Ports Association,
1st Floor, South Tower, NBCC Place,
Bhishma Pitamah Marg,
Lodhi Road, Institutional Area,
New Delhi – 110003

Sub: Authorization of <company name of Bidder> to Provide Services Based on Our Product

Sir,

We who are established and reputable manufacturers/ producers of _____ having factories/ development facilities at (address of factory/ facility) do hereby authorize M/s _____ (Name and address of the bidder) to submit a Bid, and sign the contract with you against the above Bid Invitation.

- 1) We hereby confirm that response to functional requirements (As mentioned in the [tender](#)) by the bidder is reviewed and approved by us.
- 2) We here by confirm that the ERP licenses proposed by bidder for ERP solution are adequate to fulfill IPA's requirement as per [tender](#).
- 3) We hereby confirm that the Hardware proposed by bidder for ERP solution is adequate to fulfill IPA's requirement and is as per the Industry best practices
- 4) We hereby confirm that in the event of setting up of a Disaster Recovery environment, no additional cost would be incurred by IPA on account of ERP software licenses
- 5) We further undertake that we will conduct Performance Testing of the solution before Go-Live of system as per requirements of the [tender](#).

Yours faithfully,

Authorised Signatory

Designation

OEM's company name

CC: Bidder's corporate name

8.9 Tech Form 1 - Technical Bid - Covering Letter

<<On Bidder / Lead Bidder Letterhead>>

Date:

To

Managing Director, Indian Ports Association,
1st Floor, South Tower, NBCC Place,
Bhishma Pitamah Marg,
Lodhi Road, Institutional Area,
New Delhi – 110003

Subject: Response to Request for Proposal (RFP) for "Selection of Managed Service Provider (MSP) for Enterprise Business System in Five Major Indian Ports"

Dear Sir,

1. We hereby request to be qualified with the IPA as a bidder for **<Project Title>** against Tender No. <>. I / We declare that all the services shall be performed strictly in accordance with the tender documents and we agree to all the terms and conditions in the tender.
2. I / We confirm that I / we am / are withdrawing all the deviations, counter clauses, proposed modifications in the Scope of work, Terms and Conditions, Functional Requirement Specifications and Technical Specifications which may have been mentioned in our proposal.
3. We authorize IPA or its authorized representatives to conduct any investigations to verify the statements, documents and information submitted and to clarify the financial and technical aspects of this application. For this purpose, we hereby authorize (any public official, engineer, bank, depository, manufacturer, distributor, etc.) or any other person or firm to furnish pertinent information deemed necessary and requested by IPA to verify statements and information provided in this application or regarding our competence and standing.
4. The names and positions of persons who may be contacted for further information, if required, are as follows:
Name: _____
Designation: _____
Telephone: _____
E-mail id: _____
5. We declare that the statements made and the information provided in the duly completed application are complete, true and correct in every detail. On verification at any time in the future if it is found that information furnished with this application and statements made therein are not true, incomplete or incorrect, we hereby authorize IPA to reject our application.
6. We confirm having submitted the information as required by you in Qualification Criteria. In case you require any other further information / documentary proof in this regard before evaluation of our bid, we agree to furnish the same in time to your satisfaction.
7. We undertake, if our proposal is accepted, to provide all the services related to **"Selection of Managed Service Provider (MSP) for Enterprise Business System in Five Major Indian Ports"** put forward in the bid document or such features as may subsequently be mutually agreed between us and IPA or its appointed representatives.
8. We agree for unconditional acceptance of all the terms and conditions set out in the bid document and also agree to abide by this bid response for a period of 180 days from the date fixed for bid opening and it shall remain binding upon us with full force and virtue. Till a formal contract is prepared and executed, this bid response, together with your written acceptance thereof in your notification of award, shall constitute a binding contract between us and IPA.

9. We hereby declare that in case the contract is awarded to us, we will submit Performance Bank Guarantee equivalent to 10% of total contract value as quoted in the commercial bid in the form prescribed in the tender.
10. I/We understand that IPA reserves the right to reject any application without assigning any reason thereof.
11. I/We hereby undertake that I/We have not made any payment or illegal gratification to any person/authority connected with the bid process so as to influence the bid process and have not committed any offence under the PC Act in connection with the bid.
12. All the prices mentioned in our Tender are in accordance with the terms as specified in the tender documents. All the prices and other terms and conditions of this Bid are valid for a period of 180 calendar days from the date of opening of the Bid.
13. We hereby confirm that our prices include all taxes. However, all the taxes are quoted separately under relevant sections.
14. We understand that the actual payment would be made as per the existing tax rates during the time of payment.
15. We have indicated in the relevant forms enclosed, the unit rates for the purpose of on account of payment as well as for price adjustment in case of any increase to / decrease from the scope of work under the contract.
16. I/We do hereby confirm to deliver the latest versions of the software and hardware as available on the date of delivery on mutually agreed terms, that addresses the requirements of IPA, pursuant to the Request for Proposal (tender) document relating to providing of the Enterprise Business system and associated software components, Implementation, training and maintenance services, Information Technology Infrastructure and System Integration services to IPA at the same cost committed in the commercial proposal.
17. We shall size the hardware, all other equipment and software based on information provided by IPA in its tender document, past experience of similar implementations, best practices followed elsewhere and in accordance with the expected tender and Service Level requirements and assure IPA that the required sizing shall be accounted in the commercial bid. However, if the sizing of any of the proposed solutions is found to be inadequate in meeting the tender and the Service Level requirements given by IPA, then we will upgrade the proposed solution without any additional cost to IPA.
18. We further confirm that the prices stated in our bid are in accordance with your Instruction to Bidders included in Tender documents.
19. In case you require any other further information/documentary proof before/during evaluation of our Tender, we agree to furnish the same in time to your satisfaction.
20. We declare that our Bid Price is for the entire scope of the work as specified in the tender document. These prices are indicated in Commercial Bid submitted as part of the requirements of Tender.
21. I/We do hereby undertake that commercial proposal submitted by us is inclusive of all the items in the technical proposal and is inclusive of all the clarification provided/may be provided by us on the technical proposal during the evaluation of the technical offer. We understand and agree that our commercial proposal is firm and final and shall any clarifications sought by you and provided by us would not have any impact on the commercial proposal submitted by us.
22. Our commercial proposal shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Proposal.
23. We understand you are not bound to accept any Proposal you receive.
24. We hereby declare that our Tender is made in good faith, without collusion or fraud and the information contained in the Tender is true and correct to the best of our knowledge and belief.
25. I/We shall disclose any payments made or proposed to be made to any intermediaries (agents, etc.) in connection with the bid.
26. It is hereby confirmed that I/We are entitled to act on behalf of our company/ firm/ organization and empowered to sign this document as well as such other documents, which may be required in this connection.

Volume 1 - Request for Proposal (RFP) for “Selection of Managed Service Provider (MSP) for Enterprise Business System in Five Major Indian Ports”

Thanking you,
Yours faithfully

(Signature of the Authorized signatory of the Bidding Organization)

Name :
Designation :
Date :
Company Seal :
Business Address :

8.10 Tech Form 2 - Particulars of the Bidder (please fill separate sheet for each consortium members)

SI No.	Information Sought	Details to be Furnished
A	Name and address of the bidding Company	
B	In case of consortium, please indicate name of Lead Bidder	
C	Incorporation status of the firm (public limited / private limited, etc.)	
D	Year of Establishment	
E	Date of registration	
F	ROC Reference No.	
G	Details of registration with appropriate authorities for service tax	
H	Name, Address, email, Phone nos. and Mobile Number of Contact Person	

(Signature of the Authorized signatory of the Bidding Organization)

Name :
Designation :
Date :
Company Seal :
Business Address :

8.11 Tech Form 3 - Profile of Proposed Resources ¹

1.	Name of the employee					
2.	Name of the employer	<<Name of the Bidder / Consortium Member >>				
3.	Proposed position					
4.	Date of Birth					
5.	Nationality					
6.	Total years of relevant experience					
7.	Certifications	Note: Please attach copies of relevant certificates				
8.	Education	Qualification	Name of School / College / University	Degree Obtained	Date Attended	
Note: Please attach copies of relevant certificates						
9.	Language	Language	Read	Write	Speak	
10.	Employment Record	Employer	Position	From (MM / YYYY)	To (MM / YYYY)	Exp. in Months
<i>(Starting with present position list in reverse order)</i>						
11.	Relevant Experience	<i>(Give an outline on the experience most pertinent to tasks mentioned in the project. Describe degree of responsibility held on these relevant assignments).</i>				
		<i>Maximum 8 Projects:</i>				
		Name of Assignment/Project				
		Year				
		Location				
Client						

¹ This format shall be submitted for all the resources as listed in Section 9 of this [tender](#)

Volume 1 - Request for Proposal (RFP) for "Selection of Managed Service Provider (MSP) for Enterprise Business System in Five Major Indian Ports"

		Main project features	
		Positions held	
		Activities performed	
12.	Certification	<p>I, the undersigned, certify that to the best of my knowledge and belief, this bio-data correctly describes myself, my qualifications, and my experience.</p> <p>Date: _____</p> <p>Place _____ Signature of the employee / Authorized Signatory</p>	

8.12 Tech Form 4 - Technical Solution

The Bidder is required to describe the proposed Technical Solution in this section. The Technical Solution would be evaluated on the following broad parameters. IPA reserves the rights to add, delete, or modify these parameters at any time during the Tender process, without assigning any reasons whatsoever and without being required to intimate the Bidders of any such change.

- Clear articulation and description of the design and technical solution and various components
- Extent of compliance to functional and technical requirements specified in the scope of work and in accordance with leading practices.
- Technical Design and clear articulation of benefits to IPA of various components of the solution vis-à-vis other options available.

The Bidder should provide **detailed design** for the following listing all assumptions that have been considered:

- Solution details including proposed ERP solution, the proposed modules or components of ERP product, any other solution component required to meet IPA's functional and technical requirements
- By means of diagrammatic / pictorial representations, the Bidder should provide complete details of the hardware, software and network architecture of the ERP solution.
- Functional coverage of the solution and One to One mapping of IPA's functional requirement with ERP solution module/component proposed.
- Details of any third party solution, their description and purpose (if proposed).
- Capabilities of the proposed solution to address the functional requirements
- Details and calculations where possible on the estimates made on sizing the IT infrastructure (servers, storage, network components)
- Technical coverage of solutions (Servers, Database, Test environment etc.) including proposed IT landscape. Bidder should mention any specific requirements related to their solution (Network bandwidth, security components etc.)
- Functional requirement compliance sheet as per Functional Requirements in tender Volume II
- Technical requirement compliance sheet as per Technical Requirements in tender Volume II
- Bill of Material for proposed ERP solution and hardware Components
- Compliance to Technical Specifications (As per tender Vol. II)
- Database design considerations
- Application Security Architecture
- Disaster Recovery site details and approach
- Data Migration approach
- Testing approach

8.13 Tech Form 5 - Approach & Methodology

1. The Bidder should cover details of the methodology proposed to be adopted for planning and implementation of solutions and infrastructure relating to establishment of the proposed solution.
2. The bidder shall cover the details for best practices from imparting similar kind of training for users in an organization similar to the purchaser based on bidder's prior implementation experience in the same
3. Detailed Methodology and approach provided for training of the different stakeholders within IPA
4. Best practices from undertaking Change Management for users in an organization similar to IPA based on bidder's prior implementation experience in the same.
5. Detailed Training Plan indicating the number of training sessions, batch sizes and number of batches with respect to all the stakeholders, and all different kinds of training vis-à-vis the requirements in the [tender](#).
6. The Bidder may give suggestions on improvement of the scope of work given and may mention the details of any add on services related to this project over and above what is laid down in the tender document. List of deliverables should also be identified and explained.
7. The Bidder shall describe the knowledgebase, best practices and tools that will be used by the project team for the execution of scope of work activities based on bidder's prior implementation experience in the same
8. The Bidder should cover details of the methodology proposed to be adopted for operations and maintenance related the proposed solution.
9. The Bidder should provide details about of the Service Helpdesk and handholding staff available for the purpose of resolution of issues pertaining to the conditions at the proposed solution.
10. Project Methodology should contain but not limited to following
 - Overall implementation methodology (Objective of phases, deliverables at each phase, etc.)
 - Methodology for performing business design
 - Methodology for quality control and testing of configured system
 - Methodology of internal acceptance and review mechanism for deliverables by the bidder.
 - Proposed Acceptance criteria for deliverables
 - Methodology and approach along with proposed tools and processes which will be followed by the bidder during project implementation
 - Change Management and Training Plan
 - Risk and Quality management plan
11. Additional information directly relevant to the scope of services provided in the Volume II of the tender may be submitted to accompany the proposal.
12. Overview of support methodology offered in Warranty, AMC/ATS and Support & Maintenance phase
13. Detailed bill of services offered for Warranty, AMC/ATS and Support and Maintenance services
14. Detailed support model for services under support and Maintenance

8.14 Tech Form 6 - Project Plan & Deployment of Personnel

Bidder should propose comprehensive project plan for implementation, meeting tender requirements. (Bidder may propose a timeline equal to or lesser than that of mentioned in the tender). Bidder should articulate how proposed approach and methodology, proposed project plan, proposed teams, Subject Matter Expertise and specific capabilities deployed shall meet the requirements of IPA or its Nominated agencies / Partners (As specified in Volume I and Volume II)

S. No	Item of Activity	Week-Wise Program					
		M1	M2	M3	M4	M5
1	Activity 1						
1.1	Sub-Activity 1						
1.2	Sub-Activity 2						
2	Activity 2						
	..						
3	Activity 3						
3.1	Sub-Activity 1						
3.2	Sub- Activity 2						

- Indicate all main activities of the assignment, including delivery of reports (e.g.: inception, interim, and final reports), and other benchmarks such as Bidder approvals. For phased assignments indicate activities, delivery of reports, and benchmarks separately for each phase.
- Duration of activities shall be indicated in the form of a bar chart.

Note: The above activity chart is just for the purpose of illustration. Bidders are requested to provide detailed activity & phase wise timelines for executing the project with details of deliverables & milestones as per their proposal.

8.15 Tech Form 7 - Format of Deployment of Personnel

- The Bidder should provide a detailed resource deployment plan in place to ensure that technically qualified staff is available to deliver the project.
- The Bidder should provide the summary table of details of the manpower that will be deployed on this project along with detailed CVs of key personnel
- Bidder should mention proposed Governance structure including designation of representatives in the Governance structure for the project
- Bidder should provide escalation matrix and interaction frequency with IPA or its nominated agencies/ stakeholders and its stake holders
- Resource mobilization and deployment plan as per project plan shared
- Roles and Responsibility of deployed team members
- Bidders can propose any additional role and profile as per their experience in same format
- Replacement mechanism to bring new team members due to attrition or reasons beyond the control of successful bidder

No.	Name of Staff	Education Qualification and Designation	Area of Expertise	Deployment Period (In Months)						Total Man-Months Proposed	Full Time/ Part Time
				M1	M2	M3	M4	M5	n		
1											
2											
3											

8.16 Tech Form 8 - Unpriced Bill of Material

The Bidder should provide the proposed Bill of Material (BoM) here. Bidder should refer to the Indicative BoM provided in the Volume II of this tender, and should reproduce the same here. Kindly note that any additional items required should be clearly mentioned under ‘additional line items’ category towards the end of this table, and a lump sum price of all additional items should be quoted for in the commercial proposal as such. Also note that details of the make/brand and model against each line item, wherever applicable, should be mentioned. The bid can be considered non-responsive in the absence of such details. Once the bidder provides this information in the submitted bid, the bidder cannot change it with any other component / equipment etc. of lower specifications / performance; it can only be upgraded at the time of actual deployment/installation. The Bidder may add any additional line item (with adequate details) in the proposed BoM table below (towards the end of the table), that may be required to fulfil the tender and project requirements in totality. The Bidder may provide a lump sum price for any additional item(s) that may be required to fulfil the RFP and project requirements in totality, towards the end of the table. Kindly note that the indicative/estimated quantity provided in the RFP would be used for evaluation purposes; however the payment would be done on actual usage basis.

8.16.1 Tech Form 8.1 – Unpriced Bill of Material for all components (Software, hardware, network, security, etc)

Unpriced Bill of Material						
SI #	BoM Line Item	Unit of measurement	Quantity Proposed (repeat the indicative quantity as provided in RFP)	Make / Brand	Model Details	Full Compliance with RFP Requirements (Yes / No)

In addition to the above, following needs to be submitted for each of the components as checklist criteria for additional marks

8.16.2 Tech Form 8.2 – Checklist for Additional Marks in Technical Criteria

Checklist for - “Criteria for Additional Marks”						
#	BoM line Item	Make / Brand	Model Details	Compliance Type for the BoM line item (GARTNER / FORRESTER / IDC / OTHERS)	Description of supporting documents submitted (as asked for in the technical evaluation criteria. Mention all document names)	Reference Page Number

--	--	--	--	--	--	--

Note:

Compliance type elaboration of values being entered for the BoM line item:

GARTNER	Classified as leaders or challengers quadrant as per latest Gartner’s report in the last one year as on day of submission of bid
FORRESTER	Classified as leaders as per latest Forrester’s wave in the last one year as on day of submission of bid
IDC	Classified as leaders as per latest IDC MarketScape in the last one year as on day of submission of bid
OTHERS	None of the above

8.16.3 Tech Form 8.3 – Information about all software components being proposed

S. No.	Software Component	Product Name version and technology	Module	Sub-module	Function / Purpose of the line item
1	Port Operations Solution				
A	<Module1>				
B	<Module2>				
	ERP				
A	<Module1>				
B	<Module2>				
	Bidder to add lines as required				

8.17 Tech Form 9 - Details of Experience of Bidder in Various projects

As per the format below, the bidder should provide information for each project on similar assignments required for pre-qualification and technical evaluation criteria.

Credential for < Prequalification Criteria No. / Technical Criteria No>		
Sr. No.	Name of the Organization - <<Name of the Bidder / Consortium Member that have executed / executing the project>>	
Parameter	Details	
General Information		
21.	Customer Name	
22.	Name of the contact person and contact details for the client of the assignment	
23.	Whether client visit can be organized	(YES / NO)
Project Details		
24.	Project Title	
25.	Start Date and End Date	
26.	Government/Private/PSU/Others please specify	
27.	Geographical Coverage (No. of locations the project covers)	
28.	Date of Go-Live	
29.	Total Cost of the project	
30.	Current Status (Live / completed / on-going / terminated / suspended)	
31.	No of staff provided by your company	
32.	Please indicate the current or the latest AMC period with the client (<i>From Month – Year to Month-Year</i>)	
33.	Please indicate whether the client is currently using the implemented solution	
Size of the project		
34.	Order Value of the project (in lakhs)	
35.	Capital Expenditure involved (in lakhs)	
36.	Cost of services provided by the bidder (in Lakhs)	
37.	Cost of services provided by the partners if involved (in Lakhs)	
38.	Number of total users and concurrent users of the solution at the client location(s):	Total users
		Concurrent users

Credential for < Prequalification Criteria No. / Technical Criteria No>		
Sr. No.	Name of the Organization - <<Name of the Bidder / Consortium Member that have executed / executing the project>>	
	Parameter	Details
39.	Training responsibilities of Bidder	
40.	Any other information to be shared with IPA	
Narrative Description of the Project:		
Detailed Description of actual services provided by Bidder:		
Documentary Proof:		
Highlights of the Key Result Areas expected and achieved		
List of modules and sub-modules implemented		

Certification: I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe the Projects implemented by our Company.

(Signature)

(Name of Authorized Signatory)

(Designation)

(Date)

(Name and address of the bidder)

(Company Seal)

8.18 Tech Form 10 - Manufacturers Authorization Form (For Hardware Equipment)

<<To be submitted on the Company Letter head of the OEM>>

[Date]

To

Managing Director, Indian Ports Association,
1st Floor, South Tower, NBCC Place,
Bhishma Pitamah Marg,
Lodhi Road, Institutional Area,
New Delhi – 110003

Sub: Authorization of <company name of Bidder> to Provide Services Based on Our Product(s)

Sir,

1. This is to certify that I/We am/are the Original Equipment Manufacturer in respect of the products listed below. I/We confirm that <name of Bidder> have due authorization from us to provide services, to IPA, that are based on our product(s) listed below as per Request for Proposal (tender) document relating to providing of the 'Enterprise Business System Implementation', Information Technology Infrastructure and System Integration services to IPA. We further endorse the warranty and contracting terms provided by bidder to IPA.
2. I/We are the Original Equipment Manufacturer in respect of the products listed. I/We do hereby undertake that our products being installed by <Bidder Name >, pursuant to the Request for Proposal (tender) document relating to providing of the Enterprise Business System, Implementation, Information Technology Infrastructure and System Integration services to IPA, will be inspected to ensure they are installed, commissioned and supported to the best of the operating characteristics of these applications equipment.
3. I/We also undertake that we will provide support to IPA in quality of deliverables and in ensuring that the solution is implemented in the best of ways by exploiting all the capabilities offered by the solution, to meet the requirements of IPA.

S. No.	Product Name	Remarks

Yours faithfully,

Authorised Signatory

Designation

OEM's company name

CC: Bidder's corporate name

8.19 Tech Form 11 - Format for Power of Attorney to Authorize Signatory

POWER OF ATTORNEY

[To be executed on non-judicial stamp paper of the appropriate value in accordance with relevant Stamp Act. The stamp paper to be in the name of the company who is issuing the power of attorney.]

We, M/s. _____ (name of the firm or company with address of the registered office) hereby constitute, appoint and authorise Mr. or Ms. _____ (Name and residential address) who is presently employed with us and holding the position of _____, as our Attorney to do in our name and our behalf all or any of the acts, deeds or things necessary or incidental to our RFP for the Project _____ (name of the Project), including signing and submission of the RFP response, participating in the meetings, responding to queries, submission of information or documents and generally to represent us in all the dealings with Client or any other Government Agency or any person, in connection with the works until culmination of the process of bidding till the Project Agreement is entered into with _____ (Client) and thereafter till the expiry of the Project Agreement.

We hereby agree to ratify all acts, deeds and things lawfully done by our said Attorney pursuant to this power of attorney and that all acts, deeds and things done by our aforesaid Attorney shall and shall always be deemed to have been done by us.

(Add in the case of a Consortium)

Our firm is a Member or Lead bidder of the Consortium of _____, _____ and _____.

Dated this the _____ day of _____ 2015

(Signature and Name of authorized signatory)

(Signature and Name in block letters of all the remaining partners of the firm Signatory for the Company)

Seal of firm Company

Witness 1:

Witness 2:

Notes:

- a. *To be executed by all the members individually.*
- b. *The Mode of execution of the power of attorney should be in accordance with the procedure, if any laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.*

8.20 Tech Form 12 - Format for Power of Attorney for Lead bidder of Consortium

[To be executed on non-judicial stamp paper of the appropriate value in accordance with relevant Stamp Act. The stamp paper to be in the name of the company who is issuing the power of attorney]

Whereas _____ has invited RFP response for _____ (Name of the Project)

Whereas, the Members of the Consortium comprising of M/s._____, M/s._____, M/s._____ and M/s._____ (the respective names and addresses of the registered offices to be given) are interested in bidding for the Project and implementing the same in accordance with the terms and conditions contained in the RFP Documents.

Whereas, it is necessary for the members of the Consortium to designate one of them as the lead member 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.

NOW THIS POWER OF ATTORNEY WITNESSETH THAT

We, M/s._____ and M/s _____ and M/s_____ hereby designate M/s. _____ being one of the members of the Consortium, as the lead member of the Consortium, to do on behalf of the Consortium, all or any of the acts, deeds or things necessary or incidental to the Consortium's RFP response for the Project, including submission of the RFP response, participating in meetings, responding to queries, submission of information or documents and generally to represent the Consortium in all its dealings with Client or any other Government Agency or any person, in connection with the Project until culmination of the process of bidding till the Project Agreement is entered into with Client and thereafter till the expiry of the Project Agreement.

We hereby agree to ratify all acts, deeds and things lawfully done by our said Attorney pursuant to this power of attorney and that all acts, deeds and things done by our aforesaid Attorney shall and shall always be deemed to have been done by us or Consortium.

Dated this the _____ day of _____ 2015

(signature)

(Name in Block Letter of Executant) *[seal of Company]*

Witness 1

Witness 2

Notes:

To be executed by all the members individually, in case of a Consortium.

The Mode of execution of the power of attorney should be in accordance with the procedure, if any laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.

8.21 Tech Form 13: Compliance for requirement specifications

Bidder is expected to upload compliance sheet for each of the requirements as provided in ANNEXURE of Volume II of this tender in the format specified.

Tech Form 13.1 Functional Requirements Specifications (Refer to Vol 2 annexure for details)

Sr. No.	Description of Requirement	Compliance (Yes/No)	Compliance type (STD / CUS / DEV)	Product Name with version	Sub-module (if applicable)
EBS.XXX.nnn					

Tech Form 13.2: Technical Requirements Specifications (refer to Vol 2 annexure for details)

Sr. No.	Description of Requirement	Compliance (Yes/No)	Details of Reference Document for verifying compliance	Reference Page No

9 Sample Forms

9.1 Sample Form 1: Tripartite agreement for network services and Internet bandwidth

DRAFT MODEL TRIPARTITE AGREEMENT (amongst (PURCHASER) (MSP) & (NETWORK SERVICE PROVIDER / SUB CONTRACTOR) for providing network services and Internet Bandwidth

This Agreement is entered onday of 20.... among Constituted by and having its registered office at..... (Hereinafter called the "PURCHASER"), of the one part AND , a company incorporated under the Companies Act 1956 and having its corporate office at SELECTED MANAGED SERVICE PROVIDER (MSP) FORPROJECT i.e., Party engaged by Vide LOI No:..... and detailed order no.(herein referred to as the "Contract") for Supply, installation, integration, testing, commissioning and operations and Maintenance of Enterprise Business System in Five major Indian ports covering software, hardware and networking (Network services, Internet Bandwidth) and Related Services incidental thereto as specified in the Services/ Scope of Work in Volume II of the said Contract (hereinafter referred to as "MSP or(name of MSP) which expression shall unless excluded by or repugnant to the meaning or context thereof be deemed to include its successors and assigns) of the second Part. AND a company incorporated under the Companies Act 1956 and having its corporate office at....., being a TELECOM SERVICE PROVIDER/NETWORK BANDWIDTH SERVICE PROVIDER for the referred PROJECT engaged for Providing, Network services, Internet Bandwidth and connectivity incidental thereto as specified in the Services/ Scope of Work in the agreement between (MSP) and (PURCHASER) (hereinafter referred to as "NETWORK SERVICE PROVIDER (NSP)") which expression shall unless excluded by or repugnant to the meaning or context thereof be deemed to include its successors and assigns) of the third Part. "..... (PURCHASER)", "..... (MSP)" and ".....NETWORK SERVICE PROVIDER (NSP)" are individually referred as "Party" and collectively as "Parties". WHEREAS (PURCHASER), the party of the first part has contracted (MSP), the second party, for Turn Key Implementation of at (Hereinafter referred to as "The Project") vide its Contract No..... WHEREAS as per the requirements of the project (PURCHASER) requires these services for successful implementation of the project. WHEREAS (MSP), in order to service its obligation under the above mentioned tender to the full satisfaction of the PURCHASER, had proposed ".....(NETWORK SERVICE PROVIDER (NSP))" as a service provider vide their letter/ offer no dated and now agrees to associate with(NETWORK SERVICE PROVIDER (NSP)) for execution of the part of the order, to provide support services as detailed in the purchase Order (MSP) and/or indicated in of this agreement to be the responsibility of ...(NETWORK SERVICE PROVIDER (NSP)), namely, related to required Bandwidth services for the project.

WHEREAS MSP has done the due diligence with respect to the capabilities, technical or otherwise, of(NETWORK SERVICE PROVIDER (NSP)) for providing the required type of connectivity and services within time frame, quality, security and reliability level as envisaged in the tender / SRS before recommending their name. WHEREAS the bid price quoted by (MSP) for networking (Network services, Internet Bandwidth and connectivity) and Related Services ("Service") at locations as specified in CONTRACT (hereinafter referred to as the "Locations") for the purpose of utilization by the(PURCHASER) and their respective subsidiaries and affiliates as specified in the CONTRACT No.....to(MSP) placed by(PURCHASER), is passed through to (NETWORK SERVICE PROVIDER (NSP)) in accordance with the bid proposal dated

.....submitted to(PURCHASER) by(MSP), and the Terms & Conditions and SLA of(PURCHASER) with(NETWORK SERVICE PROVIDER (NSP)), for carrying out the networking and Related Services. WHEREAS (NETWORK SERVICE PROVIDER (NSP)) has Category 'A' ISP license having its network spread across India. The Purchase Order placed vide/to be placed by (PURCHASER) to (NETWORK SERVICE PROVIDER (NSP)) shall form an integral part of this agreement. (MSP), shall be responsible for (i) coordinating /entering into a tripartite agreement with the NSP along with the Purchaser (ii) getting the work executed by the NSP as per the Contract for Bandwidth as well as SLA's (iii) the replacement, if any, of the NSP without changing any penalty/LD criteria. However the new NSP has to meet the qualification criteria. Any breach or failure to fulfil the obligations as mentioned in the Tripartite Agreement which has a material impact on the performance of the Contract shall be treated as a breach of the terms of 'The Contract'. WHEREAS by virtue of this agreement, the parties..... (MSP) and..... (NETWORK SERVICE PROVIDER (NSP)) bind themselves to the terms & conditions that are embedded in the contract between the first two parties.

Now these presents witness and it is hereby agreed by and between the parties hereto as follows:

1. APPLICATION

This Agreement details the general terms and conditions for the provision of the Services to be rendered by (NETWORK SERVICE PROVIDER (NSP)) [as per CONTRACT placed vide..../to be placed by PURCHASER] and by(MSP) [as per CONTRACT No.with (PURCHASER)]. Upon signing the scope, duration and other services to be so rendered under this Agreement the parties agree to accept and be bound by these terms and conditions.

2. PROVISION OF SERVICE

- i.** The provision of the Services is subject to these terms and conditions stated in this Agreement. Where..... (NETWORK SERVICE PROVIDER) shall accept the Order from..... (PURCHASER),..... (NETWORK SERVICE PROVIDER) shall provide the Services required by..... (PURCHASER), and by (MSP) on behalf of..... (PURCHASER), within a timeframe, quality, security and reliability level agreed with between (PURCHASER), (NETWORK PROVIDER) and (MSP). The MSP shall provide..... (NETWORK PROVIDER) with a complete network diagram of the set-up along with the details of connectivity at the Locations and services will be provisioned to the..... (PURCHASER) accordingly. It is the responsibility of MSP, to ensure and of (NETWORK SERVICE PROVIDER) to provide proper network monitoring and network management as per SLA like uptime, proper bandwidth etc. and to submit the SLA performance report of the (NETWORK SERVICE PROVIDER) to the (PURCHASER) on monthly/as and when required basis.
- ii.** The network links will be provided by..... (NETWORK SERVICE PROVIDER) and the MSP will monitor and report any problems on behalf of..... (NETWORK SERVICE PROVIDER) to (PURCHASER).
- iii.** Where it is necessary, due to materiel breach by the NETWORK SERVICE PROVIDER, the PURHASER shall instruct the MSP to replace the (NETWORK SERVICE PROVIDER) with another NETWORK SERVICE PROVIDER. In case of replacement of NETWORK SERVICE PROVIDER, the MSP shall terminate forthwith all agreements/contracts other arrangements with such NETWORK PROVIDER and find suitable replacement for such NETWORK PROVIDER to the satisfaction of the (PURCHASER) at no additional charge. The MSP has to execute the contract as per agreed schedule and SLA and as per contractual provision entered between PURCHASER and MSP.
- iv.** (MSP) shall ensure that Requisite Services from..... (NETWORK SERVICE PROVIDER) for project area (town) are available on time when its own system/works that are to be installed/ executed/implemented under PO no.with..... (PURCHASER), are ready for testing & commissioning.

- V. The(NETWORK SERVICE PROVIDER) shall not use the establishments and services installed under this agreement for organizations other than (PURCHASER).

3. SERVICE TERM

The term of the Services is initially for years (as per CONTRACT) from the date of commencement of service, and if required, thereafter, shall be extended from time to time by written consent of the parties. The Service Commencement Date shall be set forth in accordance with the Purchase Order placed vide...../to be placed by(PURCHASER) on (NETWORK SERVICE PROVIDER).

4. TERMINATION OF SERVICE

The Termination of this Agreement and Services shall be as per provisions of Termination clause as appearing in main CONTRACT.

5. RESPONSIBILITIES OF PARTIES

Responsibility of (Purchaser)	Responsibility of(MSP)	Responsibility of(SUB-CONTRACTOR)
<ul style="list-style-type: none"> To monitor the project progress against time frame & quality and performance with , quality, security and reliability levels of required services as per agreement with..... (MSP) and (NETWORK SERVICE PROVIDER). To disburse the payment to the (NETWORK SERVICE PROVIDER) upon achievement of the SLA on the basis of performance reports/ SLA reports. To provide safe access and conditions to (MSP) and (NETWORK SERVICE PROVIDER)'s employees or appointed personnel while in the premises 	<ul style="list-style-type: none"> To arrange through a licensed network service provider, Network services, Internet Bandwidth and connectivity, incidental thereto as specified in the Scope of Work in the agreement between (MSP) and (PURCHASER). The MSPs overall liabilities and responsibilities shall in no case be less or more than the liabilities as mentioned in the contract, with respect to 'The Project', executed between the MSP and the Purchaser. Ensuring Timely execution of the part of the order related to required Bandwidth for the project. To provide..... (NETWORK SERVICE PROVIDER) with a complete network diagram of the set-up along with the details of connectivity at the Locations and services provisioned to the..... (PURCHASER) Proper network monitoring and network management as per SLA like uptime, proper bandwidth etc. and submit SLA report to the 	<ul style="list-style-type: none"> To provide Network services, Internet Bandwidth and connectivity, incidental thereto as specified in the Scope of Work as per CONTRACT placed by PURCHASER to (MSP) and (NETWORK SERVICE PROVIDER). To provide the Services (as per SLA) required by..... (PURCHASER), and by..... (MSP) on behalf of..... (PURCHASER), within the timeframe, quality, security and reliability level agreed with between..... (PURCHASER),..... (NETWORK SERVICE PROVIDER) and (MSP). Not to use the establishments and services installed under this agreement for organizations other than (PURCHASER). To raise direct invoices against the works/services performed, as per the terms of the Purchase Order with PURCHASER. To ensure compliance of Indian Telecom regulation &

Responsibility of (Purchaser)	Responsibility of(MSP)	Responsibility of(SUB-CONTRACTOR)
	<p>PURCHASER on monthly/as and when required basis.</p> <ul style="list-style-type: none"> To monitor and report any problems on behalf of..... (NETWORK SERVICE PROVIDER). To ensure that the (NETWORK SERVICE PROVIDER) comply with all relevant and applicable provisions of the Contract. To obtain and arrange for the maintenance in full force and effect of all applicable government approvals, consents, licenses, authorizations, declarations, filings, and registrations as may be necessary and advisable for the performance of all of the terms and conditions of this Agreement. 	<p>statutory requirements while performing the works/services under this agreement.</p> <ul style="list-style-type: none"> To obtain and arrange for the maintenance in full force and effect of all government approvals, consents, licenses, authorizations, declarations, filings, and registrations as may be necessary and advisable for the performance of all of the terms and conditions of this Agreement.

6. INVOICE AND PAYMENT

- i. (NETWORK SERVICE PROVIDER) shall raise direct invoices against the Requisite Services so rendered, as per the terms of the Contract and..... (PURCHASER) shall directly make the payment to..... (NETWORK SERVICE PROVIDER) based on the SLA report and confirmation made by (MSP).
- ii. The other terms and conditions shall remain applicable as per (PURCHASER's) CONTRACT No..... with (MSP).

7. DISPUTES WITH REGARDS TO INCORRECT INVOICING

- i. Disputes with regard to incorrect Invoicing shall be governed by (PURCHASER's) CONTRACT No.with..... (MSP).

8. ACCESS TO PREMISES

..... (PURCHASER) shall allow or obtain the required permission to enable..... (NETWORK SERVICE PROVIDER) employees or authorized personnel, appointed distributors, agents or subcontractors to enter at all times during the normal working hours of (PURCHASER) into the premises where the Services are provided for periodical inspection with seven (7) days prior notice, installing, maintaining, replacing and removing equipment hardware and/or software prior to, during and after the provision of the Services, as well as to inspect the network and/or to the CPE or any other equipment used in or in connection with the Services. The..... (PURCHASER) shall render all assistance in this regard and shall provide safe access and conditions for..... (NETWORK SERVICE PROVIDER)'s employees or appointed personnel whilst in the premises. (NETWORK SERVICE PROVIDER)'s employees or appointed personnel shall comply with security and confidentiality policies and procedures while on the..... (PURCHASER)'s premises.

9. NOTICES

Any party may deliver notices to the other by personal delivery or by postal delivery at –
(PURCHASER)

.....
(MSP)

.....
(NETWORK SERVICE PROVIDER)

.....
Notices shall be deemed delivered on the date of actual receipt.

10. ENTIRE UNDERSTANDING

This Agreement constitutes the entire understanding of the parties related to the subject matter hereof. The agreement may be amended only in writing when it is signed by..... (NETWORK SERVICE PROVIDER)..... (MSP) and..... (PURCHASER).

11. MISCELLANEOUS

- i. The terms of this Agreement shall not be construed to constitute a partnership, joint venture or employer/employee relationship between the parties. This Agreement along with any other relevant document constitutes the whole of the agreement and understanding between the parties about the subject matter.
- ii. In the event of any provision of this Agreement being held or becoming invalid, unenforceable or illegal for any reason, this Agreement shall remain otherwise in full force apart from the said provision which will be deemed deleted. The parties shall however attempt to replace the deleted provision with a legally valid provision that reflects the same purpose of the deleted provision to the greatest extent possible.
- iii. Headings used in this Agreement are for the convenience and ease of reference only, and shall not be relevant to or affect the meaning or interpretation of this Agreement.
- iv. No forbearance, relaxation or inaction by any party at any time to require the performance of any provision of this Agreement shall in any way affect, diminish, or prejudice the right of such party to require the performance of that or any other provision of this Agreement or be considered to be a waiver of any right, unless specifically agreed in writing.
- v. Each Party shall obtain and arrange for the maintenance in full force and effect of all government approvals, consents, licenses, authorizations, declarations, filings, and registrations as may be necessary and advisable for the performance of all of the terms and conditions of this Agreement.
- vi. The (NETWORK SERVICE PROVIDER) and (MSP) shall ensure compliance of Indian Telecom regulation & all other statutory requirements while performing the works/services under this agreement.

12. APPLICABLE LAW

The Agreement shall be governed by and construed in accordance with Indian Law. Subject to arbitration provision stated hereinafter the Courts at Delhi shall have the jurisdiction.

13. ARBITRATION

Any disputes which may arise out of this Agreement, and which cannot be settled in discussions or negotiations between the Parties, shall be referred to the appropriate management or higher authorities of the respective parties to resolve such dispute in good faith. In case no settlement is reached the parties shall refer it to a sole arbitrator appointed and selected by parties. Arbitration shall be conducted in accordance with the provisions of the Arbitration and Conciliation Act, 1996 or any other subsequent modifications or enactments thereof. The venue for Arbitration proceedings shall be The Arbitration shall be conducted in English Language and the award shall be binding upon all Parties.

14. LIMITATION OF LIABILITY

Limitation & liability with respect to Main Agreement and also this Agreement shall be governed by (PURCHASER's) Contract with (MSP). For the sake of clarity the parties agree that this Limitation of Liability shall be a part of overall limitation of liability for the entire scope of work under the contract, with respect to 'The Project', executed between the MSP and the Purchaser.

IN WITNESS WHEREOF the parties hereto have executed these presents the day and year first above written.

For and on behalf of M/s.....

(MSP)

(Signature of authorized representative)

Name:

Designation:

For and on behalf of M/s.....

(Sub-Contractor)

(Signature of authorized representative)

Name:

Designation:

For and on behalf of

(Purchaser)

(Signature of authorized representative)

Name:

Designation:

9.2 Sample Form 2 - Performance Bank Guarantee

To
Managing Director, Indian Ports Association,
1st Floor, South Tower, NBCC Place,
Bhishma Pitamah Marg,
Lodhi Road, Institutional Area,
New Delhi – 110003

Whereas, <<name of the MSP and address>> (hereinafter called "the Bidder") has undertaken, in pursuance of contract no. <Insert Contract No.> dated. <Date> to provide Implementation services for "Enterprise Business System in Five major Indian Ports" to IPA (hereinafter called "the beneficiary").

And whereas it has been stipulated by in the said contract that the MSP shall furnish you with a bank guarantee by a recognized bank for the sum specified therein as security for compliance with its obligations in accordance with the contract;

And whereas we, <Name of Bank> a banking company incorporated and having its head /registered office at <Address of Registered Office> and having one of its office at <Address of Local Office> have agreed to give the MSP such a bank guarantee.

Now, therefore, we hereby affirm that we are guarantors and responsible to you, on behalf of the MSP, up to a total of Rs. <Insert Value> (Rupees <Insert Value in Words> only) and we undertake to pay you, upon your first written demand declaring the MSP to be in default under the contract and without cavil or argument, any sum or sums within the limits of Rs. <Insert Value> (Rupees <Insert Value in Words> only) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the MSP before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and the MSP shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

This Guarantee shall be valid until <<Insert Date>>

Notwithstanding anything contained herein:

- Our liability under this bank guarantee shall not exceed Rs. <Insert Value> (Rupees <Insert Value in Words> only).
- This bank guarantee shall be valid up to <Insert Expiry Date>
- It is condition of our liability for payment of the guaranteed amount or any part thereof arising under this bank guarantee that we receive a valid written claim or demand for payment under this bank guarantee on or before <Insert Expiry Date> failing which our liability under the guarantee will automatically cease.

9.3 Sample Form 3 - Integrity Pact

This pre-contract agreement (hereinafter called the "Integrity Pact" or "Pact") is made on <<day>> of <<month, year>>, between, on one hand, the President of India acting through <designation and department> IPA or its Nominated agencies/ Partners (hereinafter called the "BUYER", which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part

AND

M/s <<bidder's legal entity >> represented by <<name and designation>> (hereinafter called the "MSP/ Bidder/Seller", which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS IPA proposes to engage the Managed Service Provider (MSP) for implementation and operations management of the Project and MSP is willing to offer/has offered the services and

WHEREAS the MSP is a private company/public company/Government undertaking/partnership/registered export agency, constituted in accordance with the relevant law in the matter and IPA or its nominated agencies/ partners is a Ministry/Department of the Government of India performing its functions on behalf of the President of India.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:-

Enabling IPA or its nominated agencies/ partners to obtain the desired services at a competitive price in conformity with the defined specification by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling IPA or its nominated agencies/ partners to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and IPA or its nominated agencies/ partners will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

1. Commitments of IPA or its nominated agencies/ partners

- 1.1. IPA or its nominated agencies/ partners undertakes that no official of IPA or its nominated agencies/ partners, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the MSP, either for themselves or for any person, organisation or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.
- 1.2. The IPA or its nominated agencies/ partners will, during the pre-contract stage, treat all the MSPs alike, and will provide to all MSPs the same information and will not provide any such information to any particular MSP which could afford an advantage to that particular MSP in comparison to other MSPs.

- 1.3. All the officials of IPA or its nominated agencies/ partners will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach
- 1.4. In case any such preceding misconduct on the part of such official(s) is reported by the IPA or its nominated agencies/ partners to the IPA or its nominated agencies/ partners with full and verifiable facts and the same is prima facie found to be correct by IPA or its nominated agencies/ partners, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by IPA or its nominated agencies/ partners and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by IPA or its nominated agencies/ partners the proceedings under the contract would not be stalled.

2. Commitments of MSP

- 2.1. The MSP commits itself to take all the measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-
 - 2.1.1. The MSP will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour or any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the IPA or its nominated agencies/ partners, connected directly or indirectly with the bidding process, or to any person, organisation or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
 - 2.1.2. The MSP further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the IPA or its nominated agencies/ partners or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or forbearing to show favour or dis-favour to any person in relation to the contract or any other contract with the Government.
 - 2.1.3. MSP shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.
 - 2.1.4. The MSP further confirms and declares to the IPA or its nominated agencies/ partners that the MSP has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to IPA or its nominated agencies/ partners or any of its functionaries, whether officially or unofficially to the award of the contract to the IPA or its nominated agencies/ partners, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.
 - 2.1.5. The MSP, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the IPA or its nominated agencies/ partners or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
 - 2.1.6. The MSP will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation contracting and implementation of the contract.
 - 2.1.7. The MSP will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
 - 2.1.8. The MSP shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the IPA or its nominated agencies/ partners as part of the business relationship, regarding plans, technical proposals and business details, including

information contained in any electronic data carrier. The MSP also undertakes to exercise due and adequate care lest any such information is divulged.

- 2.1.9. The MSP commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- 2.1.10. The MSP shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 2.1.11. If the MSP who is involved in the bid process or any employee of such MSP or any person acting on behalf of such MSP, either directly or indirectly, is a relative of any of the officers of the IPA or its nominated agencies/ partners, or alternatively, if any relative of an officer of IPA or its nominated agencies/ partners who is involved in the bid process has financial interest/stake in the MSP's firm, the same shall be disclosed by the MSP at the time of filing of tender.
- 2.1.12. The MSP shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the IPA or its nominated agencies/ partners.

For the purposes of clauses 2.1.11 & 2.1.12, the listed words shall have the ascribed meanings as follows:

- "Employee of such MSP or any person acting on behalf of such MSP" means only those persons acting on behalf of such Bidder who are involved in the bid process / Project.
- "officers/employee of the IPA or its nominated agencies/ partners", means only those persons who are involved in the bid process / Project.
- "Financial interest/stake in the IPA or its nominated agencies/ partners's firm" excludes investment in securities of listed companies".

10 Formats for submission of Commercial Bids

It is mandatory to specify costs in each of the parameters specified below. Based on the requirements of the project, the bidder can decide and quote for the parameters which may be required for their solution implementation purposes. No additional payments shall be made by the purchaser to the bidder apart from whatever is quoted in the commercial formats. All quotes mentioned in the above format should be inclusive of all taxes

10.1 Covering letter for commercial bid

(To be submitted on the Letterhead of the Bidder)

<<On Bidder / Lead Bidder Letterhead>>

Date:

To

Managing Director, Indian Ports Association,
1st Floor, South Tower, NBCC Place,
Bhishma Pitamah Marg,
Lodhi Road, Institutional Area,
New Delhi – 110003

Sir,

Subject: Response to the Request for Proposal (RFP) for "Selection of Managed Service Provider (MSP) for Enterprise Business System in Five Major Indian Ports"

Reference: Tender No: IPA/ICTD/ERP/2016

Dated 26 December 2016

We, the undersigned Bidders, having read and examined in detail all sections of the RFP document in respect of "**Selection of Managed Service Provider (MSP) for Enterprise Business System in Five Major Indian Ports**", do hereby propose to provide the solutions and services as specified in the Tender document number Tender No: IPA/ICTD/ERP/2016 dated 26 December 2016.

1. Price and Validity

All the prices mentioned in our proposal are in accordance with the terms as specified in the Tender documents. All the prices and other terms and conditions of this proposal are valid for a period of 180 calendar days from the date of submission of the Proposal.

2. Taxes

We hereby confirm that our proposal prices include all taxes. We have studied the clause relating to Indian Tax and hereby declare that if any income tax, surcharge on Income Tax, Professional and any other Corporate Tax in altered under the law, we shall pay the same.

3. Tender Pricing

We further confirm that the prices stated in our proposal are in accordance with all requirements, instruction, terms and conditions and procedures included in RFP documents.

4. Qualifying Data

We confirm having submitted the information as required by you in your Instruction to Bidders. In case you require any other further information/documentary proof in this regard before evaluation of our Bid, we agree to furnish the same in time to your satisfaction.

5. Proposal Price

We declare that our proposal Price is for the entire scope of the work as specified in the Schedule of Requirements and Tender documents. The price quoted will remain firm during the contract period.

6. We hereby declare that our Proposal is made in good faith, without collusion or fraud and the information contained in the Proposal is true and correct to the best of our knowledge and belief.
7. We understand that our Proposal is binding on us during the validity period or the extensions thereof and that you are not bound to accept a Proposal you receive.
8. We confirm that no deviations are attached here with this commercial offer.

Thanking You,
Yours faithfully,

(Signature of the Bidder / Authorized signatory)

Printed Name

Designation

Seal

Date:

Place:

Business Address:

10.3 Summary of Commercial Proposal

#	Code	Component	Total price during implementation A	Total price during Operations and Maintenance					Total O&M price B = (i+ii+iii+iv+v)	Total Amount C = A + B	Total Amount in Words C
				Year 1 i	Year 2 ii	Year 3 iii	Year 4 iv	Year 5 v			
1	APP.1	Application 1 - Supply									
2	APP.2	Application 1 - Supply – ATS									
3	APP.3	Application 2 - Bespoke + Configuration + Migration									
4	MAS	Application Support - Manpower									
5	TCB	Training & Capacity Building									
6	CIH	Central IT Helpdesk									
7	CCI	Central Compute Infrastructure									
8	BWR.1	Bandwidth requirements - @Centre									
9	CAC	Call Centre									
10	PSR	Port Server Room									
11	NWI	Networking Infrastructure									
12	BWR.2	Bandwidth requirements - @Port									
13	PSC	Port Service Centre									
14	PIH	Port-specific IT helpdesk									
15	PCC	Port Command Centre									
16	TRI	Training Room Infrastructure									
17	EUC	End User Computing									
18	DIC	Dispatch centres									
19	DNS	Digitization & Scanning									
20	MOP	Manpower - Operations									
21	Total (Sum of components)										
22	Grand Total i.e. Contract price inclusive of all taxes										

Sr. 22 will be considered for commercial evaluation

Authorised signatory on behalf of the bidder:

Full name:

Address:

Seal of the Firm:

10.3.1 Format for APP.1

Sr. No.	Description	Quantity	Price Unit (excluding taxes, duties, levies)	CST / VAT	Service Tax	Any other tax/levy/duty	Price Unit (including taxes, duties, levies)	Total Price (in INR)
i	ii	iii	iv	v	vi	vii	viii = (iv+v+vi+vii)	ix = iii x viii
1	Port Operations Solution							
2	ERP solution							
i	Software license for all modules							
ii	Employee self-service (excluding above cost in 2 (ii))							
iii	Payroll licenses							
iv	<Any other item bidder may want to add>							
3	Document Management System (if not included above)							
4	Mail solution							
5	SMS solution							
6	Workflow Management solution							
7	Helpdesk solution							
8	GIS solution							
9	Content Management System							
10	Hospital software solution							
11	Canteen Software solution							
12	Enterprise management solution							
13	Mobility Manager solution							
14	API Solution							
15	LDAP or equivalent solution							
16	Portal Application solution							
17	HTTP Server							
18	Application server software							
19	Database solution							
20	Learning Management Solution							
21	Project Management Information System (PMIS)							

Sr. No.	Description	Quantity	Price Unit (excluding taxes, duties, levies)	CST / VAT	Service Tax	Any other tax/levy/duty	Price Unit (including taxes, duties, levies)	Total Price (in INR)
i	ii	iii	iv	v	vi	vii	viii = (iv+v+vi+vii)	ix = iii x viii
22	Version Control Software solution							
23	Replication Software solution							
24	<Add additional line for extra item>							
	Total (Sum of Sr1 to Sr 24)							

Total Price (in Words) is _____ --

Authorised signatory on behalf of the bidder:

Full name:

Address:

Seal of the Firm:

10.3.2 Format for APP.2

Annual Technical Support Cost

Sr. No.	Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total Price (excluding taxes, duties, levies)	Service Tax	Any other tax/levy/duty	Total Price (including taxes, duties, levies)
A	B	1	2	3	4	5	C = (1+2+3+4+5)	D	E	F
1	Port Operations Solution									
2	ERP solution									
i	Software license for all modules									
ii	Employee self-service (excluding above cost in 2 (ii))									
iii	Payroll licenses									

Sr. No.	Description	Year 1	Year 2	Years 3	Year 4	Year 5	Total Price (excluding taxes, duties, levies)	Service Tax	Any other tax/levy/duty	Total Price (including taxes, duties, levies)
A	B	1	2	3	4	5	C = (1+2+3+4+5)	D	E	F
iv	<Any other item bidder may want to add>									
3	Document Management System (if not included above)									
4	Mail solution									
5	SMS solution									
6	Workflow Management solution									
7	Helpdesk solution									
8	GIS solution									
9	Content Management System									
10	Hospital software solution									
11	Canteen Software solution									
12	Enterprise management solution									
13	Mobility Manager solution									
14	API Solution									
15	LDAP or equivalent solution									
16	Portal Application solution									
17	HTTP Server									
18	Application server software									
19	Database solution									
20	Learning Management Solution									
21	Project Management Information System (PMIS)									
22	Version Control Software solution									
23	Replication Software solution									
24	<Add additional line for extra item>									
APP2.1	Total (Sum of Sr1 to Sr 24)									

Annual Maintenance Cost

Sr. No.	Description	Year 1	Year 2	Years 3	Year 4	Year 5	Total Price (excluding taxes, duties, levies)	Service Tax	Any other tax/levy/duty	Total Price (including taxes, duties, levies)
A	B	1	2	3	4	5	C = (1+2+3+4+5)	D	E	F
1	Port Operations Solution									
2	ERP									
3	Remaining systems									
APP2.2	Total (Sr1+Sr2+ Sr3)									

Total Price (in Words) is (APP2.1 + APP2.2) _____

Authorised signatory on behalf of the bidder:

Full name:

Address:

Seal of the Firm:

10.3.3 Format for APP.3

Sr. No.	Description	Price (excluding taxes, duties, levies)	Service tax	Any other taxes, duties, levies	Total Price
A	B	C	D	E	F = C+D+E
1	Port Operations Solution				
2	ERP				
3	Remaining systems				
4	ERP OEM Audit Cost				

Sr. No.	Description	Price (excluding taxes, duties, levies)	Service tax	Any other taxes, duties, levies	Total Price
A	B	C	D	E	F = C+D+E
	Total (Sr1+Sr 2+ Sr3+Sr4)				

Total Price (in Words) is _____ --

Authorised signatory on behalf of the bidder:

Full name:

Address:

Seal of the Firm:

10.3.4 Format for MAS during implementation

S. No	Category	Nos.	Man months (A)	Man month Rate (B)	Total (excluding taxes C = (A x B)	Service tax D	Any other taxes, duties, levies E	Total Price C + D + E
			(A)	(B)	C = (A x B)	D	E	C + D + E
1	Project Director							
2	Project Manager							
3	Port lead							
4	Function Leads							
5	Solution Architect							
6	Network Architect							
7	Data Centre Specialist							
8	Add line for other resource profiles							
	Total (Sr 1 to Sr 8...all items)							

Total Price (in Words) is _____ --

Authorised signatory on behalf of the bidder:

Full name:

Address:

Seal of the Firm:

10.3.5 Format for MAS during Operations and Maintenance

Sr. No.	Description	Nos.	Man months	Man month Rate	Year 1	Year 2	Years 3	Year 4	Year 5	Total Price (excluding taxes, duties, levies)	Service Tax	Any other tax/levy/duty	Total Price (including taxes, duties, levies)
A	B		(A)	(B)	1	2	3	4	5	C = (1+2+3+4+5)	D	E	F
1													
2													
3													
	Total												

Total Price (in Words) is _____ --

Authorised signatory on behalf of the bidder:

Full name:

Address:

Seal of the Firm:

10.3.6 Format for INF, CIH, PSR, NWI, PSC, PIH, PCC, TRI, EUC, DIC (Implementation)

S. No	Category	Component	No of Units	Unit Rate	Total (excluding taxes, levies, duties)	VAT / CST	Service tax	Any other taxes, duties, levies	Total Price (including all taxes, duties, levies)	Total Price in words
			A	B	C = (A x B)	D	E	F	C + D + E + F	
1	INF.1									
1.1		<Component 1>								
1.2		<Add new line for each component>								
	INF.1 Total									
2	CIH									
2.1		<Component 1>								
2.2		<Add new line for each component>								
	CIH Total									
3	PSR									
3.1		<Component 1>								
3.2		<Add new line for each component>								
	PSR Total									
4	NWI									
4.1		<Component 1>								
4.2		<Add new line for each component>								
	NWI Total									
5	PSC									
5.1		<Component 1>								
5.2		<Add new line for each component>								

S. No	Category	Component	No of Units	Unit Rate	Total (excluding taxes, levies, duties)	VAT / CST	Service tax	Any other taxes, duties, levies	Total Price (including all taxes, duties, levies)	Total Price in words
	PSC Total									
6	PIH									
6.1		<Component 1>								
6.2		<Add new line for each component>								
	PIH Total									
7	PCC									
7.1		<Component 1>								
7.2		<Add new line for each component>								
	PCC Total									
8	TRI									
8.1		<Component 1>								
8.2		<Add new line for each component>								
	TRI Total									
9	EUC									
9.1		<Component 1>								
9.2		<Add new line for each component>								
	EUC Total									
10	DIC									
10.1		<Component 1>								
10.2		<Add new line for each component>								
	DIC Total									

Authorised signatory on behalf of the bidder:

Full name:

Address:

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10.3.7 Format for INF, CIH, PSR, NWI, PSC, PIH, PCC, TRI, EUC, DIC (O&M including consumables)

Sr. No.	Category	Component	Year 1	Year 2	Year 3	Year 4	Year 5	Total Price (excluding taxes, duties, levies)	Service Tax	Any other tax/levy/duty	Total Price (including taxes, duties, levies)
A	B		1	2	3	4	5	C = (1+2+3+4+5)	D	E	F
1	INF.2										
1.1		<Component 1>									
1.2		<Add new line for each component>									
	INF.2 Total										
2	CIH										
2.1		<Component 1>									
2.2		<Add new line for each component>									
	CIH Total										
3	PSR										
3.1		<Component 1>									
3.2		<Add new line for each component>									
	PSR Total										
4	NWI										

Sr. No.	Category	Component	Year 1	Year 2	Year 3	Year 4	Year 5	Total Price (excluding taxes, duties, levies)	Service Tax	Any other tax/levy/duty	Total Price (including taxes, duties, levies)
A	B		1	2	3	4	5	C = (1+2+3+4+5)	D	E	F
4.1		<Component 1>									
4.2		<Add new line for each component>									
NWI Total											
5	PSC										
5.1		<Component 1>									
5.2		<Add new line for each component>									
PSC Total											
6	PIH										
6.1		<Component 1>									
6.2		<Add new line for each component>									
PIH Total											
7	PCC										
7.1		<Component 1>									
7.2		<Add new line for each component>									
PCC Total											
8	TRI										
8.1		<Component 1>									

Sr. No.	Category	Component	Year 1	Year 2	Years 3	Year 4	Year 5	Total Price (excluding taxes, duties, levies)	Service Tax	Any other tax/levy/duty	Total Price (including taxes, duties, levies)
A	B		1	2	3	4	5	C = (1+2+3+4+5)	D	E	F
8.2		<Add new line for each component>									
	TRI Total										
9	EUC										
9.1		<Component 1>									
9.2		<Add new line for each component>									
	EUC Total										
10	DIC										
10.1		<Component 1>									
10.2		<Add new line for each component>									
	DIC Total										

Authorised signatory on behalf of the bidder:

Full name:

Address:

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10.3.8 Format for TCB

S. No.	Description	Total No of Trainings	Total cost of training including training material, training sessions, videos, consumables, trainers, etc.					Total Price (excluding taxes, duties, levies)	VAT / CST	Service tax	Any other taxes, duties, levies	Total Price (including all taxes, duties, levies)
			Implementation	Year 1	Year 2	Year 3	Year 4					
1	Overview Workshops/ Trainings											
2	Orientation to ERP Related Changes											
3	Core Functional Trainings for Various Modules											
4	Refresher Trainings for various Modules											
5	Technical Trainings for limited users of Ports											
	Add line for other type of training											
	Total											

Total Price (in Words) is _____ --

Authorised signatory on behalf of the bidder:

Full name:

Address:

Seal of the Firm:

10.3.9 Format for DNS

Sr. No.	Description	Total No. Of pages	Unit rate for page scanning	Total Price (excluding taxes, duties, levies)	VAT / CST	Service Tax	Any other tax/levy/duty	Total Price (including taxes, duties, levies)
A	B	C	D	E = C x D	F	G	H	E + F + G + H
	Cost for page scanning							
	Total							

Total Price (in Words) is _____ --

Authorised signatory on behalf of the bidder:

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Address:

Seal of the Firm:

10.3.10 Format for CAC

Sr. No.	Description	No of seats	Per seat cost	During Implementation	Year 1	Year 2	Year 3	Year 4	Year 5	Total Price (excluding taxes, duties, levies)	Service Tax	Any other tax/levy/duty	Total Price (including taxes, duties, levies)
A	B			1	2	3	4	5	6	C = (1+2+3+4+5+6)	D	E	F
1	<Type of call centre seat>												
	Total												

Total Price (in Words) is _____ --

Authorised signatory on behalf of the bidder:

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10.3.11 Format for CCI (Primary Site and Disaster Recovery Site)

S. No.	Description	Total Cost of Central Cloud infrastructure for Primary Site and Disaster Recovery Site												Total Price (excluding taxes, duties, levies)	VA T / CS T	Service tax	Any other taxes, duties, levies	Total Price (including all taxes, duties, levies)	
		Implementation		Year 1		Year 2		Year 3		Year 4		Year 5							
		Units	Price	Units	Price	Units	Price	Units	Price	Units	Price	Units	Price						
			1		2		3		4		5		6	C = (1+2+3+4+5+6)	D	E	F	C + D + E + F	
1	Virtual Machines - Type 1																		
2	Virtual Machines - Type 2																		
3	Virtual Machines - Type 3																		
4	Virtual Machines - Type 4																		
5	Storage																		
	Add new line each component																		
	Total																		

Total Price (in Words) is _____

Authorised signatory on behalf of the bidder:

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Address:

Seal of the Firm:

10.3.12 Format for BWR

Units represents Bandwidth requirement in Mbps

S. No.	Description	Total Cost for Bandwidth												Total Price (excluding taxes, duties, levies)	VA T / CS T	Service tax	Any other taxes, duties, levies	Total Price (including all taxes, duties, levies)
		Implementation		Year 1		Year 2		Year 3		Year 4		Year 5						
		Units	Price	Units	Price	Units	Price	Units	Price	Units	Price	Units	Price					
			1		2		3		4		5		6	C = (1+2+3+4+5+6)	D	E	F	C + D + E + F
1	Link 1																	
2	Link 2																	
3	Link 3																	
4	Link 4																	
5																		
	Add new line each component																	
	Total																	

Total Price (in Words) is _____--

Authorised signatory on behalf of the bidder:

Full name:

Address:

Seal of the Firm:

10.3.13 Format for MOP

S. No	Category	Nos.	Man months (A)	Man month Rate (B)	Total (excluding taxes) C = (A x B)	Service tax D	Any other taxes, duties, levies E	Total Price C + D + E
1	Data Entry Operator							
2	Front desk operator							
3	Command Centre Operator							
	Add line for other resource profiles							
	Total							

Total Price (in Words) is _____--

Authorised signatory on behalf of the bidder:

Full name:

Address:

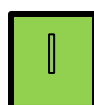
Seal of the Firm:

Request for Proposal (RFP) for
**“Selection of Managed Service Provider
(MSP) for Implementation of Enterprise
Business System in Five Major Indian Ports”**

VOLUME 2- Terms of Reference

Date: 26 December 2016

Bid Reference IPA/ICTD/ERP/2016



Indian



Ports



Association

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1 About the project

1.1 Background

India is fast becoming the global epicentre of economic growth and external trade as well as the one of the faster growing economies in the world. The country’s marine sector is intricately linked with its economic activity and trade and has been a critical contributor to its competitive position in global trade. 95% of the merchandise trade (by volume) is transported through maritime transport. The ports sector in India is primarily dominated by the public sector and most of the cargo is today handled by these ports.

India has 12 major ports, which are administered by the Central Government under Ministry of Shipping. As per the statistics published by Ministry of Shipping, the traffic handled at Indian ports has increased to 1,052 million tons in FY15 from 725 million tons in FY08. However, major ports within India are operating at more than 90% capacity utilization, owing to stagnant capacity. Notwithstanding the current state, major ports have embarked on a journey for major capacity overhaul. A number of initiatives are being undertaken by Ministry of Shipping, Indian Ports Association and individual port trusts to improve competitiveness with other ports in the region.

Adoption of information technology within port operations has not reached to the desired level. There are a number of paper-based workflows currently in the system which amount to inefficiencies. Most ports have computerized critical operations and functions which include invoicing, certain critical functions within port operations, finance, payroll, attendance among others. The computerization has been staggered covering specific functions, which are resulted in a piece-meal implementation of IT systems catering port-specific needs. A need is felt to have a comprehensive look at the IT systems within ports covering end-to-end business processes. Also, with the advent of newer technologies and its adoption by businesses and customers, major ports are required to undergo digital transformation through technology infusion.

Indian Ports Association (IPA) is an apex body for major public sector ports in India and functions under the administrative control of Ministry of Shipping, Govt. of India. IPA is responsible for integrating the maritime sector and fostering growth and development of all major public sector ports in the country.

Following a ‘Transformation through collaboration’ theme, IPA has embarked upon a journey to carry out a BPR, design, develop and implement a comprehensive solution for Indian ports. Collaboration is expected to result in significant cost savings and bring about standardization across the participating ports. FIVE major ports of Mumbai, Kolkata, Chennai, Kandla and Paradip are participating in this initiative.

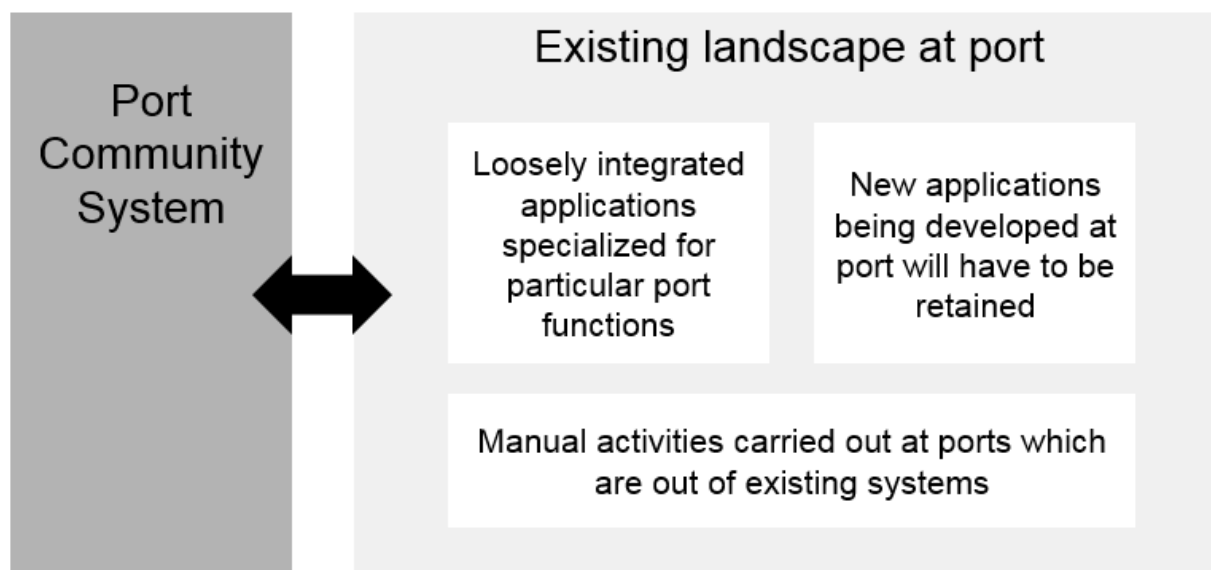
The vision envisaged for the project is:

To build a world class port eco-system within the country that

- Promotes ease of doing business
- Is driven by transparent, simple and error-free business processes
- Is easily measured by clearly defined key performance indicators
- Uses technology to achieve strategic business objectives
- Integrates seamlessly with prevalent systems and devices

1.2 Current system landscape

The existing landscape at port is depicted as below:



The landscape can be divided into three main categories:

Existing systems: These are certain loosely integrated systems specialized for carrying out dedicated port function. These systems support the existing functioning of the port and are self-sufficient on their own. Under this project, these are expected to be phased out.

Retained systems: These are systems/ applications which have been recently developed or are being developed at the port. Under this project, these are expected to be retained. The new system coming in needs to integrate seamlessly for two-way data exchange.

Paper-based systems: These are certain workflows which are currently being performed out-of-the-system at present. These are expected to be moved to system-based workflows under this project

Port Community System (PCS)

In 2008, a centralized, web-enabled application, known as Port Community System was launched by Indian Ports Association (IPA) with the objective of providing a single-window facility to all ports and their business partners to exchange business information in the form of Electronic Document Interchange (EDI) messages. PCS facilitates electronic flow of trade related document/information by acting as a centralized hub for the ports and other stakeholders for exchanging electronic messages in secure manner. The stakeholders who are part of the Port Community System are:

- Shipping Lines/Agents
- Surveyors
- Stevedores
- Banks

- Container Freight Stations
- Customs House agents
- Importer/Exporter
- Railways/CONCOR,
- Customs
- Other Government regulatory agencies

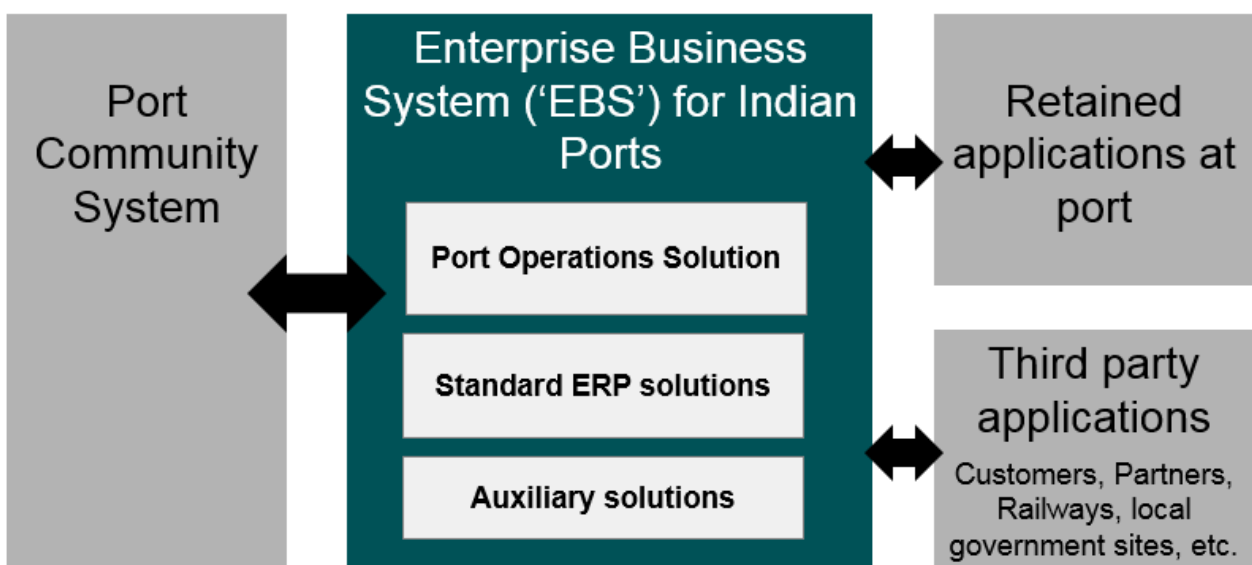
PCS has been successful in playing a major role in ushering in trade facilitation in India – which broadly covers the following:

- Provide a single-window platform to all the Port Community members to exchange business information electronically in secure fashion. Every day, over 5 Lakh EDI messages are exchanged through the PCS system.
- Implement an e-commerce portal for port community
- Reduce transaction time & cost in port business
- Help in moving towards paperless regime in port sector

PCS is undergoing an overhaul with a newer version of PCS2.0. It is expected that the system being developed under this project shall

1.3 Future landscape

The future landscape for Indian ports envisages a comprehensive Enterprise Business System (EBS) which will comprise of three core solution components viz. Port Operations Solution, Standard ERP solutions and Auxiliary solutions

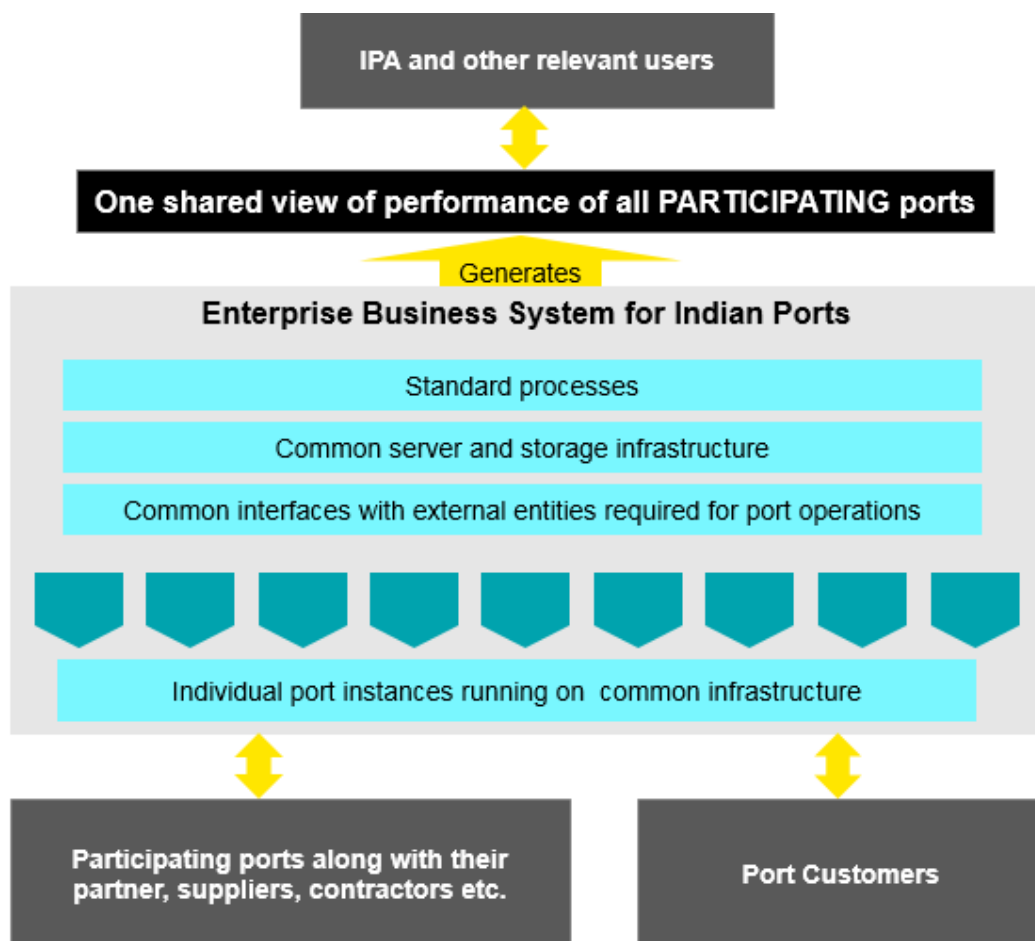


Port-EBS is expected to tightly integrate with Port community system (PCS) current version and PCS2.0 as it becomes operational. There are certain systems such as Aadhaar-based attendance system, access control

system at gates, VTMS, hydrographic survey systems and others, which will be retained by ports. Port-EBS is expected to tightly integrate with these systems. In addition port workflows expect integration with third party external applications including those of port customers (Vessel Agents, CHA, Importers/Exporters), partners (Stevedores, etc), Railways (FOIS), P&I website, other government websites such as DGS, e-GRASS, etc.

1.4 Conceptual view of the proposed Port-Enterprise Business System:

Port EBS is expected to be comprehensive business solution combining best of breed applications available. End objective of the exercise is to have a common application platform with different port-specific instances, hosted on a central system leveraging on common infrastructure. The graphic below depicts the conceptual view of the proposed Enterprise Business System for Indian Ports.



Challenges which are expected to be considered for Port EBS implementation:

- Average age of employees within major ports is above 50 years, making adoption of proposed system challenging

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- Over the next years, manpower within ports is expected to reduce which will result in reduction of users and related licenses
- Number of workflows are currently being performed out-of-the-system
- There are a number of systems Port-internal and external-third party systems with which Port-EBS has to integrate with in a seamless manner
- There is a need for real-time information capture and flow using mobility solutions at key operational locations
- There is a need for information updates to port customers, port operations staff and port leadership to enable them to get a complete, real-time view of port operations, financials and activities/transactions being carried out
- Refresh / upgrade of existing old ICT infrastructure within port
- Information with respect to financial detail to the lowest level is required for carrying out various strategic decisions related to port operations

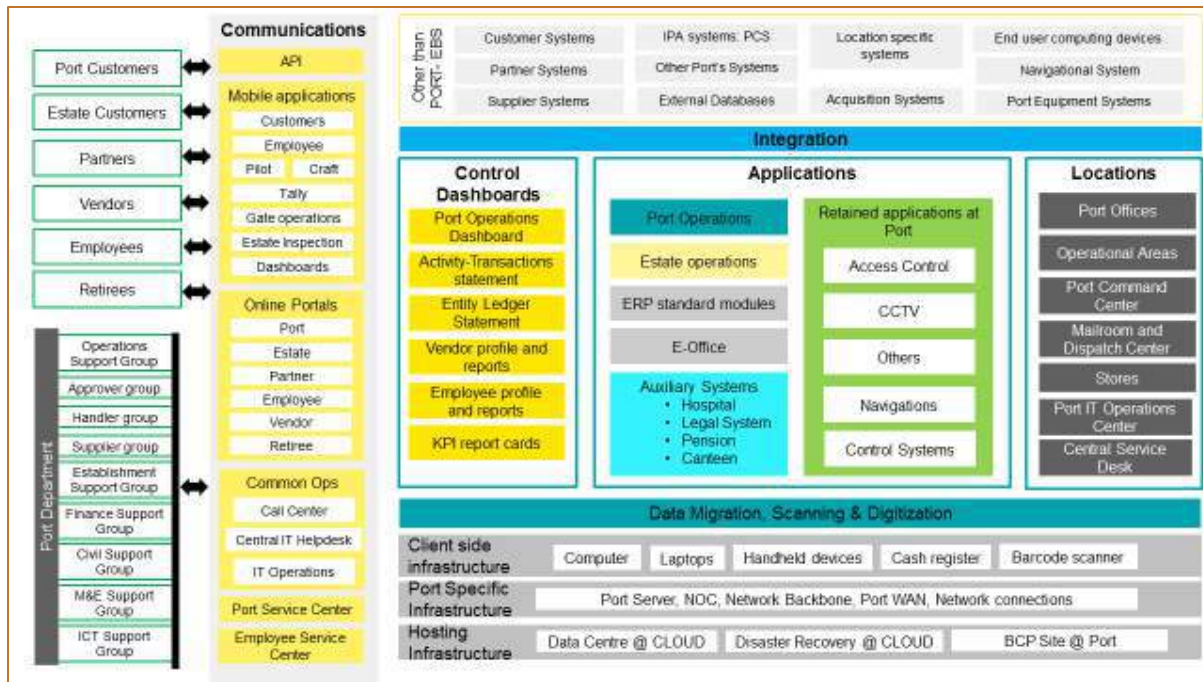
The graphic below provides an indicative representation of various systems with which Port-EBS is expected to integrate with.



2 Solution Details

The following section provides a high-level blueprint of the solution envisaged for all the five ports consisting of various components expected within the solution. Each of these components has been detailed subsequently. Indicative functional requirements for the components have also been provided in subsequent sections. MSP is expected to go through the same and make an independent assessment. Detailed process flows of existing processes will be shared with the successful MSP at the time of implementation.

2.1 Functional Landscape



Picture 1: Application Functional Landscape

The above schematic depicts a high-level architecture of components envisaged under the EBS system envisaged for five ports. Each component within the architecture has been explained below:

1. User group

This component refers to the various types of users that are expected to access the system. These have been further classified as:

- **Port Customers:** These are end users who will avail services from proposed EBS system. These include, but not limited to, following broad level categories of users :
 - a. Vendors providing material, temporary staff
 - b. Suppliers
 - c. Consumers using electricity, ship breaking/repairing yards and other port resources
 - d. Custom Agents
 - e. Transport Agents
 - f. Transporters
 - g. Exporters
 - h. Importers
 - i. Export/Import agents
 - j. Logistics Companies
 - k. Railways

I. Ship breaking Vendors/Customers

m. Warehousing agents/vendors

- **Estate Customers:** Estate customers include business entities/individuals to whom the land owned by port is rented out for commercial/non-commercial purpose. Ports own a large land bank which is being provided on rent to these customers. Primarily, rented port land is used for building commercial offices, shops, traders' offices, agent offices, storage of coal, pulses, cements etc.
- **Partners:** This group of users include business partners who use port resources in handling the cargo operations of the ports. These include systems / stakeholders / private operators which are operating on behalf of ports but are not directly part of port operations. It is envisaged that in future partner count for all member ports is going to increase.
- **Vendors:** These are parties which perform business with port authorities. Vendors are one of the largest user communities for port systems. Vendor user group includes material suppliers, manpower suppliers, traders, logistics companies, government agencies (tax authorities) etc. It is expected that the system will be access via various government agencies as a part of regulatory compliance or otherwise
- **Employees:** These are permanent employees / contracted employees or staff of five ports which will be considered as internal staff working for ports as far as system is concerned. These will include all labour supervisors, tally clerks, port officers, finance dept. clerks, security officers etc.
- **Retirees:** Ports employs large number of labourers, loaders/unloaders, on shore, off shore workers, supervisors, officers. Being a government servant, all these employees are entitled for several retirement benefits provided by port and government authorities. Port authorities are providing pensions, retirement allowances, medical facilities, VPF benefits to retired employees. These are large number of users which are involved in regular financial transactions with port systems.
- **Port Department:** The port users have been further classified into the following user groups as per the operational roles assigned. A particular port employee could fall under multiple user groups depending on the rank and role assigned. The groups defined include:
 - Operations Support group
 - Supplier group (vendors and internal port staff)
 - Handler group (operations staff)
 - Service Owner group
 - Establishment support group (HR and administration)
 - Finance Support group
 - Engineering Support group
 - Legal Support group
 - IT Support group

2. Communications

This component refers to the solution components which will be used for interacting with the Port EBS applications. The communication components have been based on the human and system based interactions with Port EBS. The components envisaged include:

- **API:** enabling seamless exchange of information with external systems. This layer may also include messaging hub for data exchange.
- **Mobile applications:** Allowing mobility to leadership, field staff, other employees and other port customers for specific information requirements.
- **Online portals:** This option will be made available for port office employees, estate, partner, vendors and retirees
- **Common operations:** this will include call centre, central IT helpdesk and IT operations team
- **Port specific operations:** This will include port service centre and employee service centre which will be established to support customers and port employees.

3. Applications

This component refers to all applications, system software, etc. which will be a part of the solution. These can be broadly classified as application / software with following capabilities:

- **Port operations**

The port operations module shall be an integrated system to manage the following key operation areas:

- | | |
|---------------------------------------|---|
| a. Vessel operations | g. Storage space management |
| b. Cargo operations | h. Railways operations |
| c. Container operations | i. Gate operations |
| d. Resources management | j. Others as detailed in Functional Requirements Specifications |
| e. Terminal/ Additional port services | |
| f. Permissions & licenses | |

The system will be integrated with financial management system for synchronising billing, recovery of payments & other systems for managing and maintaining assets & projects.

- **ERP Standard Modules**

- **Finance management**

The financial management system will be the integrated part of the solution. As a part of this, we will have various modules of finance which will interact with various other systems such as procurement and Port operation system, tendering, Asset management etc. which are further elaborated as below:

- a. **Core functionalities including the following:**

- | | |
|-----------------------|----------------------------|
| i. Accounts Payables | iv. Bank Management |
| ii. Vendor Management | v. Fixed Assets Management |
| iii. Cash Management | vi. Account receivables |

- | | |
|-------------------------------------|----------------------------------|
| vii. Customer Management | xii. Profitability analysis |
| viii. General Ledger | xiii. Cash-flow analysis |
| ix. Budgeting and variance analysis | xiv. Payments and Reconciliation |
| x. Loans Management | xv. Internal cost controlling |
| xi. Tax handling | xvi. Project costing |
| | xvii. Internal Audit |

b. Billing & payments functionalities including:

- | | |
|---|-----------------------|
| i. Scale of Rates (SOR) masters | v. Rendering of bills |
| ii. Port operations billing & recovery of charges | vi. TDS management |
| iii. Advanced deposit management | vii. Service tax |
| iv. Refunds & remission | viii. Payment gateway |
| | ix. Estate billing |
| | x. Billing Audit |

o **HR Management System:**

A HRMS should be a comprehensive system catering to all functionalities of HR, Administration, Establishment & Welfare services. It should be an integrated system primarily with Financial Management module, Legal Case Management, Workflow management & Port Operations system. Key integration would be with Resources Management sub-module of Port Operations

Key components of the integrated HRMS system are including:

- | | |
|-------------------------------------|---------------------------------------|
| i. Leave & Attendance management | vii. Reservation Roster |
| ii. Time Management | viii. Recruitment |
| iii. Payroll | ix. Training & Development |
| iv. Transfers | x. Appraisal & Performance Management |
| v. Promotions | xi. Manpower Planning |
| vi. Terminal Benefits & Separations | xii. Welfare Services |

o **Materials Management**

a. Procurement

The Procurement system we envisage is a way to simplify the procurement process, shorten the lead time by following some changes in the procurement policy and some IT system enablement. The procurement system will use the common e-Tendering system used by government agencies for their tendering needs and once the tender is awarded, in case of long term contract tenders, Contract/ Material management system will be used to track the contract till its closure.

b. Inventory management

Inventory management system would enable the management of Stock and non-stock items for port stores. The receipts of goods to the store and issue of goods to the different departments with tracking of on hand quantity in each store with Items replenishment cycle with various replenishment techniques.

o **Asset management**

Asset maintenance: We have envisaged that an Asset owner who will actually own the asset and prepare the planned maintenance schedule. He can then request to the relevant asset dept. To allocate Job Code and decide the maintenance would be in house maintenance or the contracts one. In case it has to be maintained, and necessary purchase will be procure (if it's not available in inventory.) The Asset Management module would be fully integrated with other financial modules to provide the mechanism to accurately record and track the port investment in infrastructure, capital purchases, and historically significant items. It is also used to add assets, adjust and transfer assets, process depreciation, conduct physical inventory, and report on agency assets. Assets are added through the integration of Purchasing and Accounts Payable to the Asset Management module.

o **Contract management**

Contracts management would support complex project contract management needs of project driven department in port including commercial and government contractors, agencies and subcontractors characterized by,

- i. Ever changing contract specifications,
- ii. Procure-contract components and services
- iii. Managing Contract Billing,
- iv. Contract Funding in Multiple Currencies
- v. Compliance of government regulations
- vi. Deliverable tracking integrated with ERP functions like procurement, planning and production
- vii. Audit trail for all contracts

o **Project management**

- i. In conjunction with contract management module Project management would provide timely and detailed solutions to project managers as well as the finance groups. The details will improve visibility to project revenues, work breakdown structures, invoice accountability and overall profitability to any project.
- ii. The projects system would be used for managing the projects from various departments like civil, mechanical or any other department who initiate a project and want to monitor the cost, time and quality aspects of it.

- iii. This would also enable them to track the resources and their utilization along with various other project KPIs, such as estimate to complete, planned value, actual value earned value, SPI and CPI etc.
- iv. Simple templates for the data inputs are required for project management system & its integration with contract management, materials management & financial management modules

Other modules functionality required to be provided as a part of the Port EBS solution package include the following components:

- **Legal case management**

Legal management module shall enable workflows of all legal cases of ports. Legal opinions & advice requests will be sent by the user departments through the system. Filing of a legal suit will be recorded in the system with a system generated unique ID. Subsequently all activities of each case will be recorded in the system. Officer's attendance for the hearing will be linked in the system. Invoices raised by the empanelled advocates will be verified through reports generated from the system. The system will also be linked with dashboard for reporting of pending legal cases & summary of facts of the cases. Along with general legal cases, there are employee dispute related cases registered in labour courts & other related legal proceedings. The Industrial Relations (IR) division manages such cases & corresponding conciliation processes. System should have provision to track all such employee related cases with its interface with HR Management system.

- **Pension**

Retired employees are beneficiaries of Pension & welfare benefits from port authorities. The pension module should cater to requirements like disbursement of pensions & other monetary benefits to registered pensioners, calculation of terminal benefits/ pension amount at the time of retirement & processing of requests/ applications submitted by retired employees or their registered nominees.

- **Provident Fund**

Ports manages the provident fund of its employees. The provident fund module should have provision to deduct provident fund contribution from employee's salary & processing of cases of provident fund advance and loans against provident fund.

- **Investments**

Port manages its own investments in bank deposits & government bonds through bidding process. The investment module should support bidding process, and subsequently track and account for all investments made by Port's finance department and its current status. It will form one of the important inputs for generating a cash flow statement for Port.

- **E-Forms**

All standard forms which are presently used as physical paper-based copies will have to be converted into an e-form. It is expected that a service will be provided by IPA only if there is a Service request e-form associated with it on the IPA portal. The input fields of these forms will have to be redesigned to reduce the redundancy of data inputs. e-Forms should incorporate all validations based on the business rules of IPA and member ports.

- **Grievance management**

Any grievance raised by the outside customer/ citizen on member ports should be tracked through an online portal. Internal employee grievances should also be raised through internal portal. These grievances should be then directed to concerned authorities for redressal as per policies.

- **Incident management**

The incident management module should have provision to log any incident during operations like accident, emergency situation, security/ safety issue and breakdown. The incident categories should be well-defined and subsequent workflow should be mapped in the system.

- **Canteen management**

This is a module to manage canteen operations of ports. Canteens spread across various locations within member ports. System will be equipped with terminals to read smart cards and enable cashless payments. It will track entire canteen operations from inflow of raw material received, menu preparation, food prepared from raw material, wastage, disbursement of food through terminals, related cash management and end-to-end reconciliation of money and quantity of food prepared.

- **Hospital management**

Member ports owns & operates its own Hospital including OPD, IPD, Radiology, Pathology lab, Operation Theatre, Blood bank, various dispensaries for initial treatments, Pharmacy store & Central store. A Hospital Management System (HMS) will be integrated with the Materials Management, Asset Management & Financial Management System. Primary objective of an integrated system is to track utilization of expenses at Hospital & improve operational efficiency for providing its services. As a part of the solution for Pharmacy, the system should have provision to generate bar-code stickers for all medical items to efficiently track consumption & inventory.

- **Estate Operations**

Member ports has got a vast estate and has leased out its lands, buildings and other structures to external parties. The proposed system shall provide a graphical representation / visibility of the entire land and water area owned by the Port and their current and proposed usage to plan, allot, use, monitor and review optimal usage of the estate. The system should be able to enable all workflows related to property management, lease management, permissions/ requests, breaches and survey reporting & internal verification/ approval mechanisms

- **E-Office:** This will be deployed for respective ports to enable a paperless flow of files and records required for the official recording and approvals. This system will be further aided by the data digitization and scanning activities to be provided by the MSP.

- **Retained Applications at Port:** Ports have other systems which are required to interface and exchange data with the Port EBS. The interfacing would be used for the required reporting purposes. The data may be used to provide inputs to the port command centre proposed to be established for each port. The port retained applications would include the following indicative group of systems:
 - Access Control
 - CCTV
 - Others
 - Navigations
 - Control Systems

Details of the existing systems of the ports are provided in the annexure existing system details.

- **Control Dashboards:** This layer includes the indicative dashboards which are required for the port users.
 - Port Operations Dashboard
 - Activity Transactions Statement
 - Entity Ledger Statement
 - Vendor Profile and reports
 - Employee Profile and reports
 - KPI report cards

4. Integration

The proposed system should be built on open standards to ensure interoperability with other interfacing systems. The system should have internal capability of enabling seamless exchange of information with various candidate interfacing systems. This layer would include API and message hubs to enable data exchange with retained port systems and other systems.

5. Other systems (Other than Port EBS and retained systems)

The port EBS system is expected to interact with other external systems and establish an eco-system of seamless exchange of data with government organizations, vendors, suppliers and customers. The integration layer is to support in the interaction and data exchange capabilities of Port EBS. The other systems to be considered for interfacing with Port EBS will include at least:

- Customer systems
- Partner systems
- Supplier systems
- IPA systems (PCS)
- Other port systems

- External databases
- Location specific systems
- Acquisition systems
- Navigation systems
- End user computing devices
- Port equipment systems

6. Locations

The key locations with respect to a port premise include the following:

- Port offices
- Port operational areas like docks, berths, lock gates, yards and field locations
- Port command center
- Mailroom and dispatch centers
- Stores
- Port IT operations centers
- Central service desks

7. Data migration, scanning and digitization

This layer would include the services related to the following:

- Migration: this would include migration of port legacy data onto the cloud environment for the applications under POS, ERP and auxiliary modules.
- Scanning and digitization: This would include the services required from the MSP to digitize physical records under ports.

The indicative numbers of records to be digitized have been provided under annexure – volumetric estimation of this volume.

Details of existing systems and databases from where data migration would be required and record size have been provided in annexure – volumetric estimation of this volume

8. Client side infrastructure

This component refers to the end point devices which are expected to interact with the system. These will include:

- **Computers / laptops / thin clients:** refers to all PCs, laptops being used by internal or external users interacting with the system
- **Handheld devices:** refers to hand held devices which are envisaged as a part of the solution, which will be used by operators for access data and providing inputs to the system in case of port and estate operations

- **POS terminals:** system will receive inputs from POS terminals which will be put in at gates / various locations which will provide for biometric access
- **Mobile computing:** system is expected to interact with multiple mobile computing devices such as cell phones, tablets, etc.
- **Printers and Scanners:** Printers and Scanners being used by port employees during routine business operations. These ICT components would be procured by the MSP based on the demand from each port authority for the go-live and O&M period.
- **Cash Registers:** It will be used to replace traditional registers based cash collection accounting processes. These registers will be installed at each billing centres of member ports.
- **Barcode Scanners:** Barcode Scanners will be used during cargo operations and it will be integrated with external system of customer, custom authorities.

9. Port Specific infrastructure:

- **Port IT helpdesk:** The Port IT helpdesk will primarily handle technical queries of port officials relating to EBS System.
- **Network backbone:** The 3-tier architecture shall be established by MSP to meet the port network requirements for connecting varied port locations like Hospital, Estate, Port Area, and Administrative Building etc.

The envisaged layer for port network backbone are:

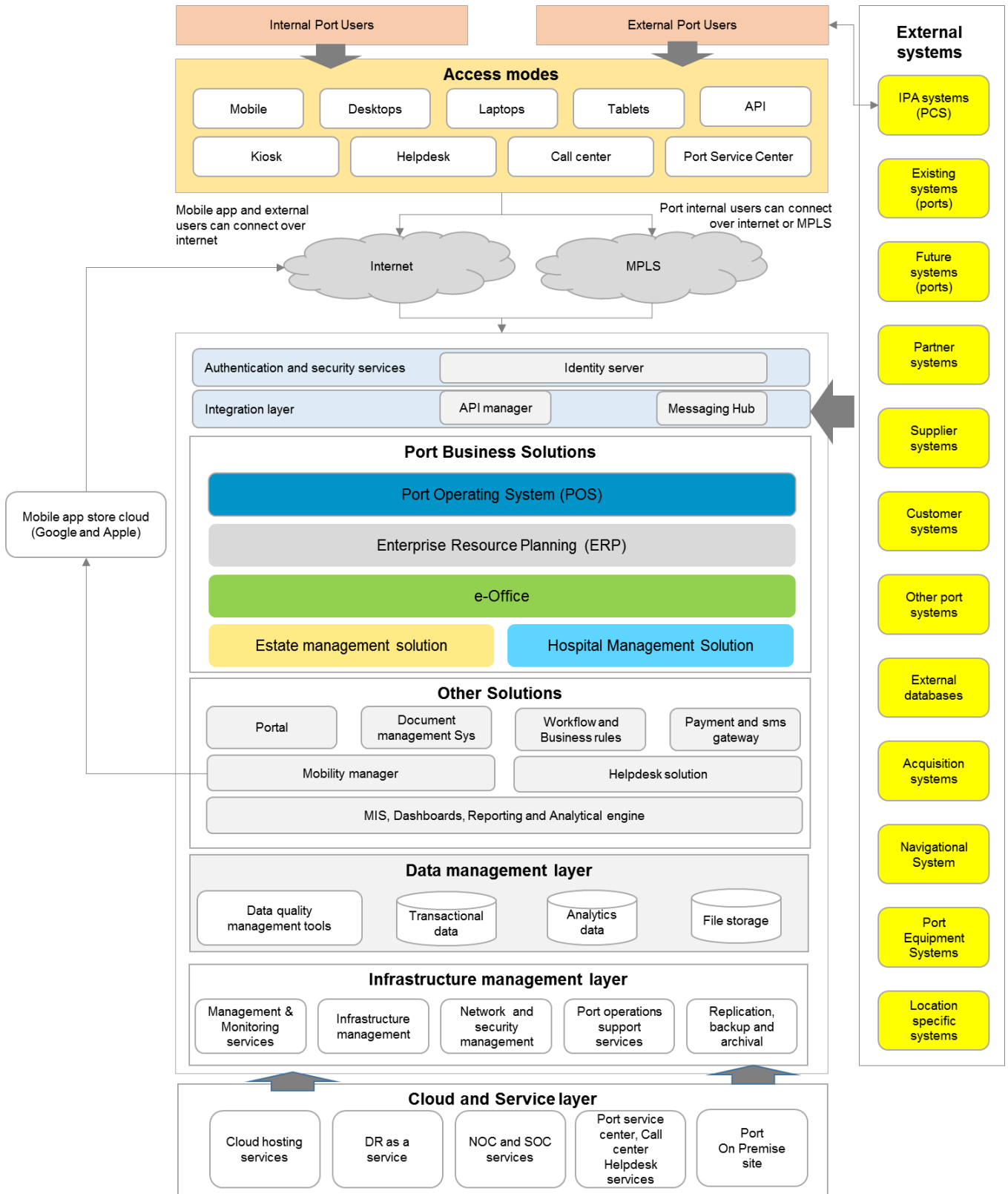
- **Core Layer:** The Core layer forms the backbone of the entire network which consists of Compute, router, firewall, links and connectivity to be established at the each port
- **Distribution Layer:** The aggregation layer is envisaged at department level. The traffic coming from respective buildings shall get aggregated at the distribution level
- **Access Layer:** The Access layer shall be formed at the last mile. There can be multiple access rings within the respective distribution layer.

10. Hosting Infrastructure:

- **Data Centre / Disaster Recovery at cloud:** The proposed EBS solution shall be hosted in cloud environment in a Data Centre. MSP is expected to design the requirements for hosting the solution and manage through the contract period.
- **Port Site for Business Continuity Functions:** MSP shall built a port site which will primarily a business continuity site at port premises.

2.2 Application Landscape

The overall application technical landscape is presented below. The layers have been presented below.



Picture 3: Application Technical Landscape

2.2.1 Overall requirements

2.2.1.1 Architecture principles

The port technology solution has been design based on the following architectural principles:

#	Principle	Description
1	API based approach	Within the port eco-system, the port EBS system is expected to be interoperable with retained port systems like control systems, navigations, access controls, GIS, CCTV and others external systems like PCS (IPA), FOIS (Indian Railways), supplier / vendor / customer systems. Open standard based Port APIs will support data exchange mechanisms between third party systems and Port EBS.
2	Ease of Use	Ease-of-use is a positive incentive for use of applications. It encourages users to work within the integrated information environment instead of developing isolated systems to accomplish the task outside of the enterprise's integrated information environment. The knowledge required to operate one system will be similar to others if the look and feel of the applications are similar. By having ease of-use principle, training can be kept to a minimum thereby aiding IT change management and the risk of using a system improperly can be minimized.
3	Interoperability	It is the ability to have applications and computers from different sources and platforms work seamlessly together on and across networks. This is the key to sharing resources and reduction in long-term development costs
4	N Tier model	N-Tier model is the framework in which application user interface, logic, data, and their associated processing and tiers are separated from each other in logical manner. Partitioned code is more flexible in response to changes in internal logic, platforms, and structures; this isolates/minimizes the impact of change. It is easier to support, is more scalable and supports interoperability
5	Openness	Open API, open standards and open source products should be considered for designing the system. The system integrator should consider scalability, security and performance of the system while deciding on the system and adherence to the open architecture design principle.
6	Reliability	The system must have appropriate measures to ensure processing reliability for the data received or accessed through the solution. Port operation is a critical operation and requires reliability to ensure stakeholder confidence.

2.2.1.2 Adherence to Industry standards

- a. The Port Operations System and other enabling solutions should conform to open standards to the extent possible and in line with the requirements described in this RFP. The solution should have strong robust integration between the core business solutions and the overall engine should have interoperability features with different systems and platforms.
- b. Specific OEM products may only be used when necessary to achieve scale, performance and reliability. Every such OEM component/service/product/framework/MSP pre-existing product or work must be wrapped in a vendor neutral API so that at any time the OEM product can be replaced without affecting rest of the system.
- c. The solution should conform to industry standards wherever applicable and should be applied to all aspects of the proposed solution and not limited to design, development, security, interoperability, mobility, testing, installation and rollout.
- d. An indicative list of standards have been proposed below. However, the list is for reference purpose and is not to be treated as exhaustive.

S. No.	Component / Application / System	Prescribed Standard (where applicable)
1	Workflow	WFMC
2	Portal	W3C, GIGW
3	Information Access/Transfer Protocols	SOAP, REST, HTTP/HTTPS
4	Interoperability	Web services, Open standards
5	Document Encryption	Public Key Cryptography Standards (PKCS)
6	Information Security (mandatory)	ISO 27001:2013
7	Cloud security (desirable)	ISO/IEC 27017:2015
8	IT Infrastructure Management	ITIL / EITM
9	Service Management	ISO 20000
10	Project Documentation	IEEE / ISO / CMMi
11	Digital Preservation	ISO 14721: 2012
12	Internet Protocol	IPv6 ready equipment
13	Hospital solution	HL7, DICOM / VNA / ISO standard 12052:2006, ICD-10 classification and NABH standards as applicable

The proposed solution shall adhere to all the standards published by the Ministry of Electronics and Information Technology, Government of India (<http://meity.gov.in/esdm/standards>).

2.2.1.3 Ownership and license

- a. The ownership of all bespoke software developed, POS & ERP solutions customized or configured for the project would always be with the purchaser (IPA and respective ports). All licenses, source code etc. of any software developed for any COTS software obtained related to the project would be in the name of the purchaser and the same cannot be used anywhere without prior permission of purchaser.
- b. In case of any update/ upgrade of software application, the system integrator shall provide the latest available modified source codes in new set of CDs and any other electronic media to purchaser. System integrator shall provide a cover letter / affidavit that the source code provided is the latest available modified source code. The same shall be made available and maintained in a version control system for the purchaser.
- c. The system software licenses mentioned in the Bill of Materials shall be genuine, perpetual, full use and should provide upgrades, patches, fixes, security patches and updates directly from the OEM. All the licenses and support (updates, patches, bug fixes, etc.) should be in the name of purchaser. The MSP shall provide a comprehensive warranty that covers all components after the issuance of the final acceptance by Purchaser. The warranty should cover all materials, licenses, services, and support for both hardware and software. MSP shall administer warranties with serial number and warranty period. MSP shall transfer all the warranties to purchaser at no additional charge at the time of termination of the project. All warranty documentation (with valid warranty) will be delivered to Purchaser.
- d. The MSPs are expected to refer to Bill of Material and Annexure (existing system details, requirements specifications and volumetric estimations) to design the proposed solution considering software licenses and infrastructure (cloud and port on premise site).

2.2.1.4 User group

There are two user groups to be considered under the port eco-system, namely the internal port users and the external users. The internal users would be accessing the port systems over Internet or MPLS. The external user would be restricted to the Internet. The users would be able to interact with the systems using the access modes as per applicability. Internal users of ports would imply the employees of the participating major Indian ports. Other non-participating ports, partners, suppliers and customers would be constituted as external users.

2.2.2 Access modes

Various options for access modes have been defined in this RFP including:

- Mobile
- Desktops
- Laptops
- Tablets
- API
- Kiosks
- Helpdesk
- Call center
- Port service center

The users (internal and external) would be able to connect with the port system via any one or more of the above components as per requirement and due approval. For mobile users, the system may be accessible over mobile apps (hybrid or native mobile apps made available over mobile app stores including Google and

Apple). Users without access to compute end users device may connect with the port service center or call center to receive notifications, information. Helpdesk would be based on a ticketing and service request system intended for internal users. Any of the partner, supplier or customers may be able to interact with the port systems using the open standards based APIs.

The indicative minimum requirements for the port users for the access modes have been presented under Bill of Material and port user count is available in annexure (volumetric estimations).

2.2.3 Authentication and security layer

The authentication and security layer would include the following features for API and user management:

#	Component	Security and authentication features
1	Portal	<ul style="list-style-type: none"> ○ SSO (for ERP, POS and auxiliary systems) ○ User id and password ○ One Time password (OTP) ○ Digital Signature ○ Aadhaar based e-Sign
2	API	<ul style="list-style-type: none"> ○ Security key

The indicative mapping of the user groups with the indicative authentication requirements (current and future considerations) is as follows:

User group	SSO	User id and password	OTP	Digital signature	Aadhaar based e-Sign
Approver group	M	M	M	M	O
Operations support group	M	M	M	PS	PS
Handler group	M	M	O	PS	PS
Supplier group	M	M	O	PS	PS
Establishment support group	M	M	M	O	O
Finance support group	M	M	M	O	O
Engineering support group	M	M	O	PS	PS
ICT support group (s)	PS	M	O	PS	PS

User group	SSO	User id and password	OTP	Digital signature	Aadhaar based e-Sign
Facility management support group	PS	M	PS	PS	PS
Port service center	PS	M	O	PS	O
Call center group	PS	M	O	PS	O
Helpdesk group	PS	M	O	PS	O

M – Mandatory, O- Optional, PS – Port specific decision

The MSP would be required to further detail out the user access plans based on the above indicative requirements and discussions with the port authorities.

2.2.4 Integration layer

The following table illustrates the different category of the candidate interfaces required to be considered while designing the system.

#	Interface category	Description	Indicative systems / mechanism
1	Existing systems	The processes have to interface with the prevalent legacy systems at the port. While the core systems pertaining to departments like traffic, finance, personnel departments will be replaced by the new system however, certain specific systems like hydrographic software, VTMS, GIS will be retained and would require interfacing.	<ul style="list-style-type: none"> • Access control • CCTV • Navigation • Control systems • GIS (existing for some ports) • Hydrograph
2	Future Systems	The processes have to be planned for upcoming systems in the future. These can be divided as systems which are currently being implemented or in pipeline and second, system which are not yet known but would require appropriate interfaces. The second category can be handled on best effort basis.	<ul style="list-style-type: none"> • IOT • GIS • PCS (version 2.0)
3	Partner Systems	As the systems move towards transparent, real-time reporting systems, it would be in best interest for the ports to provide necessary interfaces with systems of partners. These are entities which carry	<ul style="list-style-type: none"> • Web services or standardized message (flat files and xml based exchange)

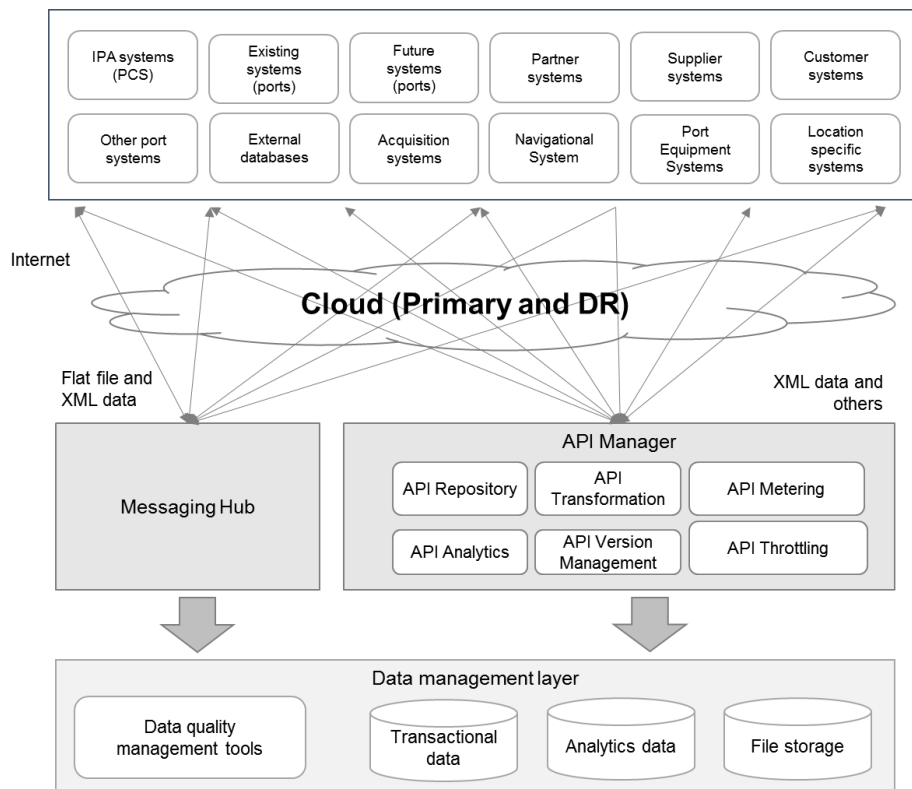
#	Interface category	Description	Indicative systems / mechanism
		out business on behalf of ports. E.g. Captive / PPP berth handler, stevedores in some ports, etc.	<ul style="list-style-type: none"> SMS and email notifications
4	Supplier Systems	Similar to partner systems, suppliers of various commodities should ideally be tightly integrated in the systems for the purpose of placing of orders, receipt of invoices, payment of bills, etc.	<ul style="list-style-type: none"> Web services or standardized message (flat files and xml based exchange) Payment gateways Bank reconciliations
5	Customer systems	The customer base for ports is selected. A lot of these customers are big ticket players who have already implemented ERP. In such a scenario, it would be beneficial for the new processes/system to provide interfaces to customer system which would provide for cleaner data entry and seamless synchronization.	Open standards based data exchange mechanisms with standard ERP packages
6	IPA systems	The processes and systems designed need to interface with systems at IPA such as PCS.	PCS (version 1.0)
7	Other Port's Systems	Ideally, such communication should take place through PCS only. However, there could be a need to have such an interface, e.g. In case of transactions between MbPT and JNPT for charges related to usage of Mumbai Harbour.	Port systems (ERP system / POS)
8	External Databases	Interfaces are required to be built to ease need for data entry and easier verification of data already entered by users. These include databases for P&I certificates or database of Llyods /IHS for easier verification and details of vessel based on its IMO and other such use cases.	<ul style="list-style-type: none"> Llyods IHS P&I IPA
9	Acquisition Systems	These are interfaces with e-Tendering and e-Auction systems which are required to be used as a mandate from Indian government. There requires to be tightly coupled integration between Finance, e-Procurement and Projects package to enable seamless transfer of data	<ul style="list-style-type: none"> e-Procurement and e-Auction
10	Navigational System	All ports have VTMS system which is currently not integrated within the ports system. This system can	<ul style="list-style-type: none"> C-SCOPE NAGIOS

#	Interface category	Description	Indicative systems / mechanism
		be used to verify vessel movements, incidence reports, billing, etc.	
11	Port Equipment Systems	Ports have invested in state-of-the-art systems of SCADA, CCTV, Access control, and others. Interfaces are required with these systems to provide one complete view of port operations to the user.	SCADA CCTV Access Controls RFID
12	Location specific systems	These are local interfaces depending on geography. For example interface in Mumbai Port for collection of octroi, or interface with Odisha Mining department in case of Paradip Port. Such interfaces are required only for that port and have limited use in case of other ports.	Web services or standardized message (flat files and xml based exchange)

The two solutions will be based on open standards and allow seamless exchange of information between Port EBS and stakeholder systems including IPA PCS, Indian Railways FOIS, associated partner ERP systems, Government systems like GST, Income Tax, other port systems. The integration layer will allow exchange of xml and flat file (only for message hub).

API layer will make sure that the access and feature control are verified through functionality key. API layer will be required for specific functions and services intended for external systems including customers, partners and suppliers. The APIs will be governed and managed through the API management tool. The API manager should primarily allow the developer community to design, register, publish and manage services.

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The integration solution framework is expected to satisfy the following requirements:

- API level access provided should be through HTTPS
- The system should have provision to support issuance of license key including validation of the same.
- App signature authentication will be through the license key, time stamp, app version and other meta data
- Port partners and government systems will be registered with the port systems and get the access of license key for access of the system through either of the channels namely MPLS or internet.
- APIs would be stateless in nature
- MSP would deploy a developer sandbox for the users to test the APIs with dummy data
- MSP would be required to provide the API design document with specifications including description of API, owner, author, input parameters and type, output (s), error codifications

The key capabilities to be considered under proposed solution for API management should include:

- repository
- publishing
- metering
- version manager
- analytics
- throttling
- central management portal

The indicative list of entities, message, format and preferred interfacing option is presented below:

#	Entity	Message Type	Preferred Format (Indicative)	Preferred option (indicative)
1	IPA systems	IPA systems (like PCS) allows Intelligent electronic exchange with all stakeholders in structured electronic forms using Text / XML / UN EDIFACT message formats.	Text / XML / UN EDIFACT message formats PCS users can exchange the documents using protocols like HTTP, HTTPS, Secure FTP (MHX) and EDIINT AS2.	API For bulk / batch messages message hub may be considered
3	External databases	Ports are required to check vessels profile and other related information from external databases The MSP is required to propose a solution to cache or build database of available information to ensure re-usability of information in discussion with the central ports team.	As per prescribed data exchange mode	API
4	Partner / Customer / Supplier system	The stakeholders to be considered include shipping agents, traffic operators, stevedores, captive berth operators, etc. The users are required to interact with the port through PCS or through port systems directly. Options for providing API or messaging interaction facility which can disseminate information from ports or consume information from the stakeholders are to be considered.	XML / Flat File	API (real time interactions) Message hub (bulk data uploads)

#	Entity	Message Type	Preferred Format (Indicative)	Preferred option (indicative)
5	Banks	Bank reconciliation statements is required to be integrated for daily positions check.	As per formats available / prescribed	API
6	Government systems	Interactions with systems like FOIS, AADHAR, TIN, e-Procurement portal, GSTN (future) is required to be developed for the port systems.	As per formats available / prescribed	API
7	Existing and Future Port systems, Port Equipment, Location specific systems	Existing port systems (like GIS, Navigation, Access control, Attendance systems, RFID, CCTV), Future systems (like IOT), Port equipment and location specific systems are required to be integrated with the port systems.	As per the formats available with respective systems	API (GIS, Surveillance, Access control) Message (Attendance) Others (as per system requirements)

The MSP is required to undertake the following broad level activities under the integration layer:

1. Integration layer design, development, test and implementation
 - o The MSP is required to design the integration layer components to facilitate exchange of information between port EBS and stakeholder systems
 - o The exchange is to be based on APIs and Messaging hub, wherein API would be given higher preference over messaging hub
 - o Currently data is exchanged between PCS and post legacy systems over messaging hubs
 - o PCS v2.0 is expected to support API based communication wherein messaging hub may be decommissioned after discussion with the port authorities
 - o The MSP is expected to undertake a detailed study of the information exchange between port EBS, PCS and other stakeholder systems to identify the list of APIs to be implemented. Sample list of messages currently exchanged are provided in the overall solution description
 - o The API management solution proposed by the MSP should meet the requirements established in the technical specifications
2. Authentication and authorization

- MSP will set up the requisite process as well as system to build, operate & manage and sustain APIs for port EBS in a secured and controlled environment.
- Authorized stakeholder systems approved by port authorities shall be able to communicate with the APIs
- Messaging hub will have a direct communication with the PCS system over secured channel
- MSP should create an administrative portal to enable stakeholders to have a user account to manage their services
- License Key shall allow enabling of various services for a given stakeholder
- The admin portal shall allow the port or the authorized agency to manage the license keys for the stakeholders
- The MSP will design authentication services for stakeholders:
 - Test APIs in sandbox
 - Configure authorisation policy for new APIs
 - Grant user access the available APIs and associated properties
 - Blacklist / suspend / block access

3. API definition

- The MSP is required to undertake a study of the information exchange between ports and stakeholders to design the system requirements for the API layer
- Based on the solution description and requirements, the MSP is required to develop standardized APIs to expose Port EBS systems to stakeholders
- MSP will be defining API specifications document which would contain information including description, author/owner, input, output parameters
- A test environment should be made available which should have similar catalog to the production environment with API stubs for testing purposes before migration to production environment

4. API publishing

- The MSP should define and establish the procedure to publish new APIs in test and production environment in discussion with the port authorities
- The solution proposed should have a catalog to register the APIs which are being published in production environment
- The MSP will be required to support stakeholders in functional, security and performance testing prior to publishing APIs in production

5. Version control

- MSP is expected to establish procedure for managing version control of the APIs up to retire / archival of APIs
- The proposed solution should support in API version control
- The system should support in versioning and roll back as per requirement
- The proposed system should support retiring and archival of APIs as a part of the API lifecycle management

6. API governance

- The API lifecycle should be defined by the MSP and corresponding governance procedures should be established after discussions with the port authorities

- The MSP should establish plan to define and enforce SLAs for consuming resources
- The proposed solution should support API throttling wherein traffic is throttled or a notification may be issued to the appropriate authority / owner
- The system should generate reports on SLA and also allow configuration of SLA parameters
- The proposed solution should allow API metering
- The MSP is required to configure the system to regulate the recording and limit the usage of APIs for stakeholders as per the policy controls

7. API security

- The proposed framework developed by the MSP should define the API security guidelines
- The proposed system should inspect the headers for APIs genuineness before acceptance.
- It should apply all security checks e.g. DDoS Attacks, XML Denial of Service (xDoS), Slow down or disable an XML based System, Message Snooping, XML Document Size Attacks, XML Document Width Attacks, XML Document Depth Attacks, Jumbo Payloads, Recursive Elements, Public Key DoS, XML Flood, Resource Hijack etc. to ensure rightful and secured access to API consumers
- The MSP is required to configure the proposed solution to meet the security requirements and also support in undertaking security review of the API before being published to the production environment

8. Audit support

- The MSP is required to configure the solution to allow audit logging of transactions.
- The audit logs should capture at least the following information:
 - Credentials
 - Transactional logs
 - IP address and date / time stamp
 - Session details (time, id, key)
 - License key

9. Reporting

- The MSP is required to customize the proposed solution to generate reports on API usage and performance
- The solution should be capable of generating reports/online view that shows API related information such as
 - most/least accessed APIs
 - highest/lowest/average response time
 - data volumes transferred
 - transfer rates,
 - maximum and minimum response time over a period of time
 - rejected API requests
 - API catalogs
 - API versions
 - List of stakeholder wise registered APIs
 - API throttling limits (hard and soft)
 - API notifications

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- API activity – port wise
- API activity customer / partner / vendor / PCS wise
- Blocked / Hotlisted / Archived / Suspended APIs

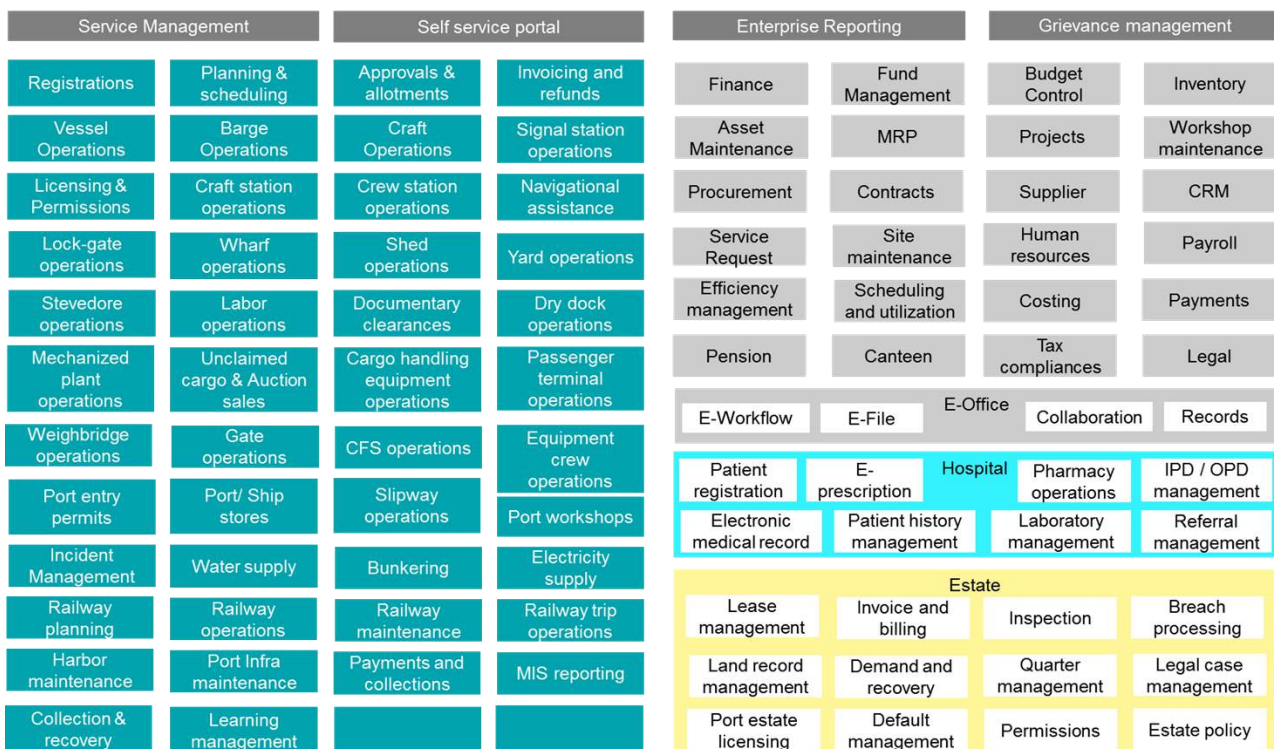
2.2.5 Business layer

The business layer comprises of the following groups:

- ERP packages
- Port Operating System (POS)
- Auxiliary system

The port operating system and auxiliary systems should be integrated with the ERP systems as described in the functional landscape. Each of the business layer components should be tightly integrated ensuring that the port user is not required to enter redundant data in to other systems. The system should be highly configurable to meet the port business requirements.

The application functional modules mapped to POS, ERP and auxiliary solutions are presented below. The functional requirements specifications for the above systems have been detailed in the functional requirements specifications section in annexure.



Picture 4: Business Solutions Functional Landscape

Some of the key expectations from the systems include:

- 1) The system should have the ability to scale up or down as per the respective port's business requirements.
- 2) The system should support interfacing with handheld devices, smart card readers, RFID devices, barcode reader, biometric system etc.
- 3) The system should support standard interfaces such as adapters, APIs to interface with standard application and legacy applications.
- 4) The system should support real-time (API based) as well as batch data (messaging platform) updates and interfaces with software from other vendors.
- 5) The solution should support SSL and digital certificates.
- 6) The system should support distributed processing.
- 7) The system should support load balancing.
- 8) The solution should support offline mode transactions caching to allow continuity of business critical port operations like cargo / container tally, pilotage, yard operations, etc.
- 9) The solution should have audit logging and tracking capabilities
- 10) The system should support export and import of data possible from different legacy systems/other systems/databases in different file formats

Detailed functional requirements corresponding to the above systems have been detailed under functional requirements specifications for the business solution functional requirements. The MSPs are expected to consider the functional requirements for selection of the corresponding business solutions.

2.2.6 Solution layer

The solutions layer would include foundational system components including the following:

- Portal
- Document management system
- Workflow and business rules engine
- Gateway solutions
- Port service center, Kiosks and Call center services
- Helpdesk solution
- Mobility management solution
- Data management and reporting layer

2.2.6.1 Portal

The port web portal is intended to act as an interface for all web users supported by a strong authentication engine before arriving at a customized dashboard as home page. The dashboard contents should be dynamically populated based on the role and access permissions granted to the user.

2.2.6.2 Document management system

Port document management system would be considered for the administration, vigilance and legal teams primarily. The Document Management System (DMS) shall allow the user to easily store, retrieve and archive the documents generated or uploaded to the system.

2.2.6.3 Workflow and business rules engine

Workflow engine shall support the overall port specific business workflows required for approval and processing of information. Privileged users should be provided options for modification of the workflows for each port. This is to ensure changes in role, new position or privilege changes. The system should support user friendly GUI to allow non-technical users to make changes and allow manual override of workflows as per requirement for exceptions.

The business rules engine should enable the provisioning of an easily configurable layer for the systems which enables the business users (super / administrative users) to make changes to the business rules governing port operations as per government mandate.

2.2.6.4 Gateways

The port system is required to integrate with payment gateways and sms service providers for enabling payments and issuing notifications to internal and external users.

The port designated authorities will be responsible for allowing bank (s) to allow collection of payments on behalf of the ports. The system should allow agents and other third parties to conduct financial transactions as per the rights.

The key requirements for payment gateways include:

- a. It support secure integration with Payment Service Providers
- b. It should be able to present an unified interface to integrate with all Payment Service Providers
- c. Support integration with Payment Service Providers using web services over secured protocols such as HTTP/S
- d. support bank accounts reconciliation
- e. Should provide and preserve all logs for all transactions
- f. Submit Periodic Reconciliation Report to respective port authorities
- g. Support transaction reports to monitor and track payments
- h. Should support multicurrency processing and settlement directly to merchant account
- i. Should support real time integration with SMS and emails
- j. Should be compliant to standards like PCI DSS

SMS services are required for notifications and generation of OTP for registration of users in the port ecosystem.

The SMS gateway should support the following features:

- a. The gateway must be as per prevailing TRAI/DoT norms
- b. Support automated alerts that allows to set up triggers that will automatically send out reminders

- c. Resend the SMS in case of failure of the message
- d. Must have common features like non-acceptance of landline nos., unacceptable mobile nos.
- e. Should support notifications with long text messages
- f. The message shall be sent through command line interface/API, web Interface provided by the Service Provider
- g. The vendor / service provider shall maintain DND controls
- h. Should provide standard reports like success/failure report on current as well as historical/cumulative basis.

Email services are required to be integrated with the port systems to send alerts / notifications / intimations / automated messages to registered email ids. The users will be allowed to register for sms and email alerts for applicable cases.

2.2.6.5 Port service center, Kiosks and Call center services

Port Call centre is intended to be leveraged as an inbound call handling information dissemination interface wherein a user can call for accessing information after due verification and also submit requests. The call center solution will be established with similar privileges as compared to the port service center and information kiosks wherein the user would be able to access order details on submission of the order id. Call center service delivery capabilities should be considered by the service provider. The information, access and authorization to be made available shall be mutually established between port and MSP.

2.2.6.6 Helpdesk solution

Helpdesk solution would be common application to be accessed by internal port users. This module would have its own asset inventory related to the port assets. The port users would be responsible for submitting and tracking incidents till closure or resolution of services.

The helpdesk solution should be compliant with ITIL requirements and allow the user to track and view incidents throughout its lifecycle which are being reported by the local implementing agency representative to the central helpdesk team. The tool must have the ability to govern various aspects of the IT change management process. The tool must also support the configuration management process by enabling the creation and maintenance of a complete and accurate picture of configuration across various infrastructure elements via a configuration management database (CMDB). The tool must provide release governance capabilities to ensure that approved changes are executed in the environment in accordance with the IT organization's defined and documented procedures.

2.2.6.7 Mobility manager

The mobility management tool is expected to support the development community in building, publishing, versioning of mobile apps and also support mobile device management. The key capabilities expected from a mobility management tool expected are:

- App builder (native or hybrid app)

- App publisher
- Version management
- Mobile device management
- Device and application management
- Push notification

The management solution should allow the app to be published to public play stores (android and iOS). The indicative list of users for the mobile app includes:

- Marine pilots
- Traffic tally operators
- Tugs operators
- Yard operations manager
- Port entry operators
- Incident reporting (engineering departments)
- Estate inspections officers
- Port senior leadership (Chairman, Deputy Chairman and Department HODs and Division heads) for reports and dashboards

Key features of the mobile applications shall include:

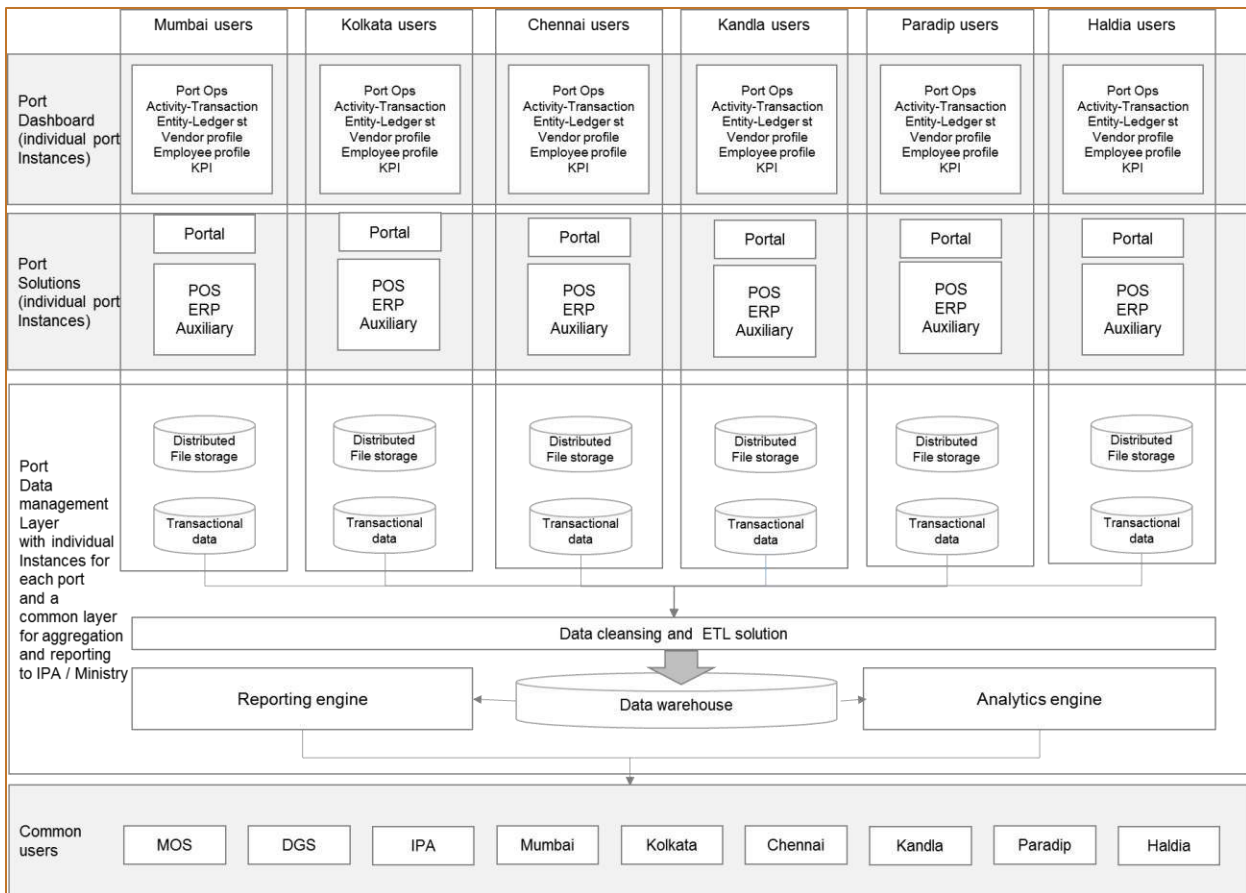
- Applications available on handheld devices which will connect with central database
- Updated information about documents submitted and work to be carried out
- Updated with respect to payments done, approvals received, etc. on real time basis
- Customized screens for each type of user to ensure only limited information is required to be fed in form of taps and drop down menus
- Ability to connect to databases consisting of navigation charts, maps, port rules, policies, procedures, etc.
- In-built help options to users in case of difficulties

2.2.6.8 Data management and reporting layers

The data management and reporting layer is intended to be used by the respective ports and IPA. Each of the ports will have their own data management layer instance and a common reporting layer which will include the reports required by IPA / Ministry and other stakeholders.

The common reporting layer should include role based access and authentication mechanisms with open APIs to allow stakeholders to extract and generate reports / data as per requirement. The common data extraction, transformation, cleansing and loading solution will extract data from the port specific transactional database instances and load on the common port data warehouse. The reporting and analytics solutions will enable users (port and IPA) to extract information and generate pre-defined reports as per requirements.

The indicative data management and reporting layer logical architecture is represented below. The expectation is that the MSP would design, develop and implement this structure and reporting requirements for the port dashboard which the users may access through portals or mobile app or APIs. While the port specific layer would be accessible for the port employees the common reporting layer would be available for internal and external users as indicated in the diagram. The overall requirements and specifications for this layer has been further described in the functional requirements specifications and the technical specifications. Port specific requirements shall be mutually decided between the MSP and the port authorities.



Picture 5: Data Management and Reporting Layer Mechanism

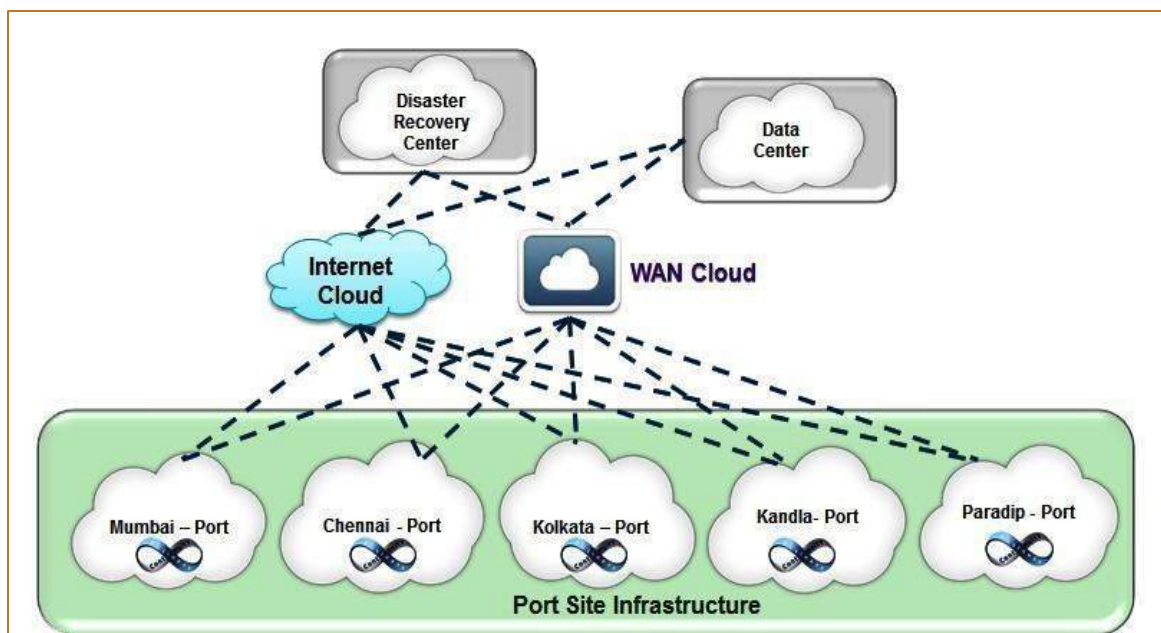
2.3 Deployment landscape

Key foundation components for IPA project considered in this RFP are:

#	Component	Rationale
1.	Port site Network Infrastructure	a. Build a robust and sustainable Port-wide network infrastructure b. Ensure sufficient network capacity for current and future requirements of the port

#	Component	Rationale
2.	Wi-Fi connectivity at Port site	<ul style="list-style-type: none"> a. Establishments of WI-FI hotspots providing wireless connectivity to port users b. Wireless connectivity for the port to ensure operation and increased digital inclusion c. Improved wireless connectivity to support IoT and other user application
3.	DC/DR (On Cloud) & On Premise BCP)	<ul style="list-style-type: none"> a. Infrastructure provisioning at DC & DR (On Cloud) and On premise BCP for critical Applications b. ERP and other critical applications for port operations would be hosted on cloud environment where primary would on DC and secondary would be on DR c. On premise BCP would be established at respective port to ensure port operation continuity in case of WAN connectivity loss to the cloud environment.
4.	Network Operation center and Helpdesk	<ul style="list-style-type: none"> a. Centralized NOC & Helpdesk to address port user issues and concerns
5.	WAN & Internet connectivity	<ul style="list-style-type: none"> a. MPLS & Internet connectivity between respective ports, DC and DR

2.3.1 Cloud (Primary and DR site) and Port On-Premise site



Picture 7: Cloud and Port on premise site

The overall deployment landscape for the port system will include three sites including the

- o Primary Data Site (cloud based)
- o Disaster Recover Site (cloud based)
- o Port On premise Site (physical site)

The cloud based site would be common for the five candidate ports whereas the on premise site would be port specific. While the cloud would be used for conducting daily transactions online by internal and external users, on premise site would be used essentially when the cloud system is unavailable to ensure continuity of business critical systems of the port. The cloud would be accessible over MPLS as well as internet. Port users would be connecting to the systems over MPLS while external users would be connecting over internet. Replication between the clouds as well as cloud and on premise sites would be required to be established.

The ports would be required to independently decide on the requirement of the port on premise site. The same has been indicated in the bill of materials section.

The MSP is required to clearly articulate the division of responsibilities in regards to the Port EBS cloud operational activities in consultation with the Cloud Service provider (CSP) and Purchaser,

The Port EBS accessibility mode for the different types of users is indicated as follows:

#	User	Port EBS access (in order of preference)
1	Port user (non-mobile)	<ul style="list-style-type: none"> o MPLS (cloud) o Internet (cloud) o LAN (On premise site) for accessing business critical systems
2	Port user (mobile)	<ul style="list-style-type: none"> o Internet (cloud) o LAN (On premise site) for accessing business critical systems
3	Customers	<ul style="list-style-type: none"> o Internet (cloud)
4	Partners	<ul style="list-style-type: none"> o Internet (cloud) o LAN (On premise site) for accessing business critical systems
5	Vendors	<ul style="list-style-type: none"> o Internet (cloud)
6	PCS and other systems based interaction	<ul style="list-style-type: none"> o Internet (cloud)

Overall cloud requirements:

- o CSP should be empanelled under MeitY’s “Provisional Empanelment of Cloud Service Offerings of Cloud Service providers (CSPs)”
- o Meet any security requirements published (or to be published) by MeitY or any standards body setup / recognized by Government of India from time to time and notified to the CSP by MeitY as a mandatory standard

- Meet the ever evolving security requirements as specified by CERT-In (<http://www.cert-in.org.in/>)
- The CSP data center facilities considered for cloud services should be located within India
- The Data Center should conform to at least Tier III standard (preferably certified under TIA 942 or Uptime Institute certifications by a 3rd party) and implement tool-based processes based on ITIL standards
- The primary DC and the disaster recovery site should be in different seismic zones within India
- The Data Center should be certified for the latest version of ISO 27001:2013 and provide service assurance and effectiveness of Management compliant with SSAE 16 / ISAE 3402 standards

Cloud service requirements:

- The cloud services should provide scalable, redundant, dynamic compute and storage
- Service shall provide users with the ability to procure and use compute and storage capabilities remotely over the SSL with two factor authentication.
- Perform an Image backup of Customer VM Image information or support the ability to take an existing running instance or a copy of an instance and import / export the instance into a MeitY approved image format.
- Configuration and Management of the Virtual Machine shall be enabled via a web browser over the SSL VPN clients only as against the public internet
- CSP shall ensure that VMs receive OS patching, health checking, Systematic Attack Detection and backup functions.
- Monitor VM up/down status and resource utilization such as RAM, CPU, Disk, IOPS and network
- The purchaser retains ownership of all virtual machines, templates, clones, and scripts/applications created for the organization's application
- The purchaser retains the right to request full copies of these virtual machines at any time.
- The purchaser retains ownership of loaded business solutions / bespoke software installed on the VMs
- Support a secure administration interface - such as SSL/TLS or SSH - for the purchasing organization's designated personnel to remotely administer their virtual instance
- Provide the capability to dynamically allocate virtual machines based on load, with no service interruption
- Provide the capability to copy or clone virtual machines for archiving, troubleshooting, and testing
- The CSP should provide tools and mechanism to the purchaser or its appointed agency for defining their backup requirements & policy.
- The CSP should provide tools and mechanism to the purchaser or its appointed agency for configuring, scheduling, performing and managing back-ups and restore activities (when required) of all the data including but not limited to files, folders, images, system state, databases and enterprise applications in an encrypted manner as per the defined policy.
- Transfer data back in-house either on demand or in case of contract or order termination for any reason
- CSP shall not delete any data at the end of the agreement (for a maximum of 45 days beyond the expiry of the Agreement) without the express approval of the purchaser.
- Provide capability to perform live migrations (ability to move running VM's) from one host to another.

- Provide support to all Application Programming Interfaces (APIs) including REST API that CSP develops/provides.
- CSP should offer fine-grained access controls including role based access control, use of SSL certificates, or authentication with a multi-factor authentication.
- Cloud service should support auditing with features such as what request was made, the source IP address from which the request was made, who made the request, when it was made, and so on.
- Purchasing organization should be permitted to bring and upload additional properly licensed non-operating system software for operation in cloud as required for the Purchasing organization solution for use within the Services by installing it directly on a VM.
- RAM or CPU of virtual machine should scale automatically whenever there is spike in load to deliver application availability even during spike in load
- Provide facility to configure virtual machine of required vCPU, RAM and Disk.
- Provide facility to use different types of disk like SAS, SSD based on type of application.
- CSP is responsible for Disaster Recovery Services so as to ensure continuity of operations in the event of failure of primary data center of the purchasing organization and meet the RPO and RTO requirements. The CSP should offer dashboard to monitor RPO and RTO of cloud infrastructure and systems.
- The MSP (in consultation with CSP) shall clearly define the procedure for announcing DR based on the proposed DR solution. The MSP / CSP shall also clearly specify the situations in which disaster shall be announced along with the implications of disaster and the time frame required for migrating to DR. The MSP / CSP shall plan all the activities to be carried out during the Disaster Drill and issue a notice to the purchaser at least two weeks before such drill.
- The MSP / CSP should offer switchover and switchback of individual applications instead of entire system.
- Any lag and/or loss in data replication should be reflected in terms of the business requirements in terms of the defined RTO and RPO impact.
- Support replication of data between primary and DR cloud environment
- Allow replication of data between cloud and on premise sites
- When the purchaser or MSP/CSP (with prior approval of the purchaser) scales down the infrastructure services, MSP / CSP is responsible for deleting or otherwise securing purchaser's content/data prior to VM deletion and in case deleted, shall ensure that the data cannot be forensically recovered.

Cloud operational requirements:

- Manage the network, storage, server and virtualization layers, to include performance of internal technology refresh cycles applicable to meet the SLAs
- Provide a secure, dual factor method of remote access which allows the purchaser's designated personnel (privileged users) the ability to perform duties on the hosted infrastructure
- Upgrade and periodically replace hardware without financial impact to the purchaser. All the data within it shall be immediately deleted/destroyed and certify the VM and data destruction to the purchaser as per stipulations and shall ensure that the data cannot be forensically recovered.
- MSP / CSP to perform patch management appropriate to the scope of their control including:

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- Alerts on the upcoming patches via email and management portal, and ability to defer or reject patches before they are applied in the next patch cycle
- Patch approved VMs on the next available patch management change window
- Application of automated OS security patches, unless deferred or rejected by purchaser or designated agency
- Send regular approval reminders to purchaser or authorized agency designated email address five (5) days prior to patch cut-off dates
- MSP / CSP should undertake OS level vulnerability management – all OS images created within the cloud platform are regularly patched with the latest security updates
- Provide the artifacts, security policies and procedures demonstrating its compliance with the Security Assessment and Authorization requirements as described in Security Requirements in this RFP.
- Monitor availability of the servers, CSP -supplied operating system & system software, and CSP's network
- The MSP / CSP is fully responsible for tech refreshes, patch management and other operations of infrastructure with regards to the cloud environment (DC and DR).
- Investigate outages, perform appropriate corrective action to restore the hardware, operating system, and related tools
- CSP should manage CSP provisioned infrastructure including VMs as per the ITIL or equivalent industry standards.
- Comply with technology refresh requirements as mandated by CERT-IN and MeitY
- Software within the CSP's scope will never be more than two versions behind unless deferred or rejected by MeitY / Purchaser / Purchaser's authorized agency

Cloud management reporting requirements:

- Provide service level management reports (as per the service levels agreed in the Service Level Agreement between the purchaser and the CSP)
- description of major outages (including description of root-cause and fix) resulting in greater than 1-hour of unscheduled downtime within a month
- Helpdesk tickets reports submitted
- Monthly and quarterly utilization reports (peak and average volumetric details)
- CSP should provide a portal for the purchaser (administration role) which should provide data related to:
 - Utilization reports (with threshold limits defined by the user)
 - SLA reports
 - Cloud service usage
 - Helpdesk and tickets
 - User profile management
- The MSP should set the baseline threshold limits for cloud infra utilization.
- In the event of cloud infra utilization breaching the baseline threshold limits, the CSP is required to notify the purchaser and MSP with adequate justifications for increasing baseline capacity.

Scope of work for infrastructure provisioning at on cloud data center includes the followings:

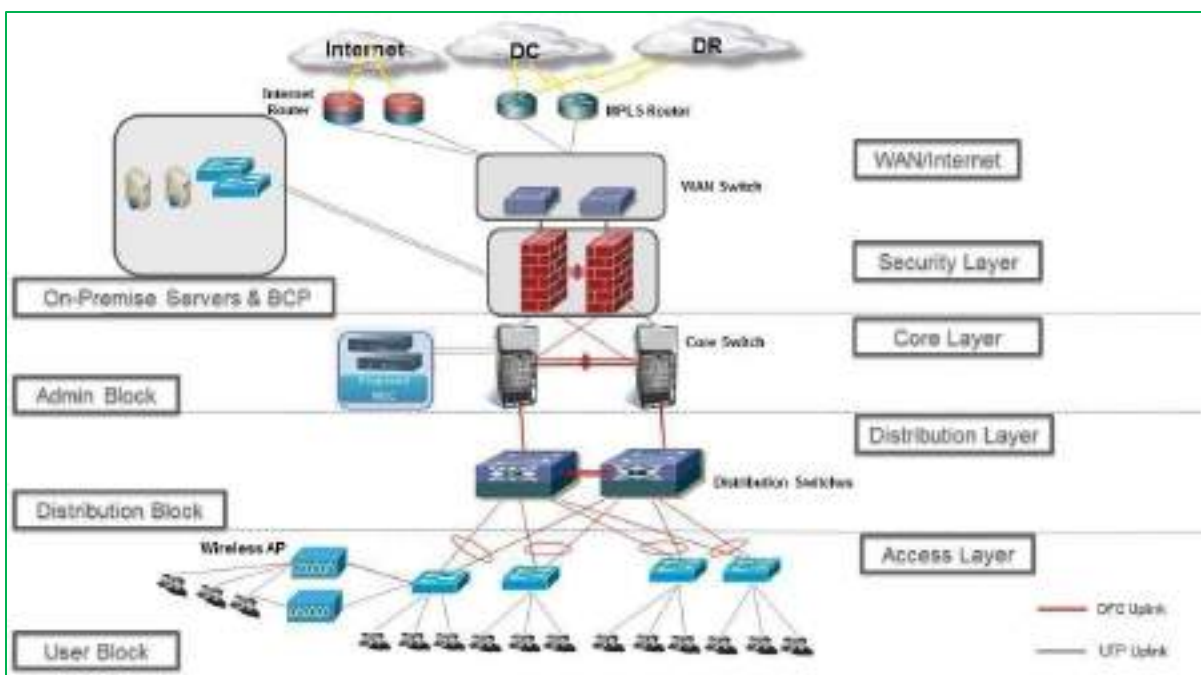
- a. The entire hosting should be from a Single location for all Data Centre equipment with perimeter and physical security. The Data Centre Site should be located in India only.
- b. MSP to ensure scalability of the DC cloud environment considering the future growth for next 5 - 7 years.
- c. Installation and commissioning of Servers as per solution requirement.
- d. Installation and provisioning of Storage and backup as per solution requirement.
- e. Installation and commissioning of Software (OS/VM/backup software) along with relevant and requisite patches but not limited to.
- f. Installation and commissioning of requisite Clusters for High Availability.
- g. Installation and commissioning of Network and Security equipment for providing secured network environment.
- h. Liaison with Network Bandwidth Service Provider for Link provisioning and commissioning.

Scope of work for infrastructure provisioning at on cloud disaster recovery center includes the followings:

- a. The entire hosting for all Disaster Recovery equipment should be from a Single location with perimeter and physical security. The Disaster Recovery Site should be in India and at a different seismic zone from Data Centre Site.
- b. MSP to ensure scalability of the DR cloud environment considering the future growth for next 5 - 7 years.
- c. The Disaster Recovery Site should host all the critical production Landscape.

2.3.2 Local Area Network at Port premise

The overall technical solution design of the port side network is depicted in the below mentioned diagram to be implemented in a three tiered architecture. MSP is required to prepare its own architecture as part of the technical bid response.



The envisaged 3-Tier architecture which acts as a network backbone for the respective ports is as follows:

- a. **Core Layer:** The Core layer forms the backbone of the entire network which consists of compute, core router, core Switch, firewall, WAN links and internet connectivity to be established at the each port. Architecture is proposed to be formed to establish the required redundancy. This layer shall also enable port users to access applications hosted at Cloud over the MPLS/internet connectivity.
- b. **Distribution Layer:** The distribution layer is envisaged spread across the port area covering buildings / other offices at department level. The traffic coming from respective network nodes from the buildings / other offices shall get aggregated at the distribution level. Ring architecture is proposed to be formed to establish the required redundancy at this layer. The aggregation layer shall further integrate with Core layer for forwarding the traffic towards cloud for users to access hosted applications.
- c. **Access Layer:** The Access layer shall be formed at the last mile. There can be multiple access rings within the respective distribution layer. e.g. if there are 10 buildings in a given distribution layer, then two rings comprising of 5 buildings each can be created. These two rings shall ultimately connect to the respective distribution (PoP). The access layer shall enable the port site solutions to connect to the network backbone. The distribution switch of the respective port solution shall tap on the respective access layer devices.

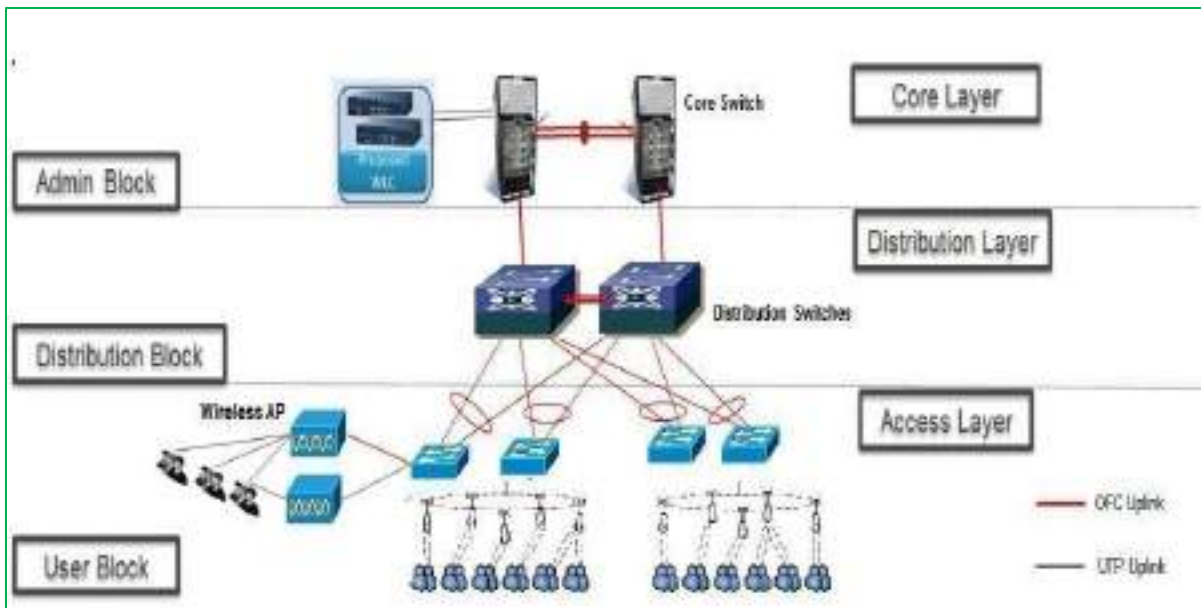
Various locations for deployment of above layers:

#	Item	Deployment location
1	Core layer	At Admin office
2	Distribution layer	Distribution points to be identified by MSP based on network load and geographical coverage. MSP may estimate and propose the number of aggregation points.
3	Access layer	Access layer should cover all port building/floor & user connectivity with required redundancy.

Refer to the annexure for the individual port network architecture indicative design along with the location details.

2.3.3 Wi-Fi connectivity at Port

The indicative architecture diagram for the Port Wi-Fi solution is depicted in the schematic below.



Picture 8: Wi-Fi Connectivity Depiction

Key expectations from the system include:

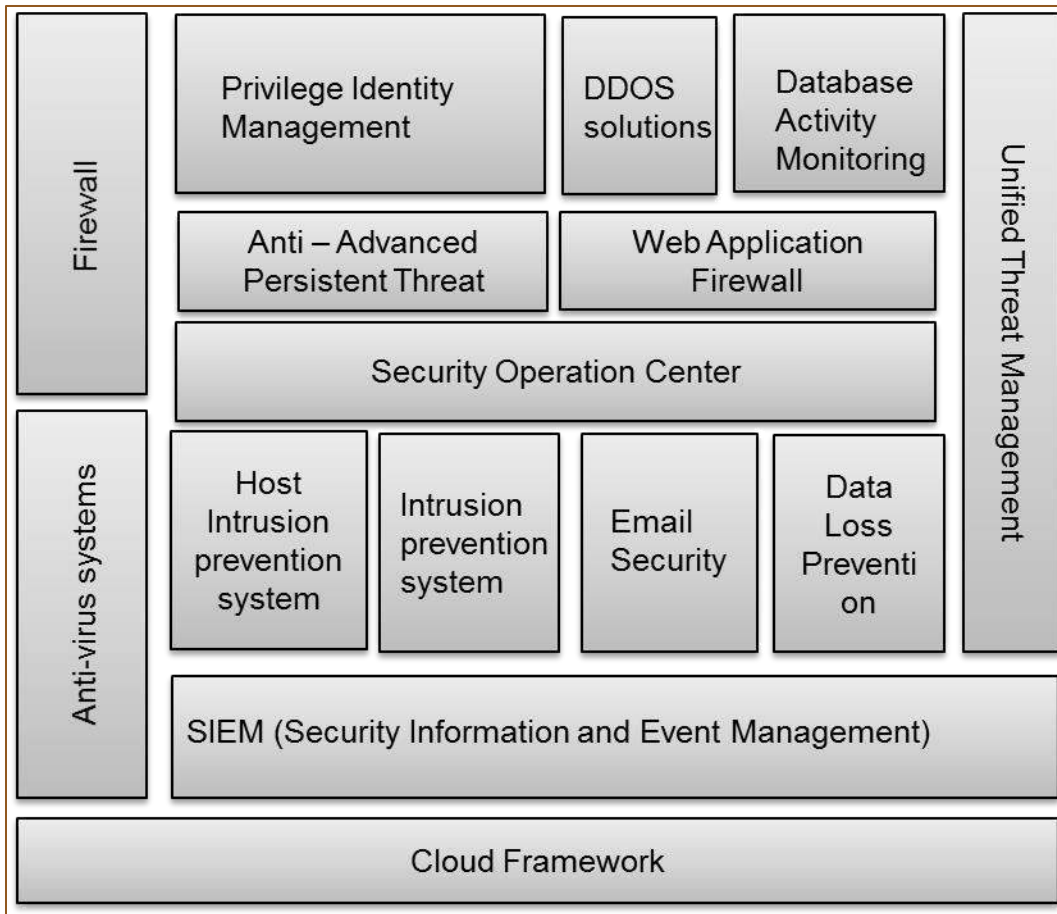
- a. The Wi-Fi network shall support user devices with 2.4 GHz as well as 5 GHz frequency band.
- b. The Port Wi-Fi network should be manageable from a central location at the respective port (Admin Building) through the wireless management system. The management system shall support unified wired and wireless network management system.
- c. All Wi-Fi access points can be configured and managed remotely through a wireless controller.
- d. System shall support multiple VLANs to support users with different privileges.
- e. The system should be designed for scalability and allow future expansions in terms of subsequent project phases, increased user density and geographical coverage.
- f. Data communication between network devices shall take place in encrypted form to ensure end-to-end security of user information/ data with requisite security standards.
- g. Every user shall get access to only those services for which they are authorized for.
- h. The system should be capable of Rule based Access Rights.
- i. The system should have centralized management and authentication system wherein profile for each individual user shall be created.
- j. MSP shall conduct the survey at the respective ports with defined locations to ascertain number of Wi-Fi access Points (indoor/outdoor) and their positioning to ensure maximum coverage with good signal strength. This shall be done in consultation with officials assigned by Port authorities. Wi-Fi infrastructure across each port to accommodate the users' requirement/bandwidth need. Profiling of users and appropriate policies shall be pushed from port central location (admin building).
- k. MSP shall supply, install, commission and maintain the access points and related infrastructure as specified in the Bill of Materials within this RFP for the entire duration of contract period. Based on need, MSP shall be required to supply additional access points as per the rate quoted in the financial bid.

2.3.4 WAN & Internet Connectivity

The overall technical solution design of WAN/Internet connectivity is suggestive in nature and is envisaged to be implemented as given below.

- a. The architecture as depicted in “Picture 7: DC / DR, BCP Design” is suggestive and the MSP is required to prepare its own architecture in the technical bid.
- b. WAN Network would form the key component of the entire solution.
- c. Network connectivity would be required between respective Port sites, DC and DR.
- d. The network bandwidth required may be calculated based on the number of users in each port location. In this regard the MSP needs to arrive at the bandwidth required by each user / operator. Based on this, bandwidth needs to be provisioned at each of the locations.
- e. MSP needs to size the bandwidth for the following, the below mentioned details may be considered for network estimation
 - Each Port to cloud (DC/DR) should be connected to the **MPLS backbone** on an Optical Fibre Channel (OFC) based last mile connectivity from two different service providers.
 - Each Port to cloud (DC/DR) should be connected to the **Internet backbone** on an Optical Fibre Channel (OFC) based last mile connectivity from two different service providers.
 - The MSP should size the bandwidth requirements to take care of backup/ replication traffic between DC&DR for the hosted applications.
- f. MSP to ensure in case of failure of primary link (MPLS & internet or both) the connection should switch over to the link provided by secondary service provider without impacting services and data loss.
- g. The MSP needs to liaise with the service providers for commissioning and maintenance of all the links/connectivity.
- h. The MSP should ensure that the bandwidth estimated and proposed should meet the locations requirements duly meeting the expected performance/service level. In case of degradation in performance due to bandwidth inadequacy is observed, the MSP shall need to upgrade the bandwidth to the required level at its own cost.
- i. All links of the Wide Area Network (WAN) are to be terminated on the core router at the respective port sites.
- j. To meet the requirement for a stable core solution in the future, the network should be scalable. It should also facilitate upgrades to the existing network and networking components, leased line bandwidths and should accommodate additional links.
- k. MSP to ensure scalability which is to be achieved either through the upgrade of hardware modules on the existing routers/switches as per the free slots available to meet the growing demand for application users.
- l. Connectivity between DC & DR location is to be provided with bandwidth on demand provision for regular or occasional enhancements of bandwidth

2.4 Security Landscape



Picture 9: Security Landscape

The figure mentioned above encompasses the different security services which could be hosted over a cloud platform and can help overall strengthen the ICT infrastructure.

2.4.1 Overall requirements

Below mentioned are the brief requirements of such a security landscape for ensuring an overall security to the Infrastructure and its components.

1. Defence In Depth:
 - a. The Security architecture should have principles such as “defence in depth”; for numerous defence mechanisms (“layers”) in place, designed so that an attacker has to defeat multiple mechanisms to perform a successful attack. Multi-layer security must be employed starting with networks, perimeter, DMZ, Cloud enabled Data Center, applications, databases, End user machines and mobile computing devices, which uses above mentioned tools to secure the overall Infrastructure. Threat and its mitigation for cloud application which include spoofing, tempering, repudiation, information disclosure, denied of service and elevation of privilege along with OWASP (Open web application security project)

testing guidelines should be undertaken to effectively manage the risk and help management take informed decisions.

- b. The system must be secure at all user touch points by using suitable security protocols and data protection methods
- c. Security in Design would encompass security risk assessment on user specifications, secure information architecture, proper role and based access design and secure application and database design.
- d. All the ICT assets(virtual and physical) and non-digital assets must also be secured throughout their life cycle as they may contain sensitive data with hardening, Asset disposal, data disposal principles.
- e. The system must follow a role based access control at all levels. The MSP should implement logical access control based on policy prepared by Purchaser for application, subsystem, or group of systems. All the access logs needs to be captured and monitored.
- f. The cloud security architecture model should encompass the mentioned security technologies, and work together to effectively improve the process such as incident response resolution, forensic investigation during incident analysis with best practices like real time internal network defence, etc.
- g. Hypervisor architecture security concern like virtual machine guest hardening, Hypervisor security, inter VM attack blind spot, operation complexity from VM, virtual machine encryption, data communication, VM data destruction, VM image tampering.

2. Process Improvement

- a. Change Management principle driven respectively, Access Management policy to be defined and access rights to be integrated with assets, The privacy of data has to be ensured by the MSP at all times. The MSP has to ensure that data sharing is done as per the policy.
- b. The architecture follows the principle of "least privilege". Each user and program should operate using the fewest privileges possible. This principle limits the damage from an accident, error, or attack. It also reduces the number of potential interactions among privileged programs, so unintentional, unwanted, or improper uses of privilege are less likely to occur. This idea can be extended to the internals of a program: only the smallest portion of the program which needs those privileges should have them. The solution should be designed utilizing similar industry recognized security principles.

3. Governance:

- a. All IT and IS operations should be governed by the IT and IS Policy which will be provided to the vendor. Detailed procedures for such operations should be prepared and implement accordingly. All project documentation should be prepared by the MSP as per the policy and related regulations.
- b. MSP has to adopt technical, physical and administrative measure in order to protect personal data from loss, misuse or alteration based on global best practices for privacy and security like OECD, APAC, IT act, Indian act compliance, NIST cloud computing reference model, CSA security guidance, ISO 27000 standards.

4. Network and Data Security

- a. Infrastructure and Application Access should be protected via Two Factor Authentication such that the MPLS should be a private and dedicated network only providing connection between required and identified entities. The Network layer must have in depth packet inspection and intelligence in blocking attacks. There should also be a provision for DDOS Free Bandwidth as a part of its solution.
- b. All the Databases and Data stores should be encrypted to reduce the impact, in case of a potential compromise which in turns increases the complexity of attack by adding a layer of security.
- c. Data security life cycle should be used as a principle in securing data while creating, storing, sharing, archiving or destroy. Database protection can be implemented by database activity monitoring and file activity monitoring.

5. Security Audits and Reviews

- a. A vital part of any successful information security management system are regular reviews of the established security measures and data security processes.
- b. Cloud service providers must regularly review the IT security status of their business processes, services and platforms, as well as improving and upgrading them on an ongoing basis. There is the option of having an independent third party carry out regular reviews and tests in order to avoid blindness to one's own professional shortcomings, and provide cloud users with the evidence of such tests.
- c. Based on an information security review (IS review), statements can be made about the effective implementation of security measures and their currency, completeness and adequacy and hence about the current information security status. The IS review is therefore a tool for identifying, achieving and maintaining an adequate level of security within an institution.
- d. Periodic internal audits should be conducted to assess the cloud security and ISO 27001/27017 as the reference and submit the audit report and action plan to purchaser.
- e. Regular security reviews must be carried out in the case of both public and private cloud services. However, it is typically easier for operators to pass the results of security reviews, e.g. penetration tests, on to users in the case of private clouds, because the users are all within one common institution.
- f. To review the effectiveness of existing technical measures, penetration tests are a suitable tried and tested method. They are used to assess in advance the probabilities of success of a deliberate attack on an information domain or an individual IT system, to derive the necessary supplementary security measures from this, and to review the effectiveness of security measures already been taken. Prospective MSP should carry out regular penetration tests on the networks, systems and applications they run.
- g. In general, all types of security test should be carried out by individuals with suitable skills. These should not, however, have been involved in drawing up the strategies and plans being tested, in order to avoid conflicts and business blindness. The testers and auditors should be as independent and neutral as possible

S.No	Assessments/Reviews	Frequency
1	Cloud service providers should regularly notify cloud users about security measures, changes to the IT security management system, security incidents, the results of IS reviews and penetration tests	Near Real Time
2	Regular penetration tests	Quarterly
3	Regular penetration tests at subcontractors	Quarterly
4	Regular, independent security reviews	Half Yearly
5	Regular, independent security reviews at subcontractors	Half Yearly

2.4.2 Cloud Security considerations

- a. The IPA should be aware of the geographical locations of the cloud service provider's organization and the countries where the cloud service provider can store the cloud service customer data.
- b. Managing the access rights of the cloud service customer's cloud service users, and specifications for the use of these functions.
- c. Sufficient authentication techniques should be deployed for authenticating the cloud service administrators of the cloud service customer to the administrative capabilities of a cloud service, according to the identified risks. For example, the cloud service provider can provide multi-factor authentication capabilities or enable the use of third-party multi-factor authentication mechanisms.
- d. Information on procedures should be provided for the management of the secret authentication information of the cloud service customer, including the procedures for allocating such information and for user authentication.
- e. Access controls rules should be followed that allow the cloud service customer to restrict access to its cloud services, its cloud service functions and the cloud service customer data maintained in the service. Use of utility programs capable of bypassing normal operating or security procedures is strictly limited to authorized personnel, and that the use of such programs should be reviewed and audited regularly.
- f. Cryptography should be used to protect the information cloud processes and changes to the cloud service that could adversely affect the cloud service. The following will help the cloud service customer determine the effect the changes can have on information security:
 - Categories of changes;
 - Planned date and time of the changes;
 - Technical description of the changes to the cloud service and underlying systems;
- g. Notification of the start and the completion of the changes.
- h. If the cloud services depend on a peer cloud service provider, then the cloud service provider might must inform the purchaser of changes caused by the peer cloud service provider.
- i. Other Considerations:

The Cloud service provider must provide follow:

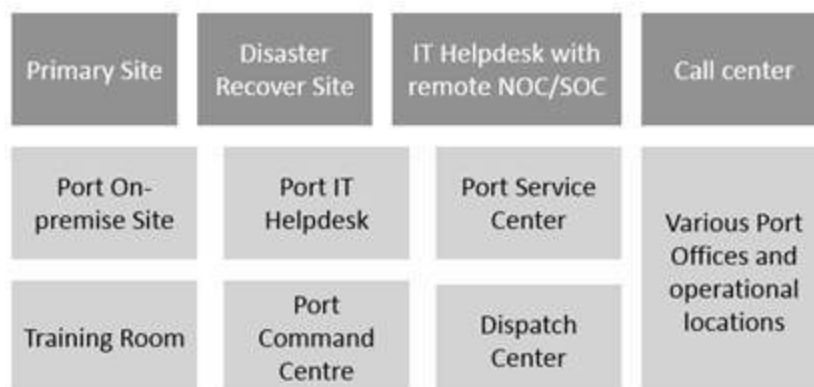
- 1) logging capabilities to the customer
- 2) Information regarding the clock used and info on how the customer can synchronise local clocks with cloud service clock.
- 3) Inform the customer of management of technical vulnerabilities that can affect cloud services.
- 4) Segregate the network segments for the following case:
 - a. Segregation between tenants in a multi-tenant environment
 - b. Segregation between internal admin environment and customers cloud computing environment

2.4.3 Monitoring and Management through Security Operation Center

- a. Service Provider should provide monitoring capabilities over a period of contract at the Purchaser decided or approved location. Resources are expected to deliver SOC monitoring services including but not limited to performance monitoring, performance tuning, optimization, and maintenance of SIEM tool, security monitoring, etc. The detailed SOC Reports formats will be discussed and finalized with the selected MSP.
- b. This service will help Purchaser to monitor for security events throughout its network by analysis of logs from all servers, devices and key applications in the Cloud Infrastructure and other locations. The indicative security monitoring service will have following components but not limited to:
 - 24/7 security monitoring
 - Threat intelligence
 - Log collection and management
 - Event correlation
 - Rapid response to incidents & forensics
 - Patch Management,
 - VA and PT Management.
 - Perimeter Security Management

2.5 Operational Landscape

The figure below depicts the various locations through which port operations are expected to be carried out. These are describe subsequently

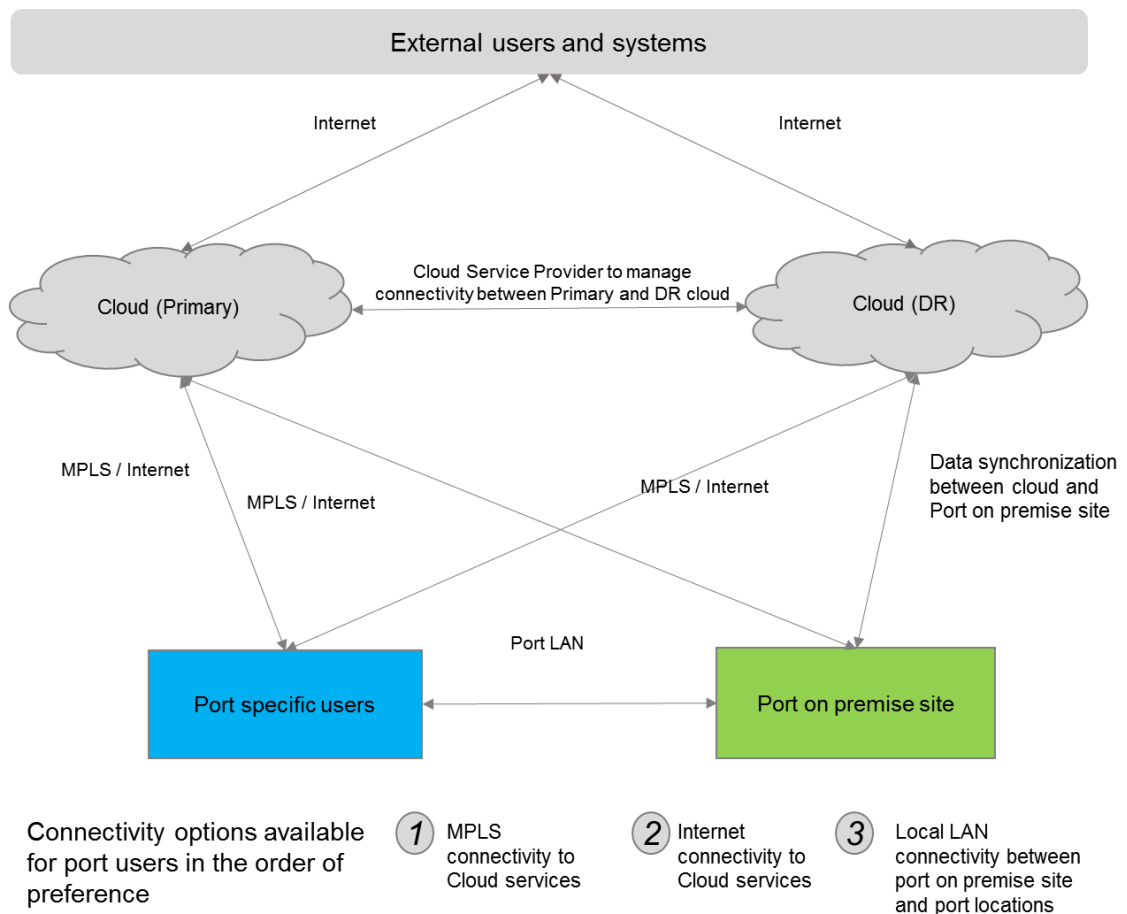


#	Location Name	Location	Description
1	Primary Site	Central	Shall maintain the central infrastructure consisting of Port Operations Solution, standard ERP modules and auxiliary systems on a cloud infrastructure under a cafeteria model
2	Disaster Recovery Site	Central	Shall act as disaster recover site for Primary site
3	IT helpdesk with remote NOC/SOC	Central	Shall manage grievances related to internal users of the system. IT helpdesk shall be placed at IPA office with remote NOC/SOC to maintain network and security operations for Port-EBS
4	Call centre	Central	Shall be placed out of a third party location managing grievances of external users of the system
5	Port On-premise site	Port-specific	This will be the port BCP site for critical operations required for port functioning in case DC and DR are not accessible
6	Port IT Helpdesk	Port-specific	Locally placed helpdesk to manage IT operations at individual ports
7	Port Service Centre	Port-specific	Front end offices at port locations will be manned and operated by ports, established as part of Port-EBS implementation
8	Training Room	Port-specific	Training room will be created at each port to enable training on the systems being created
9	Port Command Centre	Port-specific	Central operations command room created within Port’s administrative building to give overview of entire operations from one location
10	Dispatch Centre	Port-specific	Satellite locations to manage scanning, inward/outward functionality within ports

#	Location Name	Location	Description
11	Various Port offices and operational areas	Port-specific	These are various locations within ports where work is expected to be carried out on Port-EBS and will be connected via the Port Network Backbone

2.6 IT Continuity Landscape

Port operations requires 24*7 service availability. The availability and avoidance of any single point-of-failure is of key concern for the ports. Hence due planning should be undertaken by the system integrator for designing the solution. The following solution presents the indicative IT continuity actions to be included in the solution design.



The port users would be able to connect to the cloud (primary and DR site) on redundant networks (MPLS and internet). Based on the port requirements, port on premise site may be required to be established within port premises. The indicative details on the networking requirements and port on premise site requirement has been presented in bill of materials section in this volume. The MSP is expected to carry out individual assessment of the requirements and propose accordingly.

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

- o Issue notification and alerts to the specific port to indicate unavailability of primary and secondary links
- o If port on premise site is available, switch over to the on premise site
- o Coordinate with CSP / network SP 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 MSP / CSP / Network SP.

#	Scenario	Proposed action	RTO / RPO	Responsibility
1	Primary site is unavailable	1) Switch over to DR site	RTO – 2 hours RPO – 30 minutes	MSP with the help of cloud provider
2	Disruption in primary link	2) Switch over to secondary link	RTO – 5 minutes	MSP with the help of network ISP
3	Disruption in primary and secondary network links*	1) Port users to switch over to GPRS-based internet connectivity through dongles 2) Switch over to port on premise site for continuing with critical port operations in offline mode. On availability of either links, the data will synchronize with cloud	For item 2. RTO – 2 hours RPO – 30 minutes	For item 2, MSP (On premise technical support team)

* For ports selecting not to establish a port on premise site, for option 3 (Disruption in both and primary and secondary link), item 2 (switch over to port on premise site) may not be applicable.

3 Scope of Work

3.1 Overview of scope of work

The scope of work for the MSP includes implementation of the EBS system for five major Indian Ports which includes port of Mumbai, Kandla, Paradip, Chennai and Kolkata (includes Kolkata docking system and Haldia Dock Complex). The scope includes:

- Design and Development of software/application modules for port operations,
- Procurement, Deployment and Installation of Hardware, Network equipment at each port,
- Managing hosting of the envisaged solution,
- Implementation and Maintenance of Central Call Centre and Port level IT helpdesk at each port,
- Migration of legacy data,
- Digitization of port data and Integration of the envisaged solution with existing port systems and external IT systems
- Providing digitization services to port for scanning documents as required by port
- Provide services as per cafeteria model as defined in Volume I of this tender under payment terms
- MSP shall be responsible for the maintenance of the envisaged solution EBS system. The maintenance phase will be for a period of 5 (five) years after Go-Live of the proposed system Post completion of the 5 year period, the contract can be extended for additional time period, at discretion of IPA.

MSP needs to design, implement and operate the EBS system project on turnkey basis. MSP needs to do the appropriate solution design and sizing for the project as per the scope of work and other terms and conditions of the RFP. In case MSP has not considered any component/service which is necessary for the project requirement, the same needs to be brought by the MSP at no additional cost to IPA.

Brief summary of the key tracks of the scope of work are as mentioned below:

Tracks	Description
Track 1:	Programme Management
Track 2:	Application design, development / customization and implementation
Track 3A	Track 3A: Infrastructure setup for Data Centre, BCP/DR and Port Server room
Track 3B	Track 3B: Infrastructure setup for WAN
Track 3C	Track 3C: Infrastructure setup for port network
Track 4:	Client side Infrastructure set-up
Track 5:	Data Integration and interfacing requirements
Track 6:	Set-up, operationalize and managing of Port Service Centre at each port and Centralized Call Centre

Tracks	Description
Track 7:	Training and capacity building
Track 8:	Digitization, Scanning and Application & Data Migration
Track 9:	Supply of Manpower for Operations
Track 10:	Civil Work at each port location
Track 11:	Operations and Maintenance for 5 years post Go-Live

1. Project governance and management

MSP is expected to adopt industry best practices throughout the contract duration for project governance and management necessarily covering:

- Creation and update of project management plan
- Monitoring and execution of project as per plan
- Change control management
- Providing regular status updates

2. IT software and applications for service delivery and operations

A key component of the contract is design, development / customization and implementation of a comprehensive integrated EBS solution which supports all service delivery processes and functions of port. These have to provide for necessary amendments/ upgrades / modifications that may be required in future, also taking into account any change in Port Acts/Rules or any relevant notifications by IPA / respective port from time to time relating to any services envisaged under respective port / IPA. These components have been elaborated in the subsequent sections within this tender.

3. ICT infrastructure including client side computing, network infrastructure and data centres, port BCP site

MSP is expected to design and determine requirements for various ICT infrastructure components as required for functioning of the solution.

MSP shall procure (services in case of Cloud DC/DR hosting), install and commission and further maintenance ICT infrastructure which includes:

- Software licenses and required support for any bespoke applications / custom changes
- Cloud site data centre and disaster recovery centre; and port site for hosting the solution
- Client-side infrastructure including desktops, handheld devices, printers, scanners, cash registers etc.
- Networking infrastructure including redesign of existing port WAN and its implementation, new networking infrastructure and its maintenance.
- Any other components required for functioning of solution

4. Integration with existing port systems

As part of the scope MSP is expected to develop and provide necessary software interfaces with internal and external systems. The interfaces are expected to help seamless workflow and interactions as far as possible. Single-sign on and other user friendly integration features are expected as part of the solution. Indicative lists of interfaces and integrations have been provided in the tender. These may be further enhanced by MSP at the time of implementation. MSP will be expected to provide options of integration / interfacing with different systems and phased implementation timelines. It is understood that some interfaces require involvement of third parties which may be delay implementation of these interfaces. MSP is expected to proactively highlight any such delays and provide updated plan for implementation of all such interfaces.

MSP is expected to develop and support interfaces as required to ensure complete service delivery from respective port as a single unit.

5. IT business support & operations management:

MSP shall provide IT facilities management services to provide first line services related to all IT issues including software, applications, client side infrastructure, servers, network, etc.

Scope for MSP includes:

- Managing IT facilities within port which have been provided by the MSP and existing infrastructure available at port as defined subsequently
- Establishment and maintenance of IT helpdesk for supporting port IT facilities
- Establishment and maintenance of centralised Call centre for supporting port business operations
- Establishment of port service centre which acts as a dedicated one point helpdesk for all operational support of the port departments

6. Training and Capacity Building

MSP is expected to manage all activities related to training and capacity building to port users and other stakeholders. This includes

- Training plan for effective use of the system
- Carrying out training of various users of the system
- Creation of user manuals / tutorials for using the system
- And other as mentioned subsequently

7. Digitization, Scanning and Application & Data Migration as per proposed solution requirements

- MSP is expected to provide scanning and digitization services which includes supply of manpower and scanners and related facilities to carry out scanning of port department's documents and importing the same into DMS solution as per defined document management policy.

- Data Migration of legacy data (both physical stored documents and electronic) including designing templates for data capture from existing systems / manual forms which are required in the existing system.

8. Manpower provisioning for IT Operations:

MSP shall provision manpower for each port for to support their ongoing operations during the go-Live and Operations and Maintenance phase of the project

9. Civil Work at Port location:

MSP shall carry the basic civil works like design, supply, install and set-up of basic infrastructure like electrical, civil, lightning system, fire prevention etc. Civil work to set-up following requirements at port shall be accomplished by MSP:

- Port Server Room
- Port Service Centre
- Port IT Helpdesk
- Training Infrastructure
- Port Command Centre

10. Operations and maintenance of entire solution

Post go-live and stable operations, MSP is expected to provide operations and maintenance services for the entire solution deployed including software, ICT infrastructure, etc. for a period as defined. This includes

- Provision, deployment and supervision of personnel required at each port for the operational support to the envisaged system.
- Obtain relevant Certifications and adherence to respective Industry Standards as detailed later in this RFP
- Manage entire project from conceptualization to operationalization and maintenance as well as subsequent transfer of infrastructure/ applications and handholding for a period of six months from the end of this contract.
- Defining exit management program and knowledge transition to respective port officials
- Any additional overarching requirements of the solution for strengthening the services relating to respective port and this project.

11. Any other overarching requirements of solution not covered above but required by MSP to ensure proper functioning of solution.

3.2 Other key requirements

- a. MSP should propose only one solution that is best suited for the needs of the Purchaser. MSP should provide only one choice for each of the goods and services proposed as part of this tender.
- b. The solution should be sized and delivered for the load at the end of 5th year from the effective date of Contract. The Purchaser will requisition additional resources as and when required by the Purchaser from time to time. Such request should be governed by the change order procedure as defined.
- c. MSP should ensure that all the software, hardware, peripherals, accessories, sub-components required for the functionality and completeness of the solution, including but not limited to devices, equipment, accessories, patch cords (copper / fibre), cables, software, licenses, development / testing kits, tools, etc. should also be provisioned according to the requirements of the solution.
- d. The system software licenses shall be genuine, perpetual, full use and should provide patches, fixes, security updates directly from the OEM at no additional cost to IPA for the entire period of contract
- e. All the software licenses that the MSP proposes should be perpetual software licenses. The software licenses should not be restricted based on location and the Purchaser should have the flexibility to use the software licenses for other requirements if required.
- f. The MSP shall be responsible for providing the perpetual licenses so as to maintain the IPR and source code (customized / extension) with IPA
- g. The MSP shall provide with a full use database license
- h. All the licenses and support should be in the name of IPA
- i. MSP should ensure that the Annual Maintenance Support for the software and hardware components is provided for the period from date of deployment of the software and hardware component till the end of contract period. Annual Maintenance support should include patches, updates and upgrades of the software and hardware components. MSP should ensure that there is a comprehensive onsite warranty / support arrangement for the aforementioned period with all the OEMs.
- j. MSP should ensure that none of the components and sub-components is declared end-of-sale or end-of-support by the respective OEM at the time of submission of bid. If, the OEM declares any of the products / solutions end-of-sale subsequently, MSP should ensure that the same is supported by the respective OEM from its date of deployment till the end of the contract period.
- k. Considering the criticality of the infrastructure, MSP is expected to design the solution considering the tender condition of no single point of failure with high level of redundancy and resilience to meet the uptime requirements
- l. MSP is expected to carry out an independent exercise to size the solution and accordingly provision the requirements. MSP should ensure that all the components are sized adequately and it should also be noted that MSP would be responsible for meeting the performance requirements stipulated in the tender, contract and SLA for the entire solution at all times during the currency of the contract
- m. If a product is not supported by the OEM for any reason whatsoever, from the effective date of Contract till the end of the contract period, MSP should replace the products/solutions with an alternate that is acceptable to the Purchaser at no additional cost to the Purchaser and without causing any performance degradation and/or project delays
- n. Sizing considerations and minimum ratings wherever provided in this document are indicative. MSP is expected to carry out an independent exercise to size the solution and accordingly provision the

requirements. MSP should ensure that all the components are sized adequately and it should also be noted that MSP would be responsible for meeting the performance requirements stipulated in the tender, contract and SLA for the entire solution at all times during the currency of the contract.

- o. MSP should meet all the defined acceptance and operations criteria for each phase of the project covering the proposed solutions.
- p. Any additional components, sub-components, assemblies, sub-assemblies that would be required to meet the desired performance requirements will have to be provisioned by MSP at no additional cost to the Purchaser and without any project delays.
- q. It is expected that MSP will provide an integrated solution after due consideration to the compatibility issues between various components and existing internal systems. If there is a problem with compatibility between components, MSP should replace the components with an equivalent or better component that is acceptable to the Purchaser at no additional costs to the Purchaser and without any project delays.
- r. MSP should provide minimum Two hard and Two soft copies of all the reports, manuals, documentation, including but not limited to, detailed operations manual, maintenance manual, administration manual, etc. for each and every equipment / component proposed as part of this tender. The documentation should be supplied for Installation, Maintenance, Servicing and operations of equipment / components.
- s. MSP should arrange for desktops / workstations, printers and other peripherals and consumables for its team members deployed.
- t. MSP should have to arrange for necessary tools for defect tracking, defect logging, application performance monitoring, automatic testing etc. to deliver the complete software development and maintenance services.
- u. MSP should ensure the usage of configuration management and version control tool and own the necessary licenses for its team to deliver software development and maintenance services. Additionally, MSP should provide single user license for the configuration management and version control tool for the Purchaser.
- v. MSP should provide a single user development environment license in the name of the Purchaser for the various tools used by MSP during the development phase of respective solutions. These tools would typically include Application Development Framework / Environment for custom built and COTS based products, XML Schema Designer, PDF Designer, etc.
- w. The MSP will be responsible for providing the necessary development and testing environment and maintaining the related software and hardware for the Contract period.
- x. The MSP shall transfer all the assets including all its components of software, hardware etc. to the Purchaser at the end of contract period at no additional cost to the Purchaser.
- y. During the Contract period, all project assets including data and intellectual property should be in safe custody and due reasonable care should be taken on the behalf of the Purchaser to prevent any unauthorized use.

4 Detailed Scope of Work

4.1 Track 1: Programme Management:

4.1.1 Project Management

1. MSP shall arrange a project kick off meeting of the proposed team members with the IPA / port officials on the said date.
2. MSP shall discuss the project charter to foster a mutual understanding for the project.

4.1.2 Resource deployment

1. MSP has to propose named resources for all the key roles as mentioned in the technical evaluation criteria and as per the requirements of Annexure of Volume 1 of this RFP. The proposed resources must be part of the project team, and must be available for discussion with the client at client location.
2. MSP shall assess the requirement of resources to design and implement the solution including number, skill sets and duration and provision the same for implementation of this project.
3. MSP has to necessarily maintain a team of requisite size of skilled professionals as per the requirements of the project.
4. MSP shall propose the team structure and deployment plan of key resources at onsite and offsite for the project. The resources proposed must not be changed unless replaced with equivalent or higher qualification and experience with the approval of IPA.
5. MSP shall propose project manager and other key personnel for full time deployment at client location in New Delhi for the entire duration of the project, and the same should be reflected in the proposed team structure and deployment structure.

4.1.3 Project plan

1. The MSP shall define a detailed project plan for the project that would cover all aspects of the EBS solution including but shall not limited to Hardware, Software, Integration, Infrastructure, Network, Data Centre, Data Migration, Training and Capacity Building, IT Operations, Manpower Staffing and their respective Deployment as per the project milestones defined in Section 5 of Vol 2 of this RFP.

4.1.4 Progress updates

1. MSP is required to design and implement a comprehensive and effective project planning and management methodology together with efficient and reliable tools.
2. Project management exercise shall commence at the start of the project and shall continue till the end of O&M Phase of the project.
3. To have an effective project management system in place, it is necessary for MSP to use a Project

Management Information System (PMIS) to monitor the Project Progress. MSP shall address at the minimum the following using PMIS:

- a) Create an organized set of activities for the project.
- b) Coordinate and collaborate with various stakeholders including the IPA, respective Port officials and their concerned departments etc.
- c) Establish and measure resource assignments and responsibilities.
- d) Construct a project plan schedule including milestones.
- e) Measure project deadlines, and performance objectives.
- f) Track and manage deliverable approval process flow
- g) Manage payment authorization workflow within
- h) Communicate the project plan to stakeholders with meaningful reports.
- i) Provide facility for detecting problems and inconsistencies in the plan.

4. During the project implementation MSP shall report to IPA on following items:

- a) Results accomplished during the period.
- b) Cumulative deviations to date from schedule of progress on milestones as specified in this RFP read with the agreed and finalized Project Plan.
- c) Corrective actions to be taken to return to planned schedule of progress.
- d) Proposed revision to planned schedule provided such revision is necessitated by reasons beyond the control of MSP.
- e) Other issues and outstanding problems, and actions proposed to be taken.
- f) Interventions required from IPA before the next reporting period.
- g) Issue Management to help identify and track the issues that need attention and resolution.
- h) Scope Management to manage the scope and changes through a formal management and approval process.
- i) Risk Management to identify and manage the risks that can hinder the project progress.

5. MSP shall update and maintain the Project Plan throughout the duration of the engagement.

4.1.5 Communications management

1. MSP shall develop and submit a communication plan to outlines the needs of project stakeholders.

4.1.6 Operations and maintenance

1. MSP will operate and maintain all the components of the System for a period of five years after Go-Live date. During O&M phase, SI shall ensure that service levels are monitored on continuous basis; service levels are met and are reported to IPA. After Go-Live, if any system/sub-system/appliance that is deployed during the O&M phase must be added in the system only after proper induction procedures are followed including hardening and security testing.

4.2 Track 2: Application design, development/ customization and implementation

4.2.1 Requirements gathering

1. MSP shall be responsible for preparation of comprehensive system study documents by assessing business and functional requirements, business processes, organization structure of the respective port and IPA and the Indian Ports Act / Major Port Trust Act or Central Port Authorities Act 2016 / legal clauses.
2. The functional requirements of the solution components are available at **Annexure of Vol 2** of this RFP. MSP shall carry out a detailed assessment to validate and refine the functional requirements.
3. MSP in consultation with IPA / respective Port or its designated agency shall prepare the High Level Design (HLD) document of the proposed solution covering the functionalities and integration mechanism.
4. MSP shall finalize the System Requirement Specifications (SRS) in consultation with IPA / respective Port or its designated agency based on ‘To-Be process’ definitions & Functional Requirement Specifications (FRS), Technical Solution (Technical Requirements and Technical Specifications provided therein), and also based on its own individual assessment.
5. The System Requirement Specifications (SRS) shall be prepared by the MSP and a formal sign-off needs to be obtained from IPA before proceeding with the Development / Customization / Installation of the application.
6. The SRS would include solutions that enable complete synchronization / regular updations of the database of POS, PCS, ERP system and other external systems.
7. As part of the preparation of SRS the selected MSP shall be responsible for preparing and submitting detailed requirement specification documents as per IEEE or equivalent standards.
8. MSP is required to update the FRS and SRS as and when any enhancements / modifications are made to the overall solution to ensure that the documentation is updated at all times for the entire duration of the Contract.
9. IPA / respective Port reserves the right to drop, add or modify the functional requirements to the extent that it is in line with broad scope of the project. IPA / respective Port may also change the sequence of tasks and activities or certain modules to suit the needs of respective Port or the proposed system
10. Detailed AS-IS study of port taking as a reference the BPR process report which is available for each port and documenting business processes including process maps to cover all functions, processes, workflows up to activity/ task level
11. Identify existing business process issues, areas of improvement and opportunities for standardization.
12. Review the AS-IS processes and design the TO-BE processes that are based on business requirements, and ERP enabled Best Practices/ Processes.
13. Conduct gap analysis of to-be process requirement and ERP functionalities along with best practice solution to meet port requirements

14. Identify all reporting requirements as per business needs (internal, external, statutory etc.)including Dashboard and MIS for various levels of management

4.2.2 Business blueprint

1. The MSP is encouraged to implement the EBS solution by agile methodology based on the assumption that requirements may be change with time.
 - a) MSP shall discuss the project preparation which includes elements such as roles & responsibilities, documentation standards and hardware requirements.
 - b) MSP shall carefully identify all operating processes and process dependent conditions such as master data, conversions, security & authorizations, and interfaces during the Envision Process Workshops. This determines the scope of the project.
 - c) MSP shall translate the outcome of the above steps into solid foundation for the entire project, a functioning Baseline System. The MSP team makes an inventory of whether project accelerators can be used.
 - d) In evaluation phase, IPA will determine the priority of the additional requirements and functionalities, the so-called delta list, in order of business value. The MSP team shall estimate the efforts that will be required to realize this and determines the planning of the sprints for the system components to be supplied.
2. The MSP shall start with the realization of the requirements as defined in the delta list. This takes place in order of importance in short sprints which also includes testing and documentation. The MSP shall perform the below activities during each sprint:
 - a) During Sprint planning meeting, at the start of sprint, MSP in accordance with IPA shall define the target functionalities that will be developed during the sprint.
 - b) MSP team shall developing the required functionality along with testing and documentation in delta realization phase.
 - c) MSP shall hold the weekly status meeting to project the progress of the sprint and obstacles if any which are refraining from meeting the required timelines.
 - d) At the end of each sprint session, MSP shall present the newly developed and tested software during the Sprint Demo Session. During this IPA will determine whether the processes/functionalities developed meet the set requirements.
 - e) After each sprint MSP shall held a short sprint review during which improvements for further sprints will be discussed.

4.2.3 System design

1. The MSP shall design an integrated solution architecture & specifications for meeting the System Requirement Specifications, finalized by the MSP and approved by IPA. The solution designed should have seamless integration of all the components comprising of the EBS solution being designed. The solution design shall include, but shall not be limited to, the design of the application architecture, user interface, database structures, security architecture, network architecture, operational architecture etc. The principles of Enterprise Architecture shall be followed while designing the system.

2. The system configuration and customization will be done based on the approved business design or blue print. The key requirement will be identification of the processes to be configured and the processes to be customized.
3. MSP shall design improved, streamlined, standardized, more efficient to-be processes through business process reengineering based on industry best practices, ERP supported process improvements and port requirements.
4. The IPA would like the standard features of the ERP Solution and the MSP is expected to make the necessary "Configuration" entries in the ERP Solution to achieve the business needs. The configuration includes small routines using User-exits and developing screen variants as needed by the business by setting fields attributes - to hide, display and make them mandatory fields.
5. IPA intends to implement standard ERP Solution functionality as far as practically possible and to adopt the business processes of the standard ERP Solution and the leading practices available in the offered solution. However MSP is required to undertake customization that may be needed in line with the changed, improved or specific business processes requirement prepared during Business blue printing phase of the implementation. These customization should tested, accepted and approved by IPA.
6. All custom development should be carried out in a controlled and planned manner with adherence to ERP prescribed coding standards and naming conventions. The MSP needs to provide configuration, customization and installation documents to IPA.
7. MSP shall deploy and configure an appropriate identity and access management system and configure the access for various users for different systems and applications. MSP shall ensure that the user id's are in synchronization with POS / ERP system at all times.
8. MSP shall have the overall responsibility for development / customization, integration, testing and rollout of all components of the project.
9. MSP shall ensure that the data model, interface designs, and other components are designed as per industry standards and best practices.
10. MSP shall ensure that the architecture is scalable (cater to increasing load of internal and external users and their transactions) and capable of delivering high performance for the entire duration of the project. In this context, it is required that the application and deployment architecture should provide for Scale-Up and Scale-Out on the Application and Web Servers, Database Servers and all other solution components.
11. The MSP should submit the solution design document to the IPA and should obtain the sign off on the design document before commencing the development / customization / installation of the solution. However, MSP shall be responsible for ensuring the compliance of the end product to the requirements specified by IPA in this RFP
12. MSP shall assess the sizing requirements for various products/ tools/ software's required to fulfil the functional and operational requirements of the solution, and accordingly procure the licenses.
13. MSP is expected to select the products which meet the indicative technical features of specified products/technologies and other technical specifications **(Annexure of this Volume of RFP)**.
14. MSP shall also ensure requisite support from the OEM for various aspects of project including configuration, customization, sizing, performance tuning, training and implementation support.

15. MSP shall assess the requirement of professional services from OEMs for all components of the solution, and provision for requisite support from OEMs.

4.2.4 Conference Room Pilot

MSP shall conduct CRP to test and validate the business model of the proposed EBS system.

1. The MSP should configure the EBS application with required Master Setup/ parameters to demonstrate the standardized business process functionality.
2. This configuration should consider EBS centralization with reporting/ processing requirements at various levels of organization hierarchy. MSP shall arrange the required minimum number of Licenses for demonstration / Demo version of the same.
3. MSP shall do the following tasks during CRP:
 - Identify transaction flows and processes
 - Review transaction flows and modify where required
 - Map out the data conversion cycle. Sample and test the historical data; scrub data as necessary, perform a sample conversion and reconcile
 - Understand and configure set-up and file maintenance software parameters
 - Evaluate and develop system enhancements where necessary.

4.2.5 Pre-UAT training to users

1. MSP shall provide the user manuals/ administration manuals / training material and any other such documents (as per the deliverables) to the respective stakeholders before the start of UAT.
2. MSP shall demonstrate the training to the respective port users as per the training plan submitted and approved by IPA.
3. MSP shall use various modes of training demonstration as given in track 7 (Training and Capacity Building) to address the challenges of port users in testing functional requirements of the proposed EBS system.

4.2.6 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 documents which will include testing plans, schedules, content, training approach and methodology. Testing strategy should define the requirements and goals of EBS 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 ERP implementation are proper.

The following testing should be done by MSP:

1. Unit Testing:

After development and customization/configuration of the ERP 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 IPA. MSP should perform following as a part of the scope:

- a) Unit testing shall cover all the custom developed objects as part of configuration/customization phase.
- b) 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.
- c) MSP shall perform a code review for each of the custom development as a part of quality procedure and submit it to IPA.

2. Integration testing:

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

3. Performance and load Testing:

- a) 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.
- b) Various performance parameters such as transaction response time, throughput, hits per second and transactions per second etc. should be taken into account.
- c) Test cases along with test results to be shared with IPA. The MSP should use suitable simulation tools in accordance with the agreed test procedures keeping in view IPA's projected future load of transactional users as proposed by MSP and agreed by IPA.

4. Security Testing (Penetration and Vulnerability testing):

- a) 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.

- b) 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.
- c) 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 IPA.
- d) During Operation & Maintenance phase, penetration testing to be conducted on yearly basis and vulnerability.
- e) IPA 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 IPA.

5. System Acceptance:

- a) The MSP will develop acceptance test procedures for IPA 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.
- b) For this MSP ensure the completeness of following activities:
 - i. Fine tuning of the software, ensuring all required related software components are installed.
 - ii. All the acceptance tests should be carried out before Go-Live at site.
 - iii. At the satisfactory conclusion of these acceptance tests, the implementation of the software shall be considered complete for migration and Go-live.

4.2.7 User Acceptance Testing

1. 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.
2. MSP shall be responsible for the below mentioned activities as part of the testing:
 - a. Unit testing of different modules of the solution
 - b. Integration testing of the solution
 - c. Functional testing
 - d. Performance testing which includes load / stress testing
3. MSP shall prepare test plans and test cases for testing and user acceptance.
4. MSP shall prepare test data for testing and user acceptance. MSP shall ensure that they create data which is similar to what IPA has both in terms of quality and volume.
5. 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.
6. MSP shall perform testing and enable User Acceptance Testing (UAT), prior to Go-Live of each project phase.

7. MSP shall get the Vulnerability Assessment (VA) and Penetration Testing (PT) and Application Security Audit conducted by CERT-In empanelled 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.
8. 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.
9. MSP shall fix the bugs found during UAT.
10. IPA 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.

4.2.8 Pilot deployment

1. The MSP will do the pilot deployment of proposed solution in one or more ports as mutually agreed between the IPA and the MSP.
2. Before implementing the pilot deployment, MSP shall ensure to complete the UAT of the proposed solution and final sign-off from the IPA.
3. MSP shall ensure to deploy necessary hardware, software, network, storage, compute devices etc. that may be required for the pilot deployment.

4.2.9 ERP OEM Audit

1. The ERP implementation at IPA/ports needs to be audited / reviewed on continuous basis at critical milestones by the ERP OEM for ensuring proper, smooth and timely implementation as per the requirement of IPA/Port and ERP product standards. The cost involved this is to be borne by the MSP and included in their Price Bid.
2. As part of the technical bid, an authorised representative of the ERP OEM will provide an undertaking that they have made contractual arrangements with the MSP to deliver the below mentioned work. These services are exclusive of ERP OEM support as part of Annual Technical Services. ERP OEM shall submit its reports directly to IPA and port.

Business Blueprint / Solution Design Review

3. ERP OEM will review as-is, to-be, gap analysis and solution mapping document along with any other related document.
4. ERP OEM will prepare module wise detailed observations covering (including but not limited to) process coverage, usage of ERP product functionalities, risks in customised processes (if any). If any

standard ERP functionality, module or sub-module is not used by MSP, same needs to be informed to IPA and port (with or without business process re-engineering).

5. ERP OEM will recommend industry best practices for IPA and port as appropriate (e.g., organisation structure, CoA structure, codification etc.). If there is any better solution other than the one proposed by MSP, OEM will recommend the same to IPA/PORT and ensure its compliance through MSP.
6. Audit process will be carried out through review of documents and on-site discussions with MSP and IPA/port team
7. ERP OEM will prepare a detailed audit report and submit the same to IPA/port. If required by IPA, ERP OEM needs to present audit findings to port management.
8. MSP will be required to comply with ERP OEM observations.
9. After compliance by MSP, ERP OEM will verify and confirm that either all relevant observations/recommendations are incorporated by MSP or the solution provided by MSP is acceptable to ERP OEM considering IPA requirements.
10. ERP OEM will verify the IT infrastructure Bill of Material and specifications to confirm that it is in line with the IPA performance and SLA requirements.

Development Review

11. Development review is to determine whether the design and implementation adheres to proven OEM standards.
12. ERP OEM will review all custom developed components / objects.
13. ERP OEM will verify that there is no standard ERP functionality, module, sub-module which can be used to meet IPA/port requirements.
14. In such cases, ERP OEM will verify and review that the custom development approach and methodology is as per ERP OEM recommended standards. Further, OEM will also identify risks for IPA/port in such developments
15. Audit process will be carried out through review of documents & solution and on-site discussions with MSP and IPA/PORT team

Configuration Review

1. After final configuration of the solution based on IPA/PORT requirements is done, ERP OEM will verify that
2. Configuration document prepared by MSP is as per the solution and standards
3. Configuration is done to completely meet IPA/PORT requirements
4. There are no configuration level errors or incorrect processes
5. Audit process will be carried out through review of documents & solution and on-site discussions with MSP and IPA/PORT team

Pre Go-Live Audit

1. ERP OEM will verify and confirm before go-live (number of audits will be as per MSP implementation approach), technical preparedness of the system is appropriate for go-live
2. ERP OEM will review technical & operational procedures, system performance, user support documents & structure is as per scope and OEM standards

3. MSP will have to take corrective actions based on ERP OEM recommendations. ERP OEM will verify the compliance of the same.

Post Go-Live Audit

1. ERP OEM will conduct post go-live audit to confirm that the solution is performing as per IPA/PORT SLAs. OEM report will be pre-requisite to the completion of EBS stabilisation phase.
2. ERP OEM will ensure closure of all audit observations to its satisfaction and provide final report to IPA/PORT.

4.2.10 Deployment

- a. The MSP shall prepare the strategy detailing the sequence of activities, schedule for the activities/tasks, data conversion and the data migrations of the necessary balances and open items before Go-Live.
- b. The production deployment will be done in three phases:
 - a. Phase I: The first phase deployment will cover all the basic functionalities across all the modules of ERP solution which are required for system go live.
 - b. Phase II: This phase will cover the deployment of core functionalities defined as per the scope of the work.
 - c. Phase III: This phase will cover the deployment of all the functionalities defined as per the scope of the work.
- c. The MSP is required to undertake the following to review readiness for production deployment:
 - Facilitate in setting up help desk and call centre for any queries
 - Review the usage and performance of the system till it stabilizes
 - Ensuring resolution / documentation of all issues raised during implementation
 - Final configuration/ integration, volume and stress testing
 - Switch over to production environment.

The system will be declared Go-live when the following tasks/activities are accomplished satisfactorily:

- Acceptance testing
- Installation and commissioning of Hardware
- Data migration
- Training
- User creation / role identification

4.2.11 Baseline software across all ports

MSP shall create baseline for software being created across all ports to create a vanilla level package which might be implemented for a new port. This vanilla package needs to contain the common software functions across the participating ports, and needs to be common across the deployed instances within this project.

Port specific delta-change on the vanilla package will be maintained and further changes during O&M phase are expected to take place on the baseline software.

MSP will strive to maintain governance and control over subsequent changes taking place at the port, all changes have to be baselined across all ports as per mutually agreed defined frequency.

4.2.12 Stabilization Phase

The MSP shall provide post Go-Live support, as part of this scope; by continuing the deployment of the same technical and functional consultants at site for full three months after implementation and Go-Live. During the stabilization period the MSP would help IPA users to correct any errors/bugs incurred while executing transactions, generating reports, handholding for one financial quarter closure. The MSP will update the user manuals and configuration manuals accordingly.

All the infrastructural assets procured by MSP for port-EBS operations will be owned by the MSP. However, at the end of stabilization phase or termination of contract, whichever is earlier, all assets, infrastructure, equipment, networking, software solutions, hardware etc. created for Port-EBS shall be transferred to IPA at INR 1 at the discretion of IPA. IPA shall always have the right of first refusal.

4.2.13 Documentation

The MSP will provide detailed final system documentation for the reference of IPA. The MSP shall provide ongoing product information for reference purposes and facilitating self-education for IPA personnel.

Two sets of system documentation to include hard copies and soft copies to be supplied along with the delivery of ERP licenses & system, which includes but not limited to the following:

- Configuration document consisting of system setting and parameters for each functional module.
- Standard operational procedure (SOP) manuals.
- Documents related to data structures/tables
- On-line help manual.
- Technical manuals.
- Installation guides.
- System administration manuals.
- Toolkit guides and troubleshooting guides.
- User manuals including system instructions and use cases, how to run a program to perform specific task in the system with sample reports, screen formats etc.
- Any other documentation required for usage of implemented solution.

All documents mentioned above or any other standard documentation for the product will be included in the cost of the license.

4.2.14 Operations and Maintenance

MSP will operate and maintain all the components of the System for a period of five years after Go-Live date. During O&M phase, MSP shall ensure that service levels are monitored on continuous basis; service levels are met and are reported to IPA. After Go-Live, if any system/sub-system/appliance that is deployed during the O&M phase must be added in the system only after proper induction procedures are followed including hardening and security testing. The broad level details of the activities are listed below:

1. Applications Support and Maintenance:

Application support includes, but not limited to, production monitoring, troubleshooting and addressing the functionality, availability and performance issues, implementing the system change requests etc. key activities to be performed are:

- a) MSP shall ensure compliance to SLAs as indicated in this RFP and any upgrades/major changes to the software shall be accordingly planned by MSP ensuring the SLA requirements are met at no additional cost to the IPA.
- b) MSP shall address all the errors/bugs/gaps in the functionality in the solution implemented by the MSP at no additional cost during the O&M phase.
- c) Any changes/upgrades to the software performed during the support phase shall subject to the comprehensive and integrated testing by the MSP 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 approval. A detailed process in this regard will be finalised by MSP in consultation with IPA.
- d) Issue log for the errors and bugs identified in the solution and any change done in the solution shall be maintained by the MSP and periodically submitted to the IPA team.
- e) MSP shall maintain version control and configuration information for application software and any system documentation.
- f) Any additional changes required would follow the Change Control Procedure. IPA may engage an independent agency / designated agency to validate the estimates submitted by the MSP. The inputs of such an agency would be taken as the final estimate for efforts required. MSP to propose the cost of such changes in terms of man month rate basis and in terms of Function point/Work Breakdown Structure (WBS) basis in the proposal.

4.3 Track 3A: Infrastructure setup for Data Centre, BCP/DR and Port On premise site

4.3.1 Common Data Centre (DC) and Disaster Recovery Centre (DRC) Setup

- a. The MSP shall be responsible for procurement, supply and installation of entire ICT infrastructure required for setting up and operations of the envisaged solution. The ICT infrastructure includes data centre, disaster recover, near data centre, networking infrastructure, client side computing devices including desktops, thin clients, printers, scanners, handheld devices, related system software, other software and any other related IT infra required for running and operating the envisaged solution. The IT infra procurement will be planned considering the below factors:
 - i. Minimum impact to business operations continuity
 - ii. Maximum availability of services to users
 - iii. Near zero data loss
- b. MSP is expected to consider factors such as flexibility, agility, cost effectiveness and transparency offered by the cloud technologies while designing and hosting applications. Meity-empanelled cloud shall be used for hosting the central solution
- c. MSP shall procure all required ICT infrastructure as required for functioning of the solution.

- d. ICT infrastructure deployed should be dedicated for the project and MSP shall not be used for any other purpose.
- e. The ownership of IT infrastructure procured within port premises shall get transferred to ports after "Acceptance and Go Live and Stabilization"
- f. MSP shall ensure warranties/ASCs/AMCs are procured for all the ICT components for entire duration of the project. For all components the support from OEM to be obtained for prescribed components. There would be a mechanism to verify these details on annual basis or as required by Port. MSP shall warrant that the Infrastructure procured for Project shall have no defects arising from design or workmanship or any act or omission. The warranty shall remain valid for period of five years from the date of completion of Phase II.
- g. MSP shall provide the warranty for ICT Infrastructure (Software & hardware) supplied for Project for a period of five years on all the items supplied as per the contract. MSP shall replace any parts/components of the ICT Infrastructure supplied for project if the components are defective and during the entire warranty period MSP shall apply all the latest upgrades/patches/releases for the software after appropriate testing
- h. Minimum specifications of the IT infrastructure are detailed in the Volume II of the RFP along with workload details, the MSP is expected to carry out independent assessment of ICT infrastructure and design and size the solution to meet the project functional requirements and Service Level Agreements (SLAs). Any additions/modifications which have to be done in order meet the SLA and operational requirements will have to be borne by the MSP
- i. MSPs are to prepare and submit along with their technical proposal, the details of methodologies and computations for sizing and capacity of storage, compute, routers, switches, Internet facing IPS, backup, tape libraries, sizing of security appliances and their compute requirements.
- j. The solution being deployed is expected to be hosted and running at following key physical infrastructure facilities. These are as given below:
 - i. Primary Data Centre: This will be primary site for hosting the central system supporting the entire solution. This will include live production, testing and development environments.
 - ii. Disaster Recovery Site: This will be a fully functional active disaster recovery center which will be used as primary site in case of disaster.
 - iii. Port On premise site: This will act as a data dump site and managing critical Port Operations in case of failure of connectivity between port and central system. Typical users are not expected to connect to this site.
- k. Port office locations within various ports has been attached in the ANNEXURES. Solution is expected to support Port users working out of these locations. MSP is expected to ensure supply of client side computing as per tender, setup network connectivity and carry out maintenance of equipment provided at these locations.
- l. The responsibility shall include setting-up the IT infrastructure. MSP shall also provide staff, technical and supervisory, in sufficient numbers to operate and manage the functioning of PDC, DRS and Port On premise site at desired service levels.

- m. Scope shall include Port backbone at all Port locations and Wide Area Network (WAN) interconnecting all the locations recommended in this tender to central system. The MSP has to perform an independent assessment of the Infrastructure requirements for proposed system and provide a detailed BOM for the proposed infrastructure in line with the requirements of the project and performance on service level agreements. Port shall review and approve the BOM of the successful MSP at the time of implementation/deployment/commissioning. It is clarified that the BOM approved by Port shall in no case be a lower version than the one proposed by the MSP in its technical proposal submitted to Port and the same shall be scaled up / upgraded by the MSP as per the requirement for performance on the service levels at no additional cost to the Port.
- n. MSP is expected to design and determine the requirements for various cloud services components as required for the proposed solution which shall be hosted in a Cloud environment in a Data Centre. The MSP shall install and commission and further maintain the said infrastructure which includes:
 - i. Provide necessary Software licenses and required support for the solution proposed
 - ii. Cloud enabled common Data centre and disaster recovery centre for hosting the solution
 - iii. Any other components required for functioning of solution
 - iv. Cloud should be hosted in India based Tier III Certified Data Centre, including Primary Data Centre and Disaster Recovery site in India, no network and data sharing/replication to any data centre outside the boundaries of the country is allowed.
- o. The Disaster Recovery Site should implement Replication Solution as defined in Section 2 of this RFP. The same will be validated during DR Drills.
- p. MSP will be responsible for all the technology, infrastructure at these sites over the period of the contract.
- q. MSP shall provide all the necessary MIS reports required to meet the SLA. MIS capabilities with customizable reports, monitoring tool/dashboard.
- r. MSP shall host the entire application centrally at the data centre. The core infrastructure shall provide:
 - i. Performance i.e. the system shall provide fast and steady response times (Quality of Service). The speed and efficiency of the system shall not be affected with growing volumes, especially during search operations, reporting, MIS, online processes and batch processes.
 - ii. Availability i.e. all component shall provide adequate redundancy with no single point of failure to ensure high availability. The systems shall be designed for 24x7 operations and meet all SLA requirements. Designing for availability assumes that the systems will fail, and therefore the systems must be configured to recover from component or server failures with minimum application outage.
 - iii. Security requirements as detailed later
 - iv. Version Control and Management i.e. the system shall have versioning features to track, document and process revisions made in the system
 - v. Port-specific utilization and billing in case required
 - vi. Metering for various other port services as required

- s. The hosting shall include the following:
 - i. All compute infrastructure like web servers, application servers, database servers, etc.
 - ii. Software Licenses (Database, Application, etc.)
 - iii. SAN storage / software with SAN switch
 - iv. Backup Solution (including servers and software)
 - v. Networking components like high availability switches, routers, firewalls, etc.
 - vi. Load Balancing components
 - vii. Any other components as per solution requirements
- t. MSP to provide Helpdesk services and ticketing system for call logging and tracking
- u. MSP shall use the required IT infrastructure of the Data centre/ Disaster Recovery Centre. Minimum requirement envisaged for the solution is provided in Section 8 of this Volume of RFP for reference. The MSP shall make all the necessary provisions at DC and DR for meeting the SLAs of the RFP and successfully running the solution for next 5 years.
- v. MSP shall provide for separate adequately sized following environments:
 - i. Project environment
 - ii. Testing / Staging environment
 - iii. Development and Integration environment
 - iv. Migration environment
 - v. Disaster Recovery environment
 - vi. Port-side server environment (as per port requirements)
- w. The proposed application shall be centrally hosted at the cloud enabled sites and access provided as online service to users
- x. Sites for the locations are:
 - i. Data Centre: Any location in India
 - ii. Data Recovery Centre: Different Seismic Zone in India other than Data Centre location
- y. Cloud enabled Data Centre should be ISO 20000 and ISO 27001 certified.
- z. MSP shall make necessary measures for security of the application. Cloud platform should provide Edge-to-Edge security, visibility and carrier-class threat management and remediation against security hazards like Denial of Service (DoS) and Distributed Denial of Service (DDoS) attacks, virus, malware, ransomware, botnets, etc. Also, shall provide protection against network issues such as traffic and routing instability.
- aa. Cloud should have segregated network (in a different VLAN) to separate non-production environments from the production environment such that the users of the environments are in separate networks.
- bb. MSP to provide primary and secondary connectivity for each site by the respective ISPs from each port.
- cc. MSP shall carry out DR drill minimum once every year or as per Port's policy.

- dd. The MSP will be responsible for all the technology, infrastructure at these sites over the period of the contract. The MSP will be required to procure, commission the required IT infrastructure as presented in this tender.
- ee. The proposed applications shall be centrally hosted at the cloud enabled sites and access provided as online service to users
- ff. All data should be replicated between Cloud enabled PDC, DRS and Port On-premise site. There shall be no data inconsistencies issues with either cloud enabled data centre sites.
- gg. Cloud enabled PDC and DRC shall operate in active -passive mode. The connectivity between both sites should ensure the replication works seamless with minimal data loss. Replication should ensure that there are no data inconsistencies on both application as well as storage level. In event of disaster, DRC should be brought up as primary site within the defined timelines
- hh. The applications infrastructure provisioned in DRS shall be capable to handle at least minimum 50% load at any point in time. Storage at DRS should be 100% of the PDC at any point in time.
- ii. The cloud infrastructure by the MSP must be designed to avoid a “single point of failure” with redundant core components and other required elements to eliminate system outage.
- jj. The proposed cloud infrastructure should have high availability i.e. there should be no disruption in services on account of routine maintenance procedures, troubleshooting, loading hardware and software revisions, patches, etc.
- kk. Cloud infrastructure should be on industry proven standards
- ll. Services shall be available with availability on the Infrastructure as defined in service level agreements
- mm. Cloud should be hosted on Enterprise class server and storage system
- nn. The proposed orchestration layer in the cloud infrastructure should give department usage statistics of the cloud / dedicated infrastructure resources.
- oo. MSP shall provide interoperability support (without any additional cost) with regards to available APIs, data portability, VMs, etc. for the IPA to utilize in case of Change of cloud service provider, migration back to in-house infrastructure, burst to a different cloud service provider for a short duration or availing backup or DR services from a different service provider.
- pp. Network Infrastructure and security infrastructure should be compliant with technology and security principles as mentioned later in this tender
- qq. MSP shall carry out a detailed assessment of the LAN, WAN and Internet leased line networking requirements considering sufficient redundancy of the proposed system with respect to the scope of work.
- rr. The redundant internet connectivity (same bandwidth in the case of primary connectivity) would also need to be provided by the MSP
- ss. MSP also needs to estimate and provide the internet (active and redundant) bandwidth requirements for system portals to be hosted at PDC for the expected portal users.
- tt. The connectivity at user levels will be provided by MSP.
- uu. Field offices and select Port officials will access the systems for accessing the services.
- vv. Officials as may be authorized by Port / IPA shall be allowed to access the systems or its components including databases, subject to such rights & privileges as Port may decide from time to time for the purpose of testing, audit, certification, review, inspection etc

- ww. The MSP will host the application for a period of 5 years post Go-Live in a Tier III Certified Data Centre within India.
- xx. The MSP will not be allowed to change the hosting provider during contract duration without prior approval of IPA.
- yy. MSP shall prepare Business Continuity and Disaster recovery plan as per ISO 22301 standard.

4.3.2 Port On-premise site

- a. MSP is expected to design and determine the requirements for port specific on premise to hold data backup and business continuity functions. This site may be optional for certain ports – refer to Bill of Materials for details
- b. MSP shall evaluate the use of existing infrastructure at respective port locations and provide the necessary compute infrastructure if required like network, storage, backup, fireproof media storage, software licenses etc. for the ideal working of the proposed solution.
- c. MSP shall install, commission and / or configure the supplied / existing infrastructure at respective port site for optimum working of the proposed solution.
- d. All the requisite consumables like tapes, hard disks, etc. for backup shall be provided by the MSP as per the project requirements. All the tapes, hard disks, etc. once deployed for the project will become property of IPA including corrupted/damaged devices.
- e. MSP shall be responsible for overall management and maintenance of which are currently available and will be installed under envisaged solution with Port users.
- f. The replication principle shall be as defined in section 2 of volume II of this RFP
- g. The MSP will be required to provide an infrastructure which is scalable and provides for latest technologies like virtualization, etc. The MSP is free to add any additional components that are deemed necessary for providing the solution as a whole.
- h. Size and provision the bandwidth requirements across locations considering the application performance, replication, data transfer and other requirements.
- i. Liaise with service providers for commissioning and maintenance of the links.
- j. Size and provision the cloud infrastructure in line with port operations load.
- k. IPA/ports may at its sole discretion evaluate the cloud infrastructure sizing document. The MSP needs to provide necessary explanation for sizing document to the Purchaser
- l. Storage requirements for the application suite will have to be assessed by the MSP and the storage solution shall be sized accordingly.
- m. High availability means there should be no disruption in services on account of routine maintenance procedures, troubleshooting, loading hardware and software revisions, patches, etc.
- n. The system should be High Availability mode with no single point of failure for Port Operations Services to be delivered when application is running from Port On Premise site
- o. MSP shall offer latest and proven technologies that are available for items including but not limited to Processor model with higher clock speed processor, I/O, Memory, Cache, FC interface and bandwidth, Security products, etc.
- p. The power supplies, cables/connectors for all servers / equipment should be for Indian power specifications of voltage, frequency and phasing.

- q. The MSP should ensure that all the peripherals, accessories, sub-components required for the functionality and completeness of the solution, including but not limited to the devices, equipment, accessories, patch cords (copper/fibre), cables software, licenses, tools, etc. should also be provisioned according to the requirements of the solution.
- r. MSP should design architecture for implementation of the replication of data between cloud enabled DC sites. It is expected that MSP will draw knowledge from industry best practices and its experiences to implement the replication solution and BCP policy that is best suited for the critical applications. MSP shall document the blueprint for BCP policy and cohesive replication architecture and obtain approval from the purchaser prior to actual implementation.
- s. MSP shall assist the purchaser in audit of replication envisaged to be undertaken every quarter. MSP must provide all information, replication logs in a readily accessible manner as requested by the purchaser as part of this exercise.
- t. IPA/ports will not be responsible if the MSP has not provisioned for any components, sub-components, assemblies, sub-assemblies as part of bill of material in the bid. The MSP will have to provision to meet the solution requirements the same at no additional cost and time implications to the purchaser.

The whole project is divided into two phases: implementation phase and operations & maintenance phase

1. Implementation phase:

In this phase, MSP shall provide services for design, customization, installation, commissioning, integration and rollout of the Enterprise Business System. 18 months from the date of signing of contract would be considered as implementation phase (Refer to Section 5 for details). The following services shall be provided by MSP:

- a. Project Planning
- b. Supply, installation, configuration, testing and commissioning of compute infrastructure (hardware & software) such as Servers, Operating systems and Databases, Storage at the proposed Cloud enabled Data Center, DR site and Port on premise sites
- c. Testing and commissioning of Network infrastructure at DC, Port on premise and DR sites.
- d. Supply, installation, configuration, testing and commissioning of Security infrastructure like Firewalls, Network Intrusion Prevention Systems etc.
- e. Providing Network bandwidth at all locations (DC sites and Port locations)
- f. Replication testing among the sites
- g. Manage DC / DR and port on premise site operations as per defined project waves
- h. Provide Training to identified staff.

2. Operations & Maintenance (O&M) Phase:

In this phase, MSP would be responsible of operations and maintenance of the entire solution for the contract period. This will be applicable after one state Go-Live. The following services should be provided by MSP:

- a. O&M phase planning and Monitoring
- b. Ongoing Administration and Maintenance requirements

- c. Support at the various installed sites
- d. Support for NOC and SOC through central IT helpdesk
- e. Replication testing among the sites
- f. Maintenance of Solution (hardware, applications, network)
- g. Facility Management Services at ports and central sites
- h. MIS Reports and Incident Reporting
- i. Metering and billing port-specific instances

4.3.3 Other considerations

1. Security using Cloud Framework

“Cloud Computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g. networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.” – ENISA

Using Cloud Framework for Security requirements will allow the purchaser to use:

- On-demand self-service: Resources (e.g. server time, storage) are provisioned unilaterally without interacting with the service provider.
- Broad network access: The services are available over the network, accessed through standard mechanisms and not tied to a particular client.
- Resource pooling: The provider’s resources are pooled to serve multiple consumers (multi-tenant model). The users do not know where the resources are located but they may be able to contractually specify the storage location, e.g. the region, country or data centre.
- Rapid elasticity: The services can be rapidly and elastically provisioned, in some cases even automatically. To the consumer, therefore, the resources appear to be unlimited.
- Measured services: Use of resources can be measured and monitored and similarly provided to the cloud users in a measured way.

If a Cloud Computing platform is to be made operationally secure, all the issues potentially posing a threat to the confidentiality, integrity and availability of the data stored there needs to be examined. Besides a well-structured procedural model for all IT processes, it is important that a security architecture be set up to protect resources (employees, infrastructure, networks, IT systems, applications, data, etc.) and that the customer is securely isolated. A robust separation of customers at every level in the Cloud Computing stack (application, servers, networks, storage, etc.) is a fundamental requirement that each Cloud Computing platform should meet. This requirement applies equally both to public and private clouds. The below should be examined when setting up a solid security architecture for Cloud Computing

- Data centre security and Server security
- Network security
- Application and platform security
- Data security
- Encryption and key management

- ID and Rights Management
- Monitoring and security incident management

Following indicative IT components are proposed at the Cloud enabled Data Centre sites which follows the cloud hosting specification.

1. Database

The database/repository provides all the relevant information required to process the applications. Database server would be required to store and access data with ease. This would also be integrated with multiple applications, residing at the Cloud enabled DC and DR site.

2. Document Repository

The document repository provides the version controlling of all kind of documents like latest development code, designs document etc. of the applications. It would require to store and access the document with ease. The MSP may use open source technology as per requirement.

3. Web Server:

The web server would be used for providing access to the applications through internet / intranet. Using portal, relevant contents of the applications can be easily enabled, updated and deployed at the earliest. Portal would provide a base template to users who want to access the application via internet. The portal server shall allow users to access the application from internet and the same shall be configured in cluster mode.

4. Development and Test Environment:

It would be required to deploy a separate set of VM on separate VLAN for Development and Test environment where all the new services will be developed and deployed before it is brought on to the staging and production servers. There shall be provision of the hardware for separate Development and Test System for each software application so that staging and production system shall not get affected in case of application of patches, versions change etc. The development and testing server shall make provision for all different system software platform used along with all required compilers and libraries. It shall have all application software and utilities along with the provision to customize and test the applications. It shall also have provision for version control and version management. Test and Development set up shall be the exact miniature replication of production environment in 3-tier architecture with hardware as per sizing from respective application vendors.

5. Staging Environment / Pre-Production

A staging environment or Pre-Production environment will be having everything as closely replicated to the production environment as possible to maximize the chances of finding any bugs before any release of the software in production. Even the hardware that is used for the staging environment is often the same as the hardware used in the production environment. It would be required to deploy a separate set of VM on separate VLAN for staging environment

6. Production Environment

In Production environment, software and other products are actually put into operation for their intended uses by end users. MSP needs to make sure the following activities in production environment.

- a. Plan releases as per the requirements for the approved changes
- b. Build release packages for the deployment for approved changes into production

- c. Test and implement procedures (mechanisms) for the distribution of approved changes to production environment
- d. Effectively communicate and manage expectations of the customer/internal stakeholders/end customer during the planning and rollout of new releases
- e. Monitor, Control, and Report the distribution and installation of changes to all concerned stakeholders
- f. Deploy the release as per release guidelines

7. SAN Storage

Storage requirements for the application suite will have to be assessed by the MSP and the storage solution shall be sized accordingly. It should be SAS drive.

8. Backup storage

Backup storage would be used for backing up the key data on regular interval. The backing up of the data would be an automated process. Whenever desired the backed up data can be restored/retrieved to the desired system configuration. Short term backup storage should be provided on SATA and long term on tapes.

9. Enterprise Management System

MSP has to provide tools which include features but not limited to Incident Management, Patch management, Asset Management, Server, Storage, Network Infrastructure performance and availability monitoring. The tool should be capable to support monitoring of multi-vendor and multi-platform infrastructure devices.

10. Web Application Firewall

- a. A web application firewall (WAF) appliance should be provisioned by the MSP in their solution that applies a set of rules to an HTTP conversation.
- b. The Web Application firewall that the MSP will provision should be able to provide protection against OWASP top ten vulnerabilities at the minimum.

11. Next Generation Firewall

A Next-Generation Firewall (NGFW) should be provisioned by the MSP that combines a traditional firewall with other network device filtering functionalities such as deep packet inspection, an intrusion prevention system and/or other techniques such as SSL and SSH interception, website filtering, QoS/bandwidth management and antivirus inspection.

12. Network Intrusion Prevention System

Network Intrusion Protection System (IPS): An intrusion protection system to be provisioned by the MSP to detect several types of malicious behaviours that can compromise the security and trust of the ICT system.

13. Host based Intrusion Prevention System (HIPS)

A host-based intrusion prevention system is an Intrusion Prevention System which monitors the host for suspicious activity by analysing events occurring within that host. The MSP is required to provision a host based HIPS as a part of its solution.

14. Anti- APT Solution

An Anti-Advanced Persistent Threat (Anti-APT) solution is to be provisioned by the MSP to protect against Advanced Persistent attacks including zero day vulnerabilities.

15. Data Leakage Prevention (DLP)

Data leakage prevention solution is a system that is designed to detect potential data breach / data ex-filtration transmissions and prevent them by monitoring, detecting and blocking sensitive data while in-use (endpoint actions), in-motion (network traffic), and at-rest (data storage). In data leakage incidents, sensitive data is disclosed to unauthorized personnel either by malicious intent or inadvertent mistake. The MSP is required to provision a DLP solution as a part of its solution.

16. Database Activity Monitoring

Database Activity Monitoring technology all activity on the database and provides alerts and reports on that activity. It essentially is the observation of actions in a database. A DAM tool monitors, captures and records database events in near-real time and provide alerts about policy violations. The MSP needs to provision for a Database Activity Monitoring tool.

17. Unified Threat Management (UTM)

Unified threat management (UTM) is an approach to security management that allows an administrator to monitor and manage a wide variety of security-related applications and infrastructure components through a single management console.

18. Email Security

Email security solutions defend against spam, viruses, and malware, while protecting privacy with data loss prevention (DLP) and encryption technology.

19. Privilege Identity Management:

Privileged identity management (PIM) is the monitoring and protection of administrative accounts in an organization's IT environments. Protection is necessary so that the greater access abilities of super control accounts are not misused or abused.

20. Security information and event management SIEM:

Security information and event management (SIEM) supports threat detection and security incident response through the real-time collection and historical analysis and correlation of security events from a wide variety of event and contextual data sources. It also supports compliance reporting and incident investigation through analysis of historical data from these sources. The core capabilities of SIEM technology are a broad scope of event collection and the ability to correlate and analyse events across disparate sources.

21. Antivirus

Deploying antivirus on servers to help prevent or limit the damage caused by virus outbreaks on the network

22. DDoS Protection

DDoS is a type of DOS attack where multiple compromised systems, which are often infected with a Trojan, are used to target a single system causing a Denial of Service (DoS) attack.

23. Security management dashboard for near real time security evaluation.

- a. MSP is required to provide a Security Management Solution Console for reporting all the SOC activities including incidents from Anti-APT, HIPS, NIPS, Firewall, SIEM, vulnerability scan reports, remediation process progress etc.
- b. This service will help Purchaser to centralize the management of security products like SIEM, Firewall APT etc. and to have tight control on the security rules.
- c. The SIEM solution should provide dashboard functionality for all the above requirements.
- d. There should be a feature to create any kind of report from any of the available data from the feeds like top incidents by application, by hosts, users etc.

24. Setting up Disaster recovery and Business Continuity Plan

- a. Disaster recovery may be seen as the process, policies and procedures related to preparing for recovery or continuation of technology infrastructure critical to a business organization after a natural or human-induced disaster occurs.
- b. Disaster recovery can be seen as a subset of business continuity. While business continuity involves planning for keeping all aspects of a business functioning in the midst of disruptive events, disaster recovery focusses on the IT or technology systems that support business functions.

4.4 Track 3B: Infrastructure setup for WAN

The scope of work for the MSP includes installation, liasoning, commissioning and maintaining the seamless, highly reliable/robust and secured (MPLS & internet) connectivity for major Indian Ports (Mumbai, Kandla, Paradip, Chennai, Kolkata & Haldia) and Data Center & Disaster Recovery Site.

4.4.1 WAN Set-up at DC / DR Site

MSP will have to carry out following tasks:

1. **Bandwidth provisioning:** Initial bandwidth of 20 Mbps.
2. **Last Mile connectivity:**
 - Last mile connectivity shall be on FIBER in Ring architecture backed up by FIBRE.
 - Primary and backup links should be physically independent links i.e. from different service providers and sharing no common point of failure.
 - Primary and backup links to be extended from two different PoP's to ensure PoP level redundancy.
 - The PoP's from which last miles are extended should be managed PoP's.
 - Last mile to support bandwidth of at least 20 Mbps.
 - All the equipment/devices installed must be IPv6 compliant and ready to handle IPv6 traffic in future
 - Integration of WAN with LAN at DC/DR

- The last mile at Data centre & DR-site should have full redundancy through last mile connectivity from 2 different POPs of the service provider. The total responsibility of Liasoning, commissioning, maintaining the link should be taken care by the MSP.

3. Uptime:

- 99.90% with link level, hardware level and PoP level redundancy.
- SLA Measurement Period: Quarterly

4.4.2 WAN Set-up at Port Site

MSP will have to carry out following tasks:

1. Bandwidth: Initial bandwidth of 10 Mbps.

2. Last Mile connectivity:

- Last mile connectivity shall be on fiber in Ring architecture backed up by fiber. Where ever Fiber is not feasible MSP may provision Last mile link over Copper/RF.
- If the last mile is on wireless, Service provider has to ensure that no other Radio equipment causes interference to wireless signals used for port connectivity and the Radio equipment should not be able to trap the signals used for port network
- Primary and backup links should be physically independent links i.e. from different service providers and sharing no common point of failure.
- Primary and backup links to be extended from two different PoP's to ensure PoP level redundancy.
- The PoP's from which last miles are extended should be managed PoP's.
- Last mile to support bandwidth of at least 10 Mbps.
- All the equipment/devices installed must be IPv6 compliant and ready to handle IPv6 traffic in future.
- Integration of WAN with LAN at Port side.

3. Uptime:

- Should be 99.00% with link level, hardware level and PoP level redundancy.
- SLA Measurement Period: Quarterly

4.4.3 Other Expectations from MSP

MSP shall also be responsible for the following activities:

1. Service Delivery [Implementation]:

MSP shall complete installation, liasoning and commissioning of (MPLS & internet) connectivity at respective locations as per given timeline:

- At DC & DR: Maximum 10 weeks from the date of order.
- At Port Locations: Maximum 12 weeks from the date of order.

2. Helpdesk Facility:

- Toll free number, mail, and portal

3. Monitoring:

- Proactive with intimation to Port IT Officials

4. Reporting:

- All reports to monitor the SLA parameters site wise to be provided on quarterly basis.
- On-line Portal: Online portal for viewing up/down status, bandwidth utilization, uptime/downtime and all other SLA parameters.

5. Up gradation of Bandwidth:

In the event of operational requirement bandwidth of any location will be upgraded/degrade from the initial contracted value to higher/lower value permanently, at the contracted rate.

6. Shifting of premises:

In the event of shifting of premises, order to this effect will be placed with the selected MSP. MSP will carry out site-survey at the new location for feasibility of location for type of media and intimate the Port. On receipt of confirmation from the Port, MSP shall install and commission the link at the new location prior to shifting of office from old location. The vendor is required to implement and commission the location within 3 weeks from the date of order. The connectivity at the old location has to be dismantled and removed on the last day of shifting. Vendor may provide interim connectivity up to 4 weeks from the date of order, if the commissioning is delayed.

7. Resale of Network Bandwidth

In reference to the Telecommunication guidelines of Government of India, purchaser shall place purchase order to the Telecom / Network Service Provider for bandwidth provisioning, Systems Integrator shall sign a contract with Telecom / Network Service Provider(s) and ensure the performance. Purchaser shall make payments to the Telecom / Network Service Provider in this regard a Tripartite Agreement has to be signed between Purchaser, System Integrator and Telecom / Network Service Provider, to ensure adherence to TRAI guidelines on ‘Resale of Bandwidth’.

MSP is required to size and indicate the necessary bandwidth required for its solution and the cost estimation for the same. Purchaser shall make the payment at actuals to the Telecom / Network Service Provider(s). In case it is found that the payment to be made to the Telecom / Network Service Provider(s) is more than what is quoted by the MSP, the difference will be deducted from the next applicable payment to the MSP. In case it is found that the payment to be made to the Telecom / Network Service Provider(s) is less than what is quoted by the MSP, there will not be any differential payment to the MSP.

4.5 Track 3C: Infrastructure setup for Port Network

4.5.1 Port-specific LAN setup

The MSP will deploy the network infrastructure for the proposed port specific LAN set-up which includes the procurement, supply, installation and commissioning of network infrastructure at respective port locations. MSP shall equip the port office locations with seamless, highly reliable/robust and secured infrastructure with scalable capacity.

MSP will have to carry out following tasks.

1. MSP shall carry out site survey at each port location and carry out the feasibility study for the set-up of required LAN infrastructure at respective port locations.
2. MSP shall submit the network infrastructure deployment design for the respective port locations and this shall be approved by respective port.
3. MSP shall provide details of site and network infrastructure requirements (including Network Core Components – Routers, Switches, Access Points and other electrical and civil components like Power, earthing, installation of OFC etc.) in a deployment design. The tentative BoM indicating the network infrastructure requirements for the set-up of LAN is given in **Section 8** of this Volume of RFP. However the MSP shall provide the final BoM after the complete assessment at respective port site and the same shall be approved by Port authorities before doing any procurement, commissioning and deployment of required infrastructure.
4. MSP shall complete all the civil works on turnkey basis for LAN set-up at respective port locations including deployment of all required cabling, casing, conduits, flexi pipes, I/O boxes, etc. and those shall be maintained during the contract from the date of FAT.
5. The MSP shall test, demonstrate and certify the LAN connectivity at each port locations.
6. MSP shall consider three types of cabling distribution: -
 - **Outdoor fiber Backbone** is the OFC cabling system that provides network services between buildings. It connects two or more Buildings and will almost always be in the form of ring to provide path level redundancy.
 - **In-Building Backbone** is the network cabling system that provides network services between floors or areas within a building. It connects the Building to the floors and will usually consist of both fiber optic and UTP links.
 - **The horizontal cabling** is the cabling system that provides network services from the Floor to the Nodes. It will almost always be in the form of UTP cabling but occasionally fiber optic may be required.

4.5.2 Fiber layout

Fiber backbone infrastructure is an important component of the port network infrastructure that shall enable the delivery of all the key and important services to be made available to its users with seamless access. Network backbone infrastructure shall comprise of dark fiber, setting of various point of presence (PoP) that shall be established across port and cover all buildings. The fiber shall be further utilized at access layer for services to be enabled as and when required.

Key requirements that need to be fulfilled by the MSP while carrying the activities are provided as below:

1. Route Survey & Network Design Preparation:

- a) The MSP shall prepare the route map & network design and submit the final route maps and network design to the Port authorities.

- b) The MSP are advised to make a detailed survey and familiarize themselves with the soil and terrain so that the rates quoted takes all factors into consideration.

2. Fiber Implementation:

- a) Supply, delivery to site, unloading, storing and handling of fiber drums along with fittings and associated items as required.
- b) All fittings, accessories and associated works for proper and safe installation of fiber assets to be taken into consideration by the MSP
- c) Laying, jointing, live line installation, testing and commissioning of all optical fiber and its accessories
- d) Training of Engineers / linesmen, both in supplier's premises and at site, in the installation, operation and maintenance of the optical fiber cables.
- e) The estimated fiber optic cable length requirements are indicated in the Bill of Material (BoM) and reflected in the Price Schedule.

Note: The MSP shall be paid for the actual quantity supplied and installed at site. The measurement for quantity to be paid shall be based on horizontal route length of the optical fibre cable (OFC) laid and the price quoted by the MSP.

3. Core Backbone - Ring Topology

- a) The core backbone shall be established using 48 Core Optical Fiber Cables. Fiber ring connectivity shall be used for connecting Core Switches to distribution switches.
- b) The core architecture shall be established maintaining high level of redundancy and no single point of failure.
- c) Two of the cores in each OFC shall be redundant for future scalability and maintenance activity.
- d) Adequate loop of 10 to 15 meters of OFC shall be kept loose on junctions wherever applicable.
- e) All the 48 cores shall be spliced & joined in the Core Backbone.
- f) The colour code shall be uniformly followed across the Core ring, distribution ring & access ring.

4. Distribution Backbone – Ring Topology

- a) The Distribution rings shall be established using Optical Fiber Cables. Fiber ring connectivity shall be used for connecting Distribution Switches to access switches.
- b) Distribution ring could be established using 24/12/6 core fiber cable, number of fiber cores shall be defined based on the access switches provisioned in that individual ring.
- c) The distribution architecture shall be formed using ring topology wherever possible.
- d) Two of the cores in each OFC shall be redundant for future scalability and maintenance activity.
- e) Adequate loop of 10 meters of OFC shall be left on junction wherever applicable.

- f) All the fiber cores shall be spliced & joined in the distribution ring.

5. Access Layer

- a) The Access rings shall be constructed using UTP.
- b) User nodes will be connected to the nearest access switch through UTP cable (CAT6).
- c) Maximum distance from user node to access switch shall not be more than 80 meters.

4.5.3 Planning and designing of Network backbone architecture

1. Preliminary fiber route survey

- a) Preliminary survey shall be carried out for finalizing the drawing for the route of optical fiber cable as part of project planning and execution. Following main items of work shall constitute this survey:
 - b) Selecting the route in general
 - c) Deciding the number of drop and insert locations
 - d) Deciding the size and assessing the length of cable required
 - e) Working out the requirement of circuits that are to be provided in the cable
 - f) Working out the requirements of heavy tools and plants depending upon nature of the territory, availability of roads alongside etc.
 - g) Assessing the special problems of the section such as type of soil, long cuttings, new embankments, water logged areas, types of major bridges, major yards
 - h) Assessing the number of road crossings and other protective works required to be done
 - i) Avoiding as far as possible laying of cable too close to a newly built road
 - j) Avoiding burrow pits and areas prone to water logging
 - k) Avoiding heavily fertilized soils containing acids, electrolytes and decomposable organic materials promoting bacterial activity
 - l) Avoiding proximity to chemical, paper and such other industries which discharge chemically active affluent
 - m) Avoiding large rock cuttings, routes of existing cables and areas difficult to approach
 - n) Deciding carefully the cable route approaches to cable huts to avoid built up areas including those areas where building, etc. are likely to come up in future
 - o) Determining composition of the soil which may affect corrosion, etc. on the cable and special protection required for cable
 - p) Working out requirement of transport vehicles like jeeps, lorries, motor trolleys, etc. for execution of the work
 - q) Avoiding side of the alignment which is likely to be affected due to addition/alteration of earth work/supply structures

2. Preparation of cable route plan and tapping diagrams

The cable route plan shall indicate the route with respect to the main road, that is, whether the route along the main road is on both side and right side of the main road when facing a particular direction in case of single line section.

3. Selection of the Cable Route

Generally the terrain conditions on the two sides of the road vary to such an extent that the cable route on one side of the road has a distinct advantage over that on the other side. While operating on the principle, it shall be borne in mind that frequent track crossings are not desirable.

In addition to the above, the following also need consideration:

- a) Avoiding underground structures, signalling cables, power cables, pipe lines, etc.
- b) Avoiding laying of cable on the side of the drains in built up areas which are generally difficult to lay
- c) Taking the cable route preferably through the bed of small culverts where water does not accumulate instead of taking it over the culverts
- d) Avoiding termites/rodents infected areas.

4. Fiber laying

- a) MSP shall employ industry leading practices for laying of fiber
- b) It shall be the responsibility of MSP to get all the necessary permission(s) for fiber laying.
- c) Before carrying out the actual fiber/duct laying process, the MSP is encouraged to carry out a detailed survey based on the outcomes of the preliminary survey carried out earlier. The purpose of the detailed survey is to undertake closer study of various existing telecommunication facilities to work out exact requirement of materials required for different items of work to finalize all the drawings and site plans required for the execution of work as also to examine the details collected during preliminary survey and to offer necessary changes/modifications, if any.
- d) The following are the main items of work that shall constitute the detailed survey:
 - i. Closely examining the proposed cable route and prepared cable route plans
 - ii. Siting of cable hut buildings and preparation of site plans
 - iii. Siting and preparation of site plans for buildings required for the execution of the work, as offices at different stations, store go-downs
 - iv. Siting of areas for loading/unloading of cable drums and siding facilities for the EMVs (Engineering Materials Vehicles) for the project
 - v. Preparation of the material schedule required for different protective works
 - vi. Arranging isolated components circuits to be provided in the cable
 - vii. Investigation of special problems, if any, of the section and finding out proposed solution thereof
- e) Cable laying is proposed either by traditional Cable pulling method or by Cable blowing method

- f) To reduce the friction between the cable and HDPE, a suitable lubricant may be continuously applied with a sponge to the cable surface during pulling. The standard lubricants with low frictional coefficient may be used. User of Telecom Duct may be adopted. Telecom Duct is an advanced pre-lubricated duct system. Lubricants are built in to a durable polymer base. Duct has a low coefficient of friction and the built in lubricants do not diminish with age. MSP is expected to choose the industry leading practices while carrying out the mentioned tasks.
- g) At all other location and during initial installation of optic fiber cable, fusion splicing shall be adopted.
- h) Purchaser may choose to carry out an acceptance test for fiber that has been laid. In either case, MSP is expected to carry out an independent review of the fiber/duct that has been laid for the purpose of creating network backbone. Such inspection reports shall be submitted as supporting documents while raising invoices. Purchaser may ask the MSP to carry out this sample test from a third party agency. Cost of such test shall be borne by the MSP.
- i) In case any deficiencies are observed in the laying of fiber/duct by MSP, MSP is expected to promptly correct the same at no extra cost to the purchaser.
- j) For attending faults, etc. special kits shall be used for opening of the joint.
- k) MSP shall be liable to pay any penalties imposed while carrying out work. Purchaser or any of its representatives shall have no liability arising from penalties including but not limited to penalties for causing inconvenience to the public, penalty for cutting/damaging the old cable or other providers, penalty for damaging any other utilities, among others
- l) After the cable is laid and splicing is complete, measurements in the below format shall have to be prepared and maintained.

Section		Distance	Cable length	Fiber No	Loss in dB		Remarks
From	To				1310nm	1550nm	

The end to end loss shall not exceed 0.25db/Km at 1550 nm and 0.40 db/Km at 1310 nm

4.5.4 Port Wi-Fi Implementation Scope:

The MSP shall be required to carry out following activities:

1. Survey of the defined locations to ascertain number of Access Points and their positioning to ensure maximum coverage and excellent signal strength. This shall be done in consultation with officials assigned by IPA or its authorized entity

- a) Providing Technical manpower, for the contract period from the date of acceptance, to look after the day to day management of services related to Wi-Fi facility management. These services shall include:
 - i. Providing connectivity to user devices as per Wi-Fi access policy,
 - ii. Satisfactorily handling all the issues related to connectivity, performance and security.
 - iii. Planning for high availability, reliability and redundancy of the access network elements as per requirements stated in the SLA.
- b) Wi-Fi Locations
 - i. Respective port authorities shall be responsible for providing of Access Point locations
 - ii. Commissioning & deployment of Wi-Fi solution
- c) MSP shall be responsible for installation of Access Points and related equipment at Wi-Fi locations
- d) MSP shall be responsible for providing and executing cabling, testing etc.
- e) MSP shall be responsible for design and engineering of all the Wi-Fi network components to meet capacity requirements.
 - i. Wi-Fi network shall be designed keeping in view the peak load conditions.
- f) Equipment and network upgrades, support and maintenance for the contract period
 - i. MSP shall provide local support at each port for repair and maintenance of all equipment, cabling and connectivity provided at the Port Wi-Fi locations
 - ii. MSP shall be responsible for periodic updates of all equipment, cabling and connectivity provided at the port Wi-Fi locations
- g) Set up Wi-Fi network across locations proposed in phased manner
- h) Procurement, planning, design, installation, commissioning and support of all end point equipment (IT and non IT) required to set up Wi-Fi locations.
- i) Providing complete network diagram including detailed technical documentation, survey, drawing and detailed Project Plan for all the locations mentioned.
- j) Ensuring compliance with all Regulatory and Legal guidelines issued by Department of Telecommunications, TRAI and Government of India from time to time. At no point purchaser or its authorized entities shall be responsible for any non-compliance on account of non-adherence by the MSP.

4.5.5 Network backbone infrastructure management

1. Commencing network backbone infrastructure management including handover to purchaser and maintenance team

List of items to be handed over to purchaser / designated authority before handing over the respective section / location for maintenance of optical fiber communication system

- a) The Cable Route Plan in electronic form (in kml file format on a CD) preferably using AUTOCAD and Google maps. Distances from fixed reference structures like centre of track, bridges, culverts, etc. shall be indicated in the route plan for easy reference in future.
- b) The Fiber Distribution Plan
- c) Measurements of Optical Parameters that includes sectional losses splice wise losses; records of dispersion measurement shall be handed over to the maintenance organization.
- d) MSP shall prepare maintenance schedule for fiber optic system. Reports on adherence to the maintenance schedule shall be submitted as part of SLA compliance along with quarterly invoices. This maintenance which shall include but not be limited to following areas:
 - i. Optical fiber cable
 - ii. Cable route
 - Integrity of cable route
 - Protective works on bridges
 - Cable route markers
 - Earthing of sheath of cable
- e) Typical Network Infrastructure Management Services at all locations shall include:
 - i. MSP shall ensure that the network is available 24x7x365 as per the prescribed SLAs
 - ii. MSP shall provide services for management of network environment to maintain performance at optimum levels.
 - iii. MSP shall be responsible for attending to and resolving network failures and snags
 - iv. MSP shall support and maintain overall network infrastructure including but not limited to WAN/LAN passive components, routers, switches, Firewalls', IPS/IDS, Load Balancers etc.
 - v. MSP shall provide information on performance of Ethernet segments, including capacity utilization and error statistics for the segment and the top-contributing hosts, WAN links and routers
 - vi. MSP shall create required facilities for providing network administration services including administrative support for user registration, creating and maintaining user profiles, granting user access and authorization, providing ongoing user password support, announcing and providing networking services for users.
 - vii. MSP shall provide a single-point-of-contact for requesting any service. The Network Administrator shall respond to the initial request from the user groups within the agreed service levels and service coverage hours.
 - viii. MSP shall provide support as required to assist in hardware and software problem isolation and resolution in the LAN/WAN environment.
 - ix. MSP shall perform LAN/WAN problem determination.
 - x. MSP shall maintain LAN/WAN configuration data.

- xi. MSP shall be responsible for polling / collecting of network devices security logs from all the systems. All these logs shall be made available to the Enterprise Management System (EMS) solution
- xii. MSP shall ensure smooth routing of network traffic to the envisaged DC/DR site in case of disaster / drill.

4.5.6 Other expectations from MSP

1. MSP shall assess existing infrastructure's current ability to support the entire solution and integrate the same with the proposed solution wherever applicable and possible
2. MSP shall judiciously evaluate the resources and time planned for undertaking the current state assessment, given the overall timelines and milestones of the project.
3. MSP shall be responsible for supply of passive components specified in the Bill of Materials section of the RFP viz. Fiber Patch Cords, Racks etc. Civil work required for the site shall be undertaken by the MSP.
4. Validate / Assess the re-use of the existing infrastructure and inventory at Port site.
5. Supply, Installation, and Commissioning of entire solution at all the locations.
6. The bandwidth requirement shall be analysed and procured by the MSP.
7. MSP shall establish high availability, reliability and redundancy of the network elements to meet the Service Level requirements.
8. MSP shall be responsible for upgradation, enhancement and provisioning additional supplies of network (including active / passive components), hardware, software, etc. as requisitioned by IPA/Port.
9. MSP shall ensure that the end of support is not reached during the concurrency of the contract
10. MSP shall ensure compliance to all mandatory government regulations as amended from time to time.
11. The MSP shall ensure that all the peripherals, accessories, sub-components required for the functionality and completeness of the solution, including but not limited to devices, equipment, accessories, patch cords (fiber), cables, software, licenses, tools, etc. are provided according to the requirements of the solution.
12. IPA/Port shall not be responsible if the MSP has not provisioned some components, sub-components, assemblies, sub-assemblies as part of Bill of Materials in the RFP. The MSP shall have to provision these & other similar things to meet the solution requirements at no additional cost and time implications to purchaser.
13. All the software licenses that the MSP proposes shall be perpetual software licenses along with maintenance, upgrades and updates for the currency of the contract. The software licenses shall not be restricted based on location and purchaser shall have the flexibility to use the software licenses for other requirements if required.
14. The MSP shall ensure there is a 24x7 comprehensive onsite support arrangement for duration of the contract with all the OEMs for respective components. The MSP shall ensure that all the Original Equipment Manufacturers have an understanding of the service levels required by

purchaser. MSP is required to provide the necessary back-to-back contract agreements with the OEMs as part of the scope for technical evaluation.

15. Considering the criticality of the infrastructure, MSP is expected to design the solution considering the RFP requirement of no single point of failure with high level of redundancy and resilience to meet the network uptime requirements.
16. MSP shall be responsible for periodic updates & upgrades of all equipment, cabling and connectivity provided at all locations during the contract period.
17. MSP shall be responsible for setting up / building / renovating the necessary physical infrastructure including provisioning for network, power, rack, etc. at all the locations.
18. MSP is expected to provide following services, including but not limited to:
 - i. Provisioning hardware and network components of the solution, in line with the proposed project requirements
 - ii. Size and propose for network devices (like Router, switches, routers, etc. as per the location requirements with the required components/modules, considering redundancy and load balancing in line with RFP.
 - iii. Provide warranty for all the IT / Non-IT hardware assets procured to comply with the requirements of this RFP.
 - iv. Size and provision the WAN bandwidth requirements across all locations considering the application performance, data transfer, DR and other requirements for port connectivity.
 - v. Liaise with service providers for commissioning and maintenance of the links.
 - vi. Furnish a schedule of delivery of all Central IT/Non-IT Infrastructure items
 - vii. All equipment proposed as part of this RFP shall be rack mountable.
 - viii. Complete hardware sizing for the complete scope with provision for upgrade
 - ix. Specifying the number and configuration of the racks (size, power, etc.) that shall be required at all the locations.

4.6 Track 4: Client side Infrastructure Set-up

1. The MSP will make an assessment of the client side infrastructure that shall be required in each port for the desired output of the proposed solution.
2. The MSP shall do the procurement, supply, installation and commissioning of required client side infrastructure in each port (includes hardware, system software support, license, any electrical / civil works requirements and other requirement as per proposed solution etc.).
3. Client side computing includes
 - a. Supply of components listed in bill of material including computers, thin clients, printers, scanners, handheld devices, terminals, cash register, wireless routers, among others mentioned in BOM.
 - b. Maintenance and support of the components provided under the contract, including replacement in case of issues

- c. Developing necessary interfaces for connecting the devices to central system for functioning of the solution
4. In addition to above, supply and fixing of furniture like computer tables, chair and other items shall be carried out by MSP to ensure successful site preparation and installation of required infrastructure.
5. MSP shall prepare the BoM based on their assessment study for respective port and shall take approval from IPA before the commencement of procurement of these items.
6. Physical Installation, Testing and Commissioning of Desktops, Printer, Scanner, Switch-Connecting peripherals, devices, etc. as required.
7. Operating System Installation and Configuration.
8. Installation and Remote-Management of Antivirus and other support software for all client machines of the Port
9. Configuring the security at the desktops, switches and broadband connection routers.
10. Network and Browser Configuration.
11. Test accessibility and functionality of the core application designed from the desktops.
12. Ensuring all the systems required are supplied, installed, configured, tested and commissioned and declaring the site to be operational.
13. Implement a Central Management policy for Port employee's PCs to prevent Malware and Virus attacks.
14. Irrespective of the above BoM which shall be finalised between MSP and IPA, MSP will also provide the separate rate charges for each of the proposed client side infrastructure (includes hardware, system software, licenses etc.). The MSP shall provide these rate charges in commercial bid as per format provided in Vol 1 of this RFP **Annexure 9**
15. It is also proposed that the entire management of computer resources, licenses, support & security software management, updates, upgrades, etc. will be managed centrally. The MSP needs to deploy adequate mechanisms to monitor the usage of licensed applications / software and other related computer resources remotely and should be able to dynamically manage the optimum utilization of resources in consultation with the department. E.g. if any particular user machine has been provided with a licensed software like MS office suite and if he doesn't need them as part of his daily routine work, then the MSP should be able to remotely remove the suite and assign it to someone who needs it as part of their job responsibility, hence saving on license cost.
16. It is a mandatory requirement that UPS sets should be installed at all locations as per required power backup needs.
17. The MSP needs to submit the completion certificates for all the installations done, as per requirement of the Port (duly accepted and certified by Port officials)

4.6.1 Supply, installation and commissioning of Laptops, desktops and thin clients

The MSP shall do the procurement, supply, installation and commissioning of laptops, desktops and thin clients based on the assessment done by MSP in respective port. The tentative BoM and

technical specifications of the hardware and software requirements is given in **Annexure 9** of this volume of RFP.

4.6.2 Supply, installation and commissioning of hand held devices

The MSP shall do the procurement, supply, installation and commissioning of hand held devices based on the assessment done by MSP in respective port. The tentative BoM and technical specifications of the hardware and software requirements is given in **Section 9** of this Volume of RFP.

4.6.3 Supply, installation and commissioning of peripherals including printers, scanners, cash registers, bar-code readers, etc.

The MSP shall do the procurement, supply, installation and commissioning of printers, scanners, cash registers and bar-code readers based on the assessment done by MSP in respective port. The tentative BoM and technical specifications of the hardware and software requirements is given in **Section 9** of this Volume of RFP.

4.7 Track 5: Data Integration and Interfacing Requirements

4.7.1 Develop interfacing and integration requirements

- a. MSP shall assess the integration requirements for the proposed EBS system and develop a data integration plan in consultation with IPA to have efficient and effective integration of data with internal and external systems. The data integration strategy shall consider following models in the order of preference:

- **Online – synchronous:** exchange of transaction level information via API and method calls
- **Online – asynchronous:** exchange of bulk information via files or queue based systems
- **Offline:** exchange of information in form of files / CDs etc.

Port customers are expected to integrate with the EBS system through their internal systems. MSP is expected to support and develop requirements to meet needs to very large Port customers.

4.7.2 Develop formats for data exchange

- a. It is expected that there could be minimum 70 different data sets that would be exchanged with external partners. MSP shall build a suitable mechanism to produce/ consume data in the predefined formats.
- b. MSP shall provide data requirements for internal systems such as VTMS, Hydrographic survey software, etc. the format shall be mutually agreed with the vendors of these systems. Responsibility of developing / modify the formats and implementing the same shall lie with MSP
- c. Similarly MSP shall be required to interface with external systems such as railways, P&I systems, Port Community System, IHS/Lloyds database, etc. In these cases, formats for

data exchange will be driven by the third party systems, MSP is expected to use the information being provided and integrate accordingly with EBS.

- d. MSP shall develop and publish formats for port customers and vendors to integrate with EBS to mutually exchange data in a secured manner

4.7.3 Develop environment for integration and interfacing

- a. MSP shall create environment for integration and interfacing with various systems. If need be separate servers may be dedicated for this purpose
- b. MSP is expected to size requirements for such data exchange environment separately
- c. Requirements from vendors for internal Port systems will have to be explicitly mentioned by the MSP. Responsibility of maintaining and operating the integration and interfacing environments shall lie with MSP. MSP shall support the existing vendors of internal port systems to enable seamless integration and interfacing with those systems
- d. MSP shall provision for reporting – status, alerts, notifications, etc. about the various integration and interface points
- e. MSP shall provide necessary metering capabilities to monitor and track utilization of each interface which may enable allow for port to invoice (if required) for the various interactions taking place

4.7.4 Support during interaction with External parties for Integration

- a. MSP shall assist IPA in finalizing the Memorandum of Understanding (MoU) with external parties (like FOIS, P&I, PCS etc.) for data integration process.
- b. MoU will clearly describes the partnership and responsibilities of the participating organizations. This document shall be comprise of following indicative points:
 - 1. Purpose of integration
 - 2. Authorities involved in integration
 - 3. Scope
 - 4. Responsibilities of stakeholders
 - 5. Implementation
- c. MSP shall help in defining requirements for port customers and vendors to interact with port EBS through API or related channel. Necessary requirements and documentation / approvals highlighting risks shall be provided by MSP for this purpose

4.7.5 Develop interface and carry out testing with other systems (Internal & External)

- a. The purpose of the Integration Test shall be to plan and execute the integrated components, including simulation of live operations, and analyse the results, important for the functional verification of the production system.
- b. Integration testing shall be accomplished through the execution of predefined business flows, or scenarios, that emulate how the system will run the processes of IPA in reference to the system being integrated with. These business flows, using migrated data from the pre-existing systems, shall be performed in a multifaceted computing environment comprising of ERP

products, third-party software if any, system interfaces and various hardware and software components.

- c. MSP shall interface with the vendor of other system internal or external to build cases for integration, build suitable environment for carrying out testing, and provide reports to users for necessary acceptance and sign-off on the integration testing

4.8 Track 6: Operationalize port specific Service Centre, Call Centre and IT Helpdesk

4.8.1 Establishment of Call Centre

- a. MSP shall establish a nationally accessible Call Centre which shall provide information, technical support and grievance handling services to stakeholders like shipping agents, suppliers, contractors, port users etc. and shall support the workflow as per the requirements laid out in this RFP. MSP will be responsible for entire setup including but not limited to civil work, interiors, IT and non-IT infrastructure, application software, staff and public facilities, security arrangements, and access controls as per requirements. The MSP shall be responsible for providing the infrastructure required for operation of the call centre. MSP shall be responsible for running centralised helpdesk setup and operations for envisaged solution for a period of 5 years from the date of Go Live. Help desk to be set up at the location details communicated by IPA.
- b. MSP shall provide all facility management services at Call centre helpdesk and ensure adequate security for all assets including data, network and systems as per desired security levels.
- c. The MSP is required to setup adequate infrastructure for call centre to ensure proper functioning as per the requirements mentioned in this RFP.
- d. The MSP has to provision telephone line for the call centre. MSP shall follow the implementation plan for the helpdesk launch as specified in the project timelines.
- e. MSP is expected to draft formal process manuals and call flow to handle all types of complaints, grievance requests. In case the IPA finds the processes drafted to be contrary to its policies and procedure, MSP will modify or create the new process.
- f. MSP shall design the IVR flow as per scope of work and take IPA's approval during the implementation phase. The IVR solution provided should be capable of capturing the usage details of each consumer/complainant as the consumer traverses through a call.
- g. The IVR solution should have an interface through which usage details can be shared with other solutions. IVR Solution should support multilingual query resolution The MSP shall establish and provide centralized call center facility for all stakeholders at IPA, this call center would record grievances, complaints, issues which needs interventions and support from central team. The MSP is expected to setup and operate the IT Helpdesk from commencement of the project to go-live and till the end of Operations & Maintenance period.
- h. Centralized call center will serve as a single point of contact for all issues, complaints regarding Application software, Hardware, Network, Manpower related incidents and service requests which cannot be resolved at port level helpdesk. The Helpdesk shall provide troubleshooting services including maintenance for overall system stabilization, defect resolution, system maintenance,

system administration, availability & performance issues, security administration, database administration, User administration and end-user problem resolution.

4.8.2 Establishment of IT Helpdesk

MSP is expected to set up, operationalized and maintain Central IT Helpdesk and Port Level IT Helpdesk for all ports. IT Helpdesk would provide services for resolution of issues, problems pertaining to EBS system application, hardware, Network, End user computing devices etc.

- a. Overall management and maintenance of desktops, thin clients, peripherals, printers, scanners which are currently available and will be installed under envisaged solution with Port users.
- 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. Details of warranty and AMC on existing components as provided under relevant sections in this RFP.
- d. Setting up a central IT helpdesk and attending to problems faced by users
- e. It would cover basic guidance and support for handling the IT infrastructure which will constitute items like desktops, laptops, printers, operating systems, office software's, internet and other such applications installed at all specified location of ports. To ensure continuous availability of PCs, Servers, Printers, and other equipment included in the contract available at various locations as per the details.
- f. To maintain the PC's, Servers, Printers, scanner, laptops and other hardware equipment
- g. To repair / replace faulty components with standard spares excluding consumables like, Ink Cartridges, Toner etc.
- h. Installing/Configuring/Trouble shooting of Operating Systems (OS), Office automation Products (MS-office, MS Project etc.), add-ons, Required Drivers, Network communications software etc.
- i. Service support for all IT peripherals like data card, pen drive, external hard disk etc.

4.8.3 Establishment of Port Command Centre

- a. **State-of-the art Command Control Centre is required to be established as part of the EBS System. The proposed CCC shall handle feeds from the cameras and display them on the Video wall and provide necessary interface for integrating with other applications like emergency problem and response mechanism as required by the Purchaser, it shall present a Consolidated Operating Picture of the real time events in the area of purview.**
- b. **The Port Command Centre shall combine various systems currently running within the ports viz. CCTV, VTMS and the to be implemented EBS under one roof and make it available for display to port users to have a full view of port operations**
- c. **Functions of the Command Control Centre shall include but not limited to the following:**
 1. **Video Surveillance**
 2. **Emergency Response activities**
 3. **Port Operations management**
- d. **The Central Command Control Center shall be working in a fully automated environment for optimized monitoring, regulation and enforcement of traffic with various law enforcement services. Various applications/ modules specified in this RFP shall be integrated into one functional system and shall be accessible by the operators and concerned agencies with necessary login credentials. Location for Command Control Center shall be provided by the port authorities. Responsibilities of the MSP shall include site preparation activities as mentioned in this RFP. The MSP shall ensure that the Command Control Center shall control and integrate systems in a seamless manner.**

4.8.4 Establishment of Port Service Centre

- a. MSP shall set up a Service center at each port to provide predefined services to port agents, traders, transporters, custom agents, traders etc. Port Service Center would act as a dedicated one point helpdesk for all operational support of the port departments:
- b. MSP shall establish a Port Service Centre (PSC) at respective port location which shall provide information, technical support and grievance handling services to stakeholders like shipping agents, suppliers, contractors, port users etc. Port Service Center shall support the workflow as per the requirements laid out in this RFP. MSP will be responsible for entire setup including civil work, interiors, IT and non-IT infrastructure, application software, staff and public facilities, security arrangements, and access controls required for running a fully functional Port Service Center. MSP shall be solely responsible for the operations and maintenance of the service centre infrastructure at all ports. MSP shall deploy adequate, well trained staff to resolve issues related to application software, network, hardware etc. related to envisaged solution.
- c. MSP shall provide all facility management services at PSC. MSP shall ensure adequate security for all assets including data, network and systems as per desired security levels.
- d. The MSP is required to setup adequate infrastructure for port service centre to ensure proper functioning as per the requirements mentioned in this RFP.
- e. The MSP has to provision telephone line for the call centre and technical support team at PCS.

4.9 Track 7: Training and capacity building

- a. Scope of work for training and capacity building for MSP includes:
 - i. Port employees
 - ii. Port Users
 - iii. Customers and end users (limited user sample)
- b. Average age at each of the ports is above 50 years, considering this MSP is expected to design a robust change management – training and capacity building program for the ports
- c. MSP will be expected to conduct a large number of trainings for the various types of users to enable easier adoption to the new systems
- d. Trainings will have to be conducted in various batches (large and small) to enable focussed attention on critical users
- e. The MSP scope of work also includes preparing the necessary documentation, presentations, flowcharts, training aids as required for successful delivery of such trainings.
- f. The details provided in this section are indicative and due to the complex nature of the project the number of training sessions may increase. Over and above the team considered for performing the training as detailed in subsequent sections, MSP has to provision for two personnel to handle additional training needs.
- g. The MSP shall impart training to IPA / respective port employees and other key stakeholders on the usage and maintenance of the system. MSP will develop a training and capacity building strategy that will also include a detailed plan of implementation.

- h. The MSP shall propose different training modules for different user profiles at appropriate timelines.
- i. The estimate user count of each port is specified in Section 9 of this Volume of RFP.
- j. The MSP shall provide such additional training as they deem necessary in order to ensure that the training imparted is comprehensive and complete.
- k. The MSP shall provide a capacity building plan to IPA which addresses the various aspects of capacity building and training. MSP will provide tentative number of sessions envisaged by MSP for each type of user considering their function and interaction with system.
- l. IPA / respective port reserves right to reasonably increase number of trainings being conducted for particular / all type of users. The training schedule will have to be modified accordingly and that will be considered as basis for further trainings till go-live and thereafter.
- m. The MSP must also prepare Training Modules/content to enable the users for self-learning.
- n. MSP shall be responsible of deploying Online learning portal to be hosted on cloud, which will be accessible to all port users.
- o. MSP shall be responsible to prepare Web-Based Learning modules to be deployed on the online learning portal. The learning portal shall enable port users to take periodic refreshers tests. Marks with respect to tests will be stored user-wise and be available to defined users
- p. IPA envisages that the training and capacity building sessions for all stakeholders would primarily be based on ‘Train the Trainer’ concept. These master trainers will further train the respective users. The venue of trainings would be at IPA and respective port locations. Only the conference room/space for the training including one projector would be arranged by respective port / IPA. Training room shall have a seating capacity of fifty persons and will be equipped with a projector. IPA / respective port along with the MSP shall identify key resources to impart skill based training to allow the “Train-the-Trainer” program.
- q. The training material prepared by MSP will be owned by IPA and cannot be used without prior approval of IPA.
- r. The below table provides an indicative list of different types of training that the MSP needs to impart

Training Area	Expected users	Scope
Functional	Port Customer group Leadership group End users Operators Office staff interacting with the system	<ul style="list-style-type: none"> • Role-based functions to complete defined business scenarios • Ways to handle exceptions and using the system workflows • Function-wise workflow, screen flow, user inputs required, checking status updates, etc. • Working of each screen in order to carry out respective functions as per roles and responsibilities • Deviation handling through system

Training Area	Expected users	Scope
		<ul style="list-style-type: none"> • Accessing various systems available to the users • Access help options through system • Walk-through of the user manual and the system screens
Techno-functional	<p>Power users identified for each module within every department</p> <p>EDP/IT staff</p>	<ul style="list-style-type: none"> • Functional overview of the system • Critical rules and procedures definition • Defining business rules in the system • Maintaining various masters and their impact • Workflow definition and creation • Second level roles & responsibility assignment • Trainings should necessarily include: <ul style="list-style-type: none"> a) User access control b) Managing masters and controls c) POS advanced users d) ERP advanced users e) Workflow advanced users f) Advanced users for other functions g) Future maintenance including configuration, Master Data maintenance and other administrative works of the system h) Address future functional queries of user
Technical	<p>Port IT users and IPA users</p>	<ul style="list-style-type: none"> • System architecture design covering interactions / interfaces between various components • System operations and maintenance • Code structure, infrastructure details, configuration details, carrying out minor edits/changes, etc. • Advanced configuration changes within EBS modules • Administration training on specialized technology skills like <ul style="list-style-type: none"> ○ Database management ○ Application management ○ Troubleshooting

Training Area	Expected users	Scope
		<ul style="list-style-type: none"> o Data backup, o IT operations o SDLC operations o Networking, etc.

- s. Given below are indicative number of trainings which shall be undertaken by the MSP. However, depending on specific port needs the number of trainings could increase. MSP is expected to factor for such increases considering the port specific challenges and needs.

Type of Training	Relevant Stakeholder	No. of Sessions per port	Max. No. of Users in each Session	Frequency of Training
Executive leadership Workshop	Top Management (including HODs)	1	30	Once in 3 Months up to Go Live Yearly refresher course – No 2
Functional Heads	Selected users per module for the envisaged solution	2	30	On-Going During the Project for a period of min. 5 working days for each session Yearly refresher course – No 4
Functional users	No. of Named Licenses	10	25	Hands on Training for a minimum of 7 working Days for each batch to be conducted before go-Live Yearly refresher course – No 4
Administrators	Staff who will handle technical aspects, IT infrastructure required for working of the software application	2	30	Hands on Training for 5 days for each session during the project Yearly refresher course – No 2

Type of Training	Relevant Stakeholder	No. of Sessions per port	Max. No. of Users in each Session	Frequency of Training
ERP and POS users	Selected Employees for generating Ad-Hoc Reports	4	25	Hands on Training for 3 days each session Yearly refresher course – No 2
Employees of Support Functions	Identified Employees from each department	2	50	One Time before kick-off of O&M phase of the project for a period of 3 days Yearly refresher course – No 2

- t. Functional and techno-functional training needs to be carried out before Go-live of the solution. Technical training needs to be completed within 3 months from go-live. All training sessions will require sign-off from minimum 80% of attendees failing which IPA may ask that session to be carried out again at no extra cost.
- u. MSP shall design and implement a system for capturing feedback on training.
- v. MSP shall design and develop a training environment with training data to enable IPA/port users at all levels to have hands on training on some of the key modules like case viewer.
- w. Training Infrastructure: The MSP is required to set up a training room with all required facilities like desktops, training environment, projector etc. for administering training as per the Bill of Material
- x. Training schedule needs to be provided at least one week in advance to IPA / respective port along with pre-reading material and prerequisites for attendees
- y. Feedback from each training session will have to be maintained by MSP and submitted along with invoices.
- z. Refresher trainings needs to be provided on an annual basis for functional and techno-functional and quarterly basis for technical area.

4.10 Track 8: Data Migration

1. Requirement Analysis for Migration:

- a. MSP will be required to carry out migration of data, business rules, checks, etc. as required for functioning of the solution. Data migration including entry and validation of legacy data, and porting is the responsibility of the MSP. MSP needs to migrate complete legacy records available in

electronic format. Data shall be migrated from the current application and media to the new application prior to the ‘go-live’ of the respective location.

- b. MSP needs to do the following on data migration from the existing legacy systems and/or
 - Data stored otherwise
 - Design the data migration & acceptance methodology and plan
 - Risk Identification and Mitigation Plan for Data Migration
 - Mapping of the data
 - Identifying the data gaps
 - Perform data cleansing for incorrect/ incomplete data
 - Providing templates for data collection
 - Extraction and Loading of the data
 - Listing of errors during data migration
 - Corrections of the migrated data during Data Quality Assessment and Review
 - Final porting of the data into the solution
 - Meta tagging of key words
 - Testing and obtain sign off on migrated data.
 - The tool / utility for performing data migration must be designed by the MSP after adequate study of the data to be migrated.
- c. MSP shall prepare a detailed requirements documentation for planning and executing a data migration for all port authorities.

2. Data Migration Plan:

- a. MSP shall prepare a detailed data and application migration strategy and data migration process documents. The strategy must include the approach, architecture, tools and technology for migration, data management, integrity and verification of migrated data post migration. MSP shall submit a detailed data migration plan for seamless data migration from existing applications to new EBS system.
- b. Before the “Go-Live” of the project, MSP shall complete the digitization and scanning of the required data including master data and transactional data from various internal and external data sources as agreed with IPA. .

3. Migration of Application Data:

- a. MSP shall complete the application data migration of the required data (including master data and transactional data from various internal and external data sources as agreed with IPA) as per the data migration strategy.
- b. MSP shall set up the migration process and the environment based on the data migration strategy including staging environment for migrating the data from internal sources.

- c. MSP shall provision appropriate number of licenses for establishing the staging environment. The replication/integration tool/software shall be compatible with the database and other technology components of the source system, the details are provided in **Section 9.1** of this volume of RFP.
- d. MSP shall be responsible for the migration of all the required data sets to the new environment / system.
- e. MSP shall bring in necessary data migration tool or ETL tool to carry out the data migration activity.
- f. The different internal data sources from which the data has to be migrated along with data volumes are provided in subsequent section of this volume of the RFP. It should be noted that the external data sources mentioned are indicative in nature and the actual number of external data sources and transactions may vary.
- g. Any gaps / discrepancy during the data migration process shall be acted upon and resolved immediately with no additional cost during the contract period.
- h. MSP shall develop and share control reports with IPA or Ports or designated agency authorized by IPA for verification of the data both before and after migration.
- i. It is clarified that the ownership of data shall at all times remain with IPA and respective port and MSP shall be responsible to maintain complete confidentiality of the same.
- j. The MSP shall identify all risks associated with the data migration and enumerate mitigation measures and prepare a Risk Identification and Mitigation plan for Data Migration.
- k. MSP shall conduct the acceptance testing and verify the completeness and accuracy of the data migrated from the legacy systems in staging environment prior to migration to production environment to the proposed solution.
- l. The IPA may hire third party to conduct data quality audit on a quarterly basis for the purpose of uncovering data anomalies associated with content, relationships, correctness, completeness, uniqueness, consistency, and validity.
- m. If any issues are identified during the data quality audit, the MSP shall be responsible for assisting in resolution of issues during the contract period.

4. Data Entry:

- a. MSP shall data entry operators, supervisor and other necessary staff to perform the data entry about the documents which are selected for scanning. The port authorities will provide the necessary guidance and support to define the metadata, terminologies to be used, index master data for the scanning work.

5. Migration of Existing Scanned Data:

- a. All ports have been involved in the scanning, indexing and archival activities as it is mandatory to store, preserve some crucial documents for ongoing port operations. Details about the exact data size of the existing scanned data for each port would be provided to the successful MSP. MSP shall perform migration of legacy scanned data as per the methodology described for the migration of the application data. IPA/Port authorities may ask third party companies to perform data audit to verify and validate the correctness, accuracy and completeness of the migration activities.

6. Scanning, Indexing and Storing of Port Documents

a. The individual departments in respective port locations would present their documents to the selected agency. The agency would also have to make note of the document details in their log register while collecting these documents. The log register should contain at-least following details:

- Name of document collected
- Total number of pages in the document (A4/Legal, A3/A2, A1/A0)
- Collected from (Government Official)
- Collected by and signature (MSP Representative)
- Date of collection
- Expected date of return
- Returned to (Government Official) – Signature & Seal
- Returned by (MSP Representative)
- Actual Date of Return

After collection of the documents by the MSP, it would be the responsibility of the MSP to maintain and return the documents in their original form to the department concerned. Any damage to the documents collected shall make the MSP directly responsible for the same.

- b. The documents/pages shall be scanned on a min. 200 DPI resolution, black and white with digitized file size not exceeding 75Kb for one side of the page.
- c. The scanned documents shall be converted into PDF/A (ISO 19005-1:2005) files. All the pages of a single file have to be stitched together to generate an exact replica of the physical file. The stitched document should be represented in a PDF/A format.
- d. Page size of the physical file can vary across departments.
- e. No document shall be scanned more than once. The file numbering will be checked by the MSP and if there is any discrepancy in numbering, it should be sorted out with the port department / IPA before proceeding.
- f. No blank pages should be deleted if they are part of the file. The blank page in a file is a page that is entirely blank, or has only page number, or has only rubber stamp.
- g. The document scanning agency will use its own infrastructure. This shall include, but is not limited to Computers, UPS, Gensets etc. for document scanning. The space and furniture (table, chairs, etc.) for setting up the infrastructure as well as the raw power connections will be provided by respective offices of where scanning would be done.
- h. The MSP would deploy its own human resource for all the aforementioned activities. The agency shall deploy adequately skilled manpower resources to complete the job within the specified time.
- i. MSP should ensure the following quality checks in the document:
- The Image should not be too dark / too light.
 - The Image should not have been captured under improper lighting.
 - The Image should not have been cropped from any side.
 - The orientation of the image should be right.

- The image should be in true colour mode.
 - The colour is consistent in all the images and not patchy.
 - The image should not be skewed.
 - The image should not be blurred.
 - The image should not have excessive noise.
 - There should not be any data loss due to folds.
 - There should not be any data loss due to tight binding and bulge at the centre.
 - There should not be extra darkness at the edges.
- j. After scanning, the physical document would have to be pinned together/tagged in the same form as it was given for scanning by the individual departments.
- k. Two copies of the scanned data (and metadata) shall be provided in DVD. One copy should be provided to the department / office where scanning is performed. Another copy should be used by the vendor to upload the scanned files (and metadata file) in the centralized storage.

4.11 Track 9: Supply of Manpower for Operations

MSP shall provide manpower for each port for to support their ongoing operations during the go-Live and Operations and Maintenance phase of the project. Each port authority would submit request to MSP for requirement of manpower. The manpower would be provided as additional support to port authorities for managing business operations. Following types of manpower shall be provided by the MSP to port authorities:

#	Designation	Required Qualification	Required Experience
1	Data Entry Operator	Graduate in any discipline from recognized University with proficiency in computer skills, data entry skills. Candidate must possess efficiency in at least one local language of port location in addition to English, Hindi.	1 to 3 years' experience of working as a data entry operator for any government / private client. The resource would be working in any of the 3 shifts at each port location.
2	Front office executives	Graduate in any discipline from recognized University with proficiency in computer skills, Candidate must possess efficiency in at least one local language of port location in addition to English, Hindi.	3 to 5 years' experience of working as a front office executive in any private company, experience of working in logistics, airline, courier companies. The resource would be working in any of the 3 shifts at each port location.

#	Designation	Required Qualification	Required Experience
3	Port Command Centre operators	Graduate in any discipline from recognized University with proficiency in computer skills, with experience of working in Disaster Recovery/CCTV Command Center / Security Offices	3 to 5 years' experience of working in CCTV Command Center/Security Head Office, the resource would be working in any of the 3 shifts at each port location.

4.12 Track 10: Civil Work at port location

General requirements

The allocated space will be provided to the MSP on as –is where -is basis within the port. The MSP shall provision all items and facilities to setup respective centres as per the Bill of Materials provided:

- i. Electrical work and point wiring within centres
- ii. Light fixtures and lighting arrangements at the centres
- iii. Electrical fit-outs in office area and at workstations.
- iv. Air-conditioning (if required) for the server room and locations.
- v. Procurement, commissioning and operation of DG set for 100% power back up for mentioned sites
- vi. UPS and related infrastructure
- vii. Flooring and false ceiling
- viii. Civil works with respect to internal setup of the facility.
- ix. Furniture at workstations cabins, conference room, meeting rooms and other required places.
- x. Cabling work within the centres
- xi. Provisioning of fire/smoke detectors and fire alarm with required infrastructure as select locations.
- xii. Implementation of access control system with required infrastructure for specific locations
- xiii. Fire/smoke detectors, cabling for detectors, fire panels, access control reader and wiring, CCTV, DVR and cabling for the camera at required facilities shall be provisioned.
- xiv. Ergonomic design and colours for furniture and other items, walls / ceilings colour etc.
- xv. Adequate air-conditioning for the Server room and UPS rooms.
- xvi. Interior plants to form green zones in the facility.
- xvii. Appropriate signage at appropriate locations within the building.

In addition to the above, MSP shall be responsible for carrying out all the civil work required for setting up all the field components of the system including:

1. Port Server Room:

Design, supply, installation and setting up of the necessary basic Infrastructure for Port Server Room in terms of civil, interior, electrical and Air-Conditioning System, Fire Prevention, Detection and Suppression System, Lighting system, Power, multilayer Physical Security infrastructure like bio-metric based access-control system, CCTV/ surveillance systems etc.

2. Port Service Centre:

Design, supply, installation and setting up of the necessary basic Infrastructure for Port Service Center in terms of civil, interior, electrical and Air-Conditioning System, Fire Prevention, Detection and Suppression System, Lighting system, Power, multilayer Physical Security infrastructure like bio-metric based access-control system, CCTV/ surveillance systems etc. Port Service Center should have proper siting arrangements for visitors.

3. Port IT Helpdesk:

MSP shall be responsible for setting up of Civil, Electrical, Security infrastructure of the port IT helpdesk and central IPA team and each port offices. Helpdesk office should be equipped with necessary IT infrastructure provisions, telephone lines, network lines to provide 24*7 support to port users. MSP shall be responsible for civil, electrical maintenance of the service desk for the entire operations and maintenance phase.

4. Training Infrastructure:

MSP shall be responsible for set up, maintenance of training rooms consisting of computer labs for providing adequate training to end users of the envisaged EBS system.

5. Port Command Centre:

MSP shall be responsible for set up of Port Command Centre at each port. These command centres would act as a single point of centralized surveillance, monitoring infrastructure for managing entire port operations. MSP shall provide necessary Civil, Electrical, IT, Security infrastructure for set up and operations of these command centers for the entire O&M phase.

4.13 Track 11: Operations and Maintenance for 5 years post Go-Live

MSP will operate and maintain all the components of the envisaged system for a period of five (5) years after Go-Live date. During O&M phase, MSP 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 MSP 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 MSP 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 MSP 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 MSP. Any version upgrade of the software / tool / appliance by MSP 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 MSP 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 MSP 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 MSP and periodically submitted to the IPA.
- f. MSP, 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 MSP shall inform about the same immediately along with his recommendations. The report shall contain MSP's recommendations on update/upgrade, benefits, impact analysis etc. The MSP shall need to execute updates/upgrades through formal change management process and update all documentations and Knowledge databases etc. For updates and upgrades, MSP will carry it out free of cost by following defined process.
- g. MSP 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

2. Annual Technology Support:

- a. The MSP 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. For the following software's MSP is mandatorily required to take enterprise level annual support for the entire contract duration:
 - i. Operating System
 - ii. Application Licenses
 - iii. RDBMS
- 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 MSP 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 MSP 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.
- d. In case there is a change request in the scope of work, the MSP 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 MSP.

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 MSP’s responsibility.
- b. The MSP 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 MSP.
- c. Resolution of incidents/problem logs created by the users of the application in the IT 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 MSP shall define the Software Change Management & Version control process and obtain approval for the same from IPA. For any changes to the software, MSP has to prepare detailed documentation including proposed changes, impact to the system in terms of functional outcomes/additional features added to the system etc. MSP 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:

MSP shall maintain at least the following minimum documents with respect to the IPA GBS system:

- 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. IT Infrastructure Support and Maintenance:

IT infrastructure includes servers, storages, back up, networking, load balancers, security equipment, operating systems, database, enterprise management system, help desk system and other related IT infra required for running and operating the envisaged system. MSP shall define, develop, implement and adhere to IT Service Management (ITSM) processes aligned to ITIL framework for all the IT Services defined and managed as part of this project.

8. Warranty support for deployed IT infrastructure

- a. MSP shall provide comprehensive and on-site warranty for 5 years from the date of Go-Live for the IT infrastructure deployed on the project. MSP need to have OEM support for these components and documentation in this regard need to be submitted to IPA on annual basis.
- b. MSP shall provide the comprehensive & onsite manufacturer's warranty in respect of proper design, quality and workmanship of all hardware, equipment, accessories etc. covered by the RFP. MSP must warrant all hardware, equipment, accessories, spare parts, software etc. procured and implemented as per this RFP against any manufacturing defects during the warranty period.
- c. MSP shall provide the performance warranty in respect of performance of the installed hardware and software to meet the performance requirements and service levels in the RFP.

- d. MSP is responsible for sizing and procuring the necessary hardware and software licenses as per the performance requirements provided in the RFP. During the warranty period MSP shall replace or augment or procure higher-level new equipment or additional licenses/hardware at no additional cost to the IPA in case the procured hardware or software is not enough or is undersized to meet the service levels and the project requirements.
- e. Mean Time Between Failures (MTBF) - If during contract period, any equipment has a hardware failure on four or more occasions in a period of less than three months or six times in a period of less than twelve months, it shall be replaced by equivalent or higher-level new equipment by the MSP at no cost to IPA.
- f. During the warranty period MSP shall maintain the systems and repair/replace at the installed site, at no charge to IPA, all defective components that are brought to the MSP's notice.
- g. In case any hard disk drive of any server, SAN, or client machine is replaced during warranty/AMC, the unserviceable HDD will be property of IPA and will not be returned to MSP.
- h. The MSP shall carry out Preventive Maintenance (PM), including cleaning of interior and exterior, of all hardware and testing for virus, if any, and should maintain proper records at each site for such PM. Failure to carry out such PM will be a breach of warranty and the warranty period will be extended by the period of delay in PM. The PM should be carried out at least once in six months as per checklist and for components agreed with IPA.
- i. The MSP shall carry out Corrective Maintenance for maintenance/troubleshooting of supplied hardware/software and support infrastructure problem including network (active/passive) equipment, security and rectification of the same. The MSP shall also maintain complete documentation of problems, isolation, cause and rectification procedures for building knowledge base for the known problems in centralized repository, accessible to IPA team as well.
- j. MSP shall monitor warranties to check adherence to preventive and repair maintenance terms and conditions.
- k. The MSP shall ensure that the warranty complies with the agreed technical standards, security requirements, operating procedures, and recovery procedures.
- l. MSP shall have to stock and provide adequate onsite and offsite spare parts and spare component to ensure that the uptime commitment as per SLA is met.
- m. MSP shall ensure that the onsite list of spares is assigned only for IPA infrastructure and that this list of onsite spares is made available to IPA and updated on monthly basis
- n. Any component that is reported to be down on a given date should be either fully repaired or replaced by temporary substitute (of equivalent configuration) within the time frame indicated in the Service Level Agreement (SLA).
- o. The MSP shall introduce a comprehensive Assets Management process & appropriate tool to manage the entire lifecycle of every component of IPA.

9. 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 MSP will ensure that the entire solution setup is certified and is in compliance with the applicable standards.
- b. MSP 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.

Component / Application / System	Prescribed Standard
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

10. Administration of System, Database and Network

- a. MSP 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 Port.

- b. Manpower shall be supplied to diagnose, troubleshoot and resolve issues with the equipment / components supplied. The onsite support should possess capability for supporting the equipment and components proposed, but not limited to undertaking preventive and break-fix maintenance, troubleshooting, resolving problems, tuning, etc.
- c. The MSP 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.
- d. The MSP shall provision skilled and experienced manpower resources to administer and manage the entire IT Infrastructure solution at the Cloud enabled Data Centre.
- e. MSP may be required to assist the system users in performing periodic health check of the systems, troubleshooting problems, analyzing and implementing rectification measures.
- f. The MSP shall implement and maintain standard operating procedures for the maintenance of the IT infrastructure based on the policies formulated in discussion with Port and based on the industry best practices / frameworks. The MSP shall also create and maintain adequate documentation / checklists for the same.
- g. The MSP 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 MSP will be required to set up the Directory server
- h. MSP will be responsible for not only the new systems provided as part of this tender but also ensuring the upkeep of existing systems like Port Community System Interface, Visitor Management System Interfacing, etc that would be integrated and also incorporate necessary changes for new applications if any during the tenure of the contract.
- i. On an ongoing basis, MSP shall be responsible for troubleshooting issues in the infrastructure, network and applications for the centralized solution to determine the areas where fixes are required and ensuring resolution of the same.
- j. MSP should be responsible for identification, diagnosis and resolution of problem areas pertaining to the solution and maintaining assured SLA levels.
- k. The MSP 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.
- l. 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
- m. MSP 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. MSP 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 Port. 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
- n. 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 Port
- o. MSP should be responsible for the synchronization of system clocks and automatic lockout of the terminal after defined inactivity time.
- p. MSP should be responsible for maintenance of logs of user Internet activity, failed login attempts, etc.
- q. MSP 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.
- r. MSP 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:

11. 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 MSP shall ensure proper configuration of server parameters. The MSP 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. MSP is also responsible for re-installation in the event of system crash/ failures.
- e. MSP 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 MSP 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. MSP 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. MSP 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

12. Storage Administration

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

- a. The MSP 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 MSP 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. MSP would additionally remotely manage the storage system and components and appropriate setup should be provided by the MSP
- 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

13. 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.

14. 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. MSP 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

15. Backup / Restore

- a. The MSP shall be responsible for backup of storage of Port at the cloud enabled Data Centre. These policies would be discussed with the MSP at the time of installation and configuration.
- b. The MSP 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 MSP shall be responsible for prompt execution of on-demand backups of volumes and files whenever required by Port or in case of upgrades and configuration changes to the system.
- d. The MSP shall be responsible for real-time monitoring, log maintenance and reporting of backup status on a regular basis. The MSP 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 MSP shall also provide a 24 x 7 support for file and volume restoration requests at the Data Centre.

16. Network Monitoring

- a. Provide services for management of network environment to maintain performance at optimum levels.
- b. The MSP shall provide services for management of network environment to maintain performance at optimum levels on a 24 x 7 basis.
- c. The MSP shall be responsible for monitoring and administering the network within the Data Centre up to the integration points with WAN. The MSP will be required to provide network related services for routers, switches, load balancer, etc.
- d. The MSP shall be responsible for creating and modifying VLAN, assignment of ports to appropriate applications and segmentation of traffic.
- e. The MSP 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.

17. Cloud enabled DC Operations & Administration

- a. The MSP 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 MSP 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. Co-ordinate with the Data center provider to make any changes that may be required towards the placement and layout of infrastructure within the data center.
- e. Prepare a list of equipment, software and configuration installed in the data centers and the same shall be approved by the Port. MSP shall maintain and modify the list in accordance to the modifications.
- f. 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.
- g. Maintain at the data center, a log of all MSP personnel entering or visiting the data center. Such a log should be provided to the Port whenever required.
- h. Manage an inventory of critical components and spares that are provisioned onsite and co-ordinate with the OEM to ensure replenishment of the same whenever required.

18. Disaster Administration

- a. MSP 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. MSP 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. MSP 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. MSP 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. MSP shall test, review and monitor the business continuity plan bi-annually for its effectiveness and provide test results to the Port.
- g. MSP shall provide training to the Port users in order to apprise them of the Disaster plan and of their involvement for business continuity.
- h. MSP has to ensure restoring all databases, servers etc. as per disaster and recovery policy of the Port.

19. Software Change Management

- a. MSP 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. MSP 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.

20. MIS Reports

- a. The following is an indicative list of MIS reports. The MSP should draw an exhaustive list of reports along with the MSP. MSP 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

21. Vendor Management Services

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

- a. The MSP 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 MSP 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.

22. IT Maintenance Services

- a. MSP 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. MSP 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.

23. IT facility management services across all Port locations

The MSP is expected to extend IT facility management services to Port for the facilities provided by the MSP. 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

4.14 Additional Overreaching Requirements of the Solution

1. Interoperability Standards

- a. Keeping in view the evolving needs of interoperability, the solution should be built on Open Standards.

2. Scalability

- a. One of the fundamental requirements of Architecture to be proposed for the Project is its scalability. The architecture should be proven to be scalable and capable of delivering high-performance as and when the number of users and transaction increase. In this context, it is required that the application and deployment architecture should provide for Scale-Up and Scale out on the Application and Web Servers, Database Servers and all other solution components.

3. Security

- a. The Systems implemented for the Project should be highly secure. The overarching security considerations are described below.
- b. The security services used to protect the Solution shall include: Identification, Authentication, Access Control, Administration and Audit and support for industry standard protocols.
- c. Security design should provide for a well-designed identity management system, security of physical and digital assets, data and network security, backup and recovery and disaster recovery system.
- d. The solution should provide for maintaining an audit trail of all the transactions.

4. User Administration

- a. System shall facilitate user security administration activities in terms of creation of user IDs, user profiles, attaching the user profiles to the user IDs, modification of user privileges etc.
- b. System shall have audit trails built in for all the activities performed by the super user in the system for user administration, database management, business rule changes, system upgrades etc. Such audit trails, at a minimum, shall capture the details of name of the user, changes made, time & date of change, name of approver (if applicable), etc.
- c. Password Management services must enforce password restrictions, which include the criteria and limitations that can be placed on passwords to increase security. It should provide features such as periodic forced changes, not reusable, hard to guess, mixed characters etc.

- d. Successful user login requests should be logged for investigative purposes in case of a security breach
- e. The application must monitor unauthorized attempts to access the system
- f. The solution should be capable of secure, tamperproof auditing and logging which can stand in the court of law through implementation of advanced features.

5. Reporting and Dynamic Dashboard

- a. The MSP should ensure that the EBS system shall provide a facility for generating and viewing online, real-time project and MIS reports for transactions handled during a specified period, transaction density trends for any specified periodicity (hourly, daily, weekly, monthly) and any bottleneck situation creating dependency at any stage. The Reporting system and Dynamic Dashboard shall be an integrated system which shall provide user-friendly reporting functionalities for the staff, assessing officers at respective port and officials of IPA. The MIS details will be worked out during the SRS stage.

6. Special requirements with respect to MSP's responsibilities

- **Providing additional Personnel**

- a. MSPs will be required to quote the cost (in the format for submission of the Commercial Bid as given in Vol 1 of this RFP) for providing IPA with different set of technical personnel such as Database Administrator, developers etc., which shall be used as average man-month rate for determining any additional cost for development in case of any additional scope during the contract term is undertaken by the MSP on approval of IPA.
- b. The said quoted cost may also be used as average man-month rate for providing IPA with different set of technical personnel such as Database Administrator, developers etc.

- **Investments beyond the agreed scope:**

- a. If there is any investment that IPA wants the selected MSP to make beyond the agreed scope of work then the same will be managed through CNS process. The CNS process would be invoked for availing services out of the current scope of RFP. The value of the total amount of additional work entrusted to MSP through the CNS route, without calling for fresh tenders, shall not exceed 40% of contract value during the term.
- b. IPA shall retain the Strategic Control over the design, development and operations of the Project through the full term of the project

- **Warranty Support**

- a. MSP shall warrant that the infrastructure procured for project have no defects arising from design or workmanship or any act of omission and must provide a declaration for the same from all the OEM for equipment that would be supplied at cloud site, respective port site and call centre site. The warranty shall remain valid for at least one year beyond the service period

of the project for all hardware, software and other components comprising of the solution. MSP will ensure warranty in case of an extension.

- b. MSP shall replace any parts /components / whole of the IT Infrastructure supplied for project if the components are defective at no additional cost to IPA during the entire warranty period. In case any hard disk drive of any server, SAN, or client machine is replaced during warranty/AMC, the unserviceable HDD will be property of IPA and will not be returned to MSP. In case IT Infrastructure is declared “End-of-Support” by the respective OEM, MSP shall replace the component with equivalent or better component at no additional cost to IPA before the end of support and ensure that there is no impact on the operations and performance. The MSP shall ensure that all IT infrastructure handed over to IPA at the conclusion of the contract duration is under active support of OEM.

- **Functional Audit**

- a. MSP shall engage a CERT-In empanelled third party agency for conducting Functional Audit prior to Go-Live of each phase of the project or major change of Information technology infrastructure.
- b. Security Audit shall include penetration testing, vulnerability assessment, application security assessment, web security testing and implementation of information security controls.
- c. The Consultant hired by IPA shall conduct security audit of IT system implemented by the MSP as per standard industry norms and submit recommendations indicating the risk elements in the system.
- d. IPA may also hire a third party auditor to conduct security audit, and in such scenario, MSP shall provide full access and support.
- e. MSP shall comply with all audit points and make the system available for re-audit within contractual period between MSP and IPA.
- f. Half-yearly penetration testing and web applications security assessment (both authenticated and unauthenticated scans) shall be conducted by consultant and security certificate stating that the application is free from all the vulnerabilities shall be submitted to IPA management in every six months.

5 Project Implementation timelines

5.1 Project implementation approach

#	Item	Wave 1: T + 6 months	Wave 2: T + 12 months	Wave 3: T + 15 months
1	Application Development	Online presence and single window	Integrated backend applications	Full scale integration and operations
A	Port Operations	Implementation of port operations modules	Full scale integration and operations of port operations	
B	Estate Operations	Self-service portal for estate customers	Integration with GIS system	Full scale integration and operations of estate operations
C	Engineering & Maintenance	Self-service portal for vendors	Implementation of engineering & maintenance modules	Full scale integration and operations
D	Electronic Office	Online portal with basic workflows	Intermediate workflows	Full scale integration and operations
E	Establishment, Finance and Administration	Self-service portal for port employees Implementation of Finance module	Implementation of establishment and administration modules	Full scale integration and operations
F	Allied Systems	Hospital system Canteen system	Legal Case Management	Full scale integration and operations
G	Integration with allied systems	PCS and existing systems	Internal Port Systems	Partner and Customer systems

#	Item	Wave 1: T + 6 months	Wave 2: T + 12 months	Wave 3: T + 15 months
2	Training capacity building and change management	Training infrastructure Online learning portal Training material as required for wave	Mobile app for learning Training material as required for wave	Training material as required for wave
3	Operations Infrastructure	Call Centre IT helpdesk Port Service Centre	Port Command Centre	
4	Man-Power Deployment for Support Operations	As per port requirements	As per port requirements	As per port requirements
5	Compute and Storage Infrastructure`	Primary data centre	Disaster recovery site Port server room	
6	End user computing	As required in the wave	As required in the wave	As required in the wave
7	Network Infrastructure	EBS WAN Port to PDC connectivity	Port LAN (Network backbone)	
8	Data Migration	As required for wave ONE functionalities	As required for wave TWO functionalities	As required for wave THREE functionalities
9	Integration and Interfacing	As required for wave ONE functionalities	As required for wave TWO functionalities	As required for wave THREE functionalities

5.2 Project milestone plan

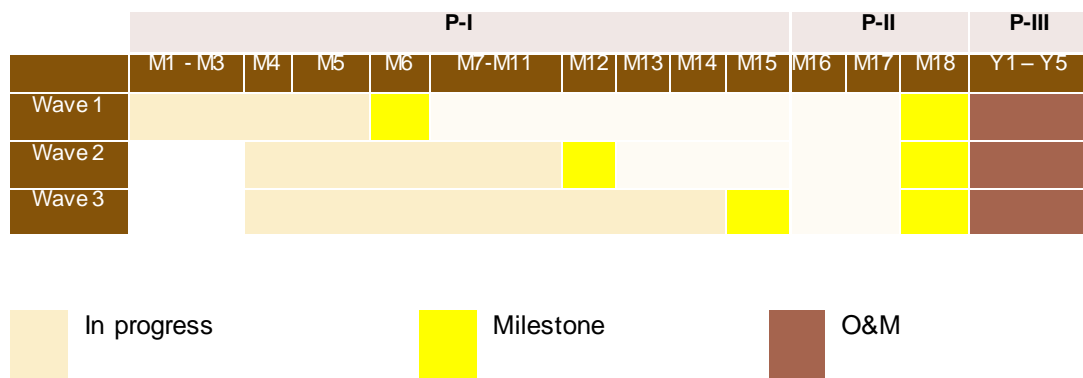
Considering the complexity involved with the implementation and various levels of integration requirements, it is proposed that the project be executed in waves. The project is divided into following three phases:

Phase I – Implementation: This phase would start from project initiation and would be completed once the system has been implemented. The various activities would include freezing of specifications for various components of envisaged system and data migration, application software development, testing, conference room demo of functionality, procurement & installation of hardware and required system software, network creation, and deployment of support staff for pilot.

Phase II – Stabilization and baseline: This phase would have the complete rollout of the envisaged system and all its components across all defined port locations. It would end when all transactions and the operations have stabilized for a period of 3 months. The closure includes completion of Phase II AT ALL PORT LOCATIONS.

Phase III – Operations and Maintenance: This phase would continue till the termination of the contract. The MSP would be responsible for the functioning of the system for a period of 5 years and would also maintain the entire system for the same duration.

Indicative representation of the timelines of the phases and waves is given below:



#	Activity	Time Completion	Deliverable
	Phase I: System development and implementation phase		

#	Activity	Time Completion	Deliverable
	Agreement	T	D1
	Wave 1	T + 6 months	
1	Application Development		
	Submission of Project Charter	T + 0.5 months	D2
	Submission of Detailed Project Plan	T + 1 month	D3
	Submission of Master Design Document for overall system covering all waves and operations	T + 2 months	D4
	Submission of Software Requirement Specifications (SRS) for functionalities to be covered under wave ONE	T + 2.5 month	D5-1
	Submission of detailed design document for functionalities to be covered under wave ONE	T + 3 months	D6-1
	Commencement of Conference Room Pilot for Wave ONE	T + 4.5 months	D7-1
	Submission of applications for UAT for functionalities to be covered under wave ONE	T + 5 months	D28-1
	Submission of applications ready for Go-Live for functionalities to be covered under wave ONE	T + 6 months	D8-1
2	Capacity Building & Change Management		
	Submission of Training and capacity building plan including change management approach	T + 2 months	D17
	Establishment of Training Infrastructure including port training rooms and Online Learning Portal	T + 4.5 months	D29
	Submission of training material including learning modules, training manuals, multimedia training modules for internal and external users for functionalities to be covered under wave ONE	T + 4.5 months	D30-1
	Completion of user training for functionalities to be covered under wave ONE	T + 5 months	D18-1
3	Operations Infrastructure		
	Establishment of central call centre for all participating ports	T + 6 months	D21
	Establishment of IT Helpdesk including NOC and SOC at centre for all participating ports	T + 6 months	D21
	Establishment of IT helpdesk at participating ports	T + 6 months	D21
	Establishment of port service centre	T + 6 months	D21
4	Man-Power Deployment for Support Operations		
	Deployment of manpower as required by port	As agreed with port	D22-1
5	Compute and Storage Infrastructure`		

#	Activity	Time Completion	Deliverable
	Submission of Master Design Document for overall Compute and Storage infrastructure including Primary Data Centre, DRC and Port Server room	T + 2 months	D9
	Submission of design document for Primary Data Centre	T + 3 months	D9
	Establishment of Primary Data Centre	T + 4.5 months	D10
6	End user computing		
	Submission of master requirements and specifications for end user computing for overall project	T + 2 months	D11
	Submission of requirements and specification for end user computing for wave ONE	T + 2 months	D31-1
	Deployment of end user computing for wave ONE	T + 4.5 months	D12-1
7	Network Infrastructure		
	Submission of Master Design Document for overall network infrastructure including:	T + 2 months	D13
	· Master network design for Port LAN		
	· Network connectivity at PDC		
	· Network connectivity between port and PDC		
	Establishment of network connectivity at PDC	T + 4.5 months	D14
	Establishment of network connectivity between port and PDC	T + 4.5 months	D15
8	Data Migration		
	Submission of Master Design Document for data migration including:	T + 2 months	D19
	· Application data migration		
	· Migration of scanned documents and images		
	· Data entry of information		
	· Data scanning, indexing, storage, retrieval and archival		
	Submission of data migration plan for wave ONE		D32-1
	Completion of application data migration required for functionalities to be covered under wave ONE	T + 5 months	D20-1
	Completion of data entry of information for functionalities to be covered under wave ONE	T + 5 months	D20-1
9	Integration and Interfacing		
	Submission of Master Design Document covering integration and interfacing requirements for all functionalities as envisaged in the project	T + 2 months	D26

#	Activity	Time Completion	Deliverable
	Submission of incremental design document covering integration and interfacing requirements for all functionalities for functionalities to be covered under wave ONE	T + 3 months	D33-1
	Completion of integration and interfacing requirements for functionalities to be covered under wave ONE	T + 5 months	D27-1
	Wave 2	T + 12 months	
11	Application Development		
	Submission of Software Requirement Specifications (SRS) for functionalities to be covered under wave TWO	T + 4.5 months	D5-2
	Submission of detailed design document for functionalities to be covered under wave TWO	T + 6.5 months	D6-2
	Commencement of Conference Room Pilot for Wave TWO	T + 10.5 months	D7-2
	Submission of applications for UAT for functionalities to be covered under wave TWO	T + 11 months	D28-2
	Submission of applications ready for Go-Live for functionalities to be covered under wave TWO	T + 12 months	D8-2
12	Capacity Building & Change Management		
	Submission of training material including learning modules, training manuals, multimedia training modules for internal and external users for functionalities to be covered under wave TWO	T + 10.5 months	D30-2
	Completion of user training for functionalities to be covered under wave TWO	T + 11 months	D18-2
	Go-live of user training mobile app	T + 11 months	D34
13	Operations Infrastructure		
	Establishment of port command centre	T + 8 months	D35
14	Man-Power Deployment for Support Operations		
	Deployment of manpower as required by port	As agreed with port	D22-2
15	Compute and Storage Infrastructure`		
	Establishment of Disaster recovery site	T + 7 months	D36
	Establishment of Port server room	T + 8 months	D37
16	End user computing		
	Submission of requirements and specification for end user computing for wave TWO	T + 6.5 months	D31-2
	Deployment of end user computing for wave TWO	T + 11 months	D12-2
17	Network Infrastructure		
	Establishment of networking for Port LAN	T + 10 months	D16
18	Data Migration		

#	Activity	Time Completion	Deliverable
	Submission of data migration plan for wave TWO	T + 7 months	D32-2
	Completion of application data migration required for functionalities to be covered under wave TWO	T + 11 months	D20-2
	Completion of data entry of information for functionalities to be covered under wave TWO	T + 11 months	D20-2
19	Integration and Interfacing		
	Submission of incremental design document covering integration and interfacing requirements for all functionalities for functionalities to be covered under wave TWO	T + 7 months	D33-2
	Completion of integration and interfacing requirements for functionalities to be covered under wave TWO	T + 11 months	D27-2
	Wave 3	T + 15 months	
20	Application Development		
	Submission of Software Requirement Specifications (SRS) for functionalities to be covered under wave THREE	T + 7 months	D5-3
	Submission of detailed design document for functionalities to be covered under wave THREE	T + 9 months	D6-3
	Commencement of Conference Room Pilot for Wave THREE	T + 13.5 months	D7-3
	Submission of applications for UAT for functionalities to be covered under wave THREE	T + 14 months	D28-3
	Submission of applications ready for Go-Live for functionalities to be covered under wave THREE	T + 15 months	D8-3
21	Capacity Building & Change Management		
	Submission of training material including learning modules, training manuals, multimedia training modules for internal and external users for functionalities to be covered under wave THREE	T + 13.5 months	D30-3
	Completion of user training for functionalities to be covered under wave THREE	T + 13.5 months	D18-3
22	Operations Infrastructure		
	Full scale operations of call centre, IT helpdesk with NOC & SOC at Centre, IT helpdesk at port, port command centre and port service centre	T + 15 months	D21-2
23	Man-Power Deployment for Support Operations		
	Deployment of manpower as required by port	As agreed with port	D22-3
24	End user computing		
	Submission of requirements and specification for end user computing for wave THREE	T + 13 months	D31-3
	Deployment of end user computing for wave THREE	T + 14 months	D12-3

#	Activity	Time Completion	Deliverable
25	Data Migration		
	Submission of data migration plan for wave THREE	T + 10 months	D32-3
	Completion of application data migration required for functionalities to be covered under wave THREE	T + 13.5 months	D20-3
	Completion of data entry of information for functionalities to be covered under wave THREE	T + 13.5 months	
26	Integration and Interfacing		
	Submission of incremental design document covering integration and interfacing requirements for all functionalities for functionalities to be covered under wave THREE	T + 10 months	D33-3
	Completion of integration and interfacing requirements for functionalities to be covered under wave THREE	T + 13.5 months	D27-3
27	Phase II: Stabilization phase	T1 = T + 18 months	
	Baseline of applications deployed across all ports	T + 18 months	D23
	Submission of consolidated documentation post baseline and agreement on cafeteria model for EBS	T + 18 months	D23
	Completion of migration of scanned documents and images as agreed with port	T + 18 months	D23
	Completion of scanning of documents as agreed with port	T + 18 months	D23
	Submission of comprehensive exit management plan	T + 18 months	D23
28	Phase III: Operations and maintenance phase	T1 + 60 months	
	Submission of port specific metering information required for invoicing	Quarterly	D38
	Submission of SLA Compliance reports along with invoices and supporting documents	Quarterly	D24
	BCP-DR Drill for two days	Half-yearly	D25
	Initiation of exit management plan as per plan	As per plan	D39

5.3 Project deliverables

Deliverable No.	Deliverable Description
D1	Kick-off presentation and/or Duly signed agreement

Deliverable No.	Deliverable Description
D2	<p>Project charter should cover the following:</p> <ul style="list-style-type: none"> - Study of scope of work & functional coverage - Governance Structure for Project Implementation - Project implementation approach - Resource deployment - Change & communication management plan - Change control procedure -Contract management plan - Risk management and information security policy - Business continuity and disaster recovery plan - Exit management plan - Milestone completion certificate along with documents to support milestone completion claim
D3	<p>Detailed Project Plan shall cover the following:</p> <ul style="list-style-type: none"> - Detailed project plan - Work breakdown structure - Delivery schedule - Key milestones - Milestone completion certificate along with documents to support milestone completion claim
D4	<p>Master Design Document shall cover the following:</p> <ul style="list-style-type: none"> - Requirements Addressed at a broader level for the project for all three waves together - Security and Authentication - APIs, External Interfaces - Design Considerations - System Structure Flows - Milestone completion certificate along with documents to support milestone completion claim
D5- 1	<p>Software Requirements Specifications (SRS) should cover the following:</p> <ul style="list-style-type: none"> - Detailed requirement capture and analysis - Software requirement - Interface specifications - Application security requirements -Performance requirements - Mapping of FRS & SRS - Requirements sign-off - Identify third party interfaces required along with the type/specifications - Milestone completion certificate along with documents to support milestone completion claim

Deliverable No.	Deliverable Description
D5-2	<p>Software Requirements Specifications (SRS) should cover the following:</p> <ul style="list-style-type: none"> - Detailed requirement capture and analysis - Software requirement - Interface specifications - Application security requirements - Performance requirements - Mapping of FRS & SRS - Requirements sign-off - Identify third party interfaces required along with the type/specifications - Milestone completion certificate along with documents to support milestone completion claim
D5-3	<p>Software Requirements Specifications (SRS) should cover the following:</p> <ul style="list-style-type: none"> - Detailed requirement capture and analysis - Software requirement - Interface specifications - Application security requirements -Performance requirements - Mapping of FRS & SRS - Requirements sign-off - Identify third party interfaces required along with the type/specifications - Milestone completion certificate along with documents to support milestone completion claim
D6-1	<p>System Design & Configuration report should cover the following:</p> <ul style="list-style-type: none"> - System Configuration and module wise configuration needs as per the design envisaged - Legacy and Third party System Integration/interface Report and integration of same with the envisaged solutions - Customization Development Plan and Design/development plan of components of functionalities that are not available - High Level Software Design document including Software Architecture design, Logical and Physical Database Design - Low Level Software Design document including Programming Logic, Workflows and integration points and mechanisms - Milestone completion certificate along with documents to support milestone completion claim
D6-2	<p>System Design & Configuration report should cover the following:</p> <ul style="list-style-type: none"> - System Configuration and module wise configuration needs as per the design envisaged - Legacy and Third party System Integration/interface Report and integration of same with the envisaged solutions - Customization Development Plan and Design/development plan of components of functionalities that are not available - High Level Software Design document including Software Architecture design, Logical and Physical Database Design

Deliverable No.	Deliverable Description
	<ul style="list-style-type: none"> - Low Level Software Design document including Programming Logic, Workflows and integration points and mechanisms - Milestone completion certificate along with documents to support milestone completion claim
D6-3	<p>System Design & Configuration report should cover the following:</p> <ul style="list-style-type: none"> - System Configuration and module wise configuration needs as per the design envisaged - Legacy and Third party System Integration/interface Report and integration of same with the envisaged solutions - Customization Development Plan and Design/development plan of components of functionalities that are not available - High Level Software Design document including Software Architecture design, Logical and Physical Database Design - Low Level Software Design document including Programming Logic, Workflows and integration points and mechanisms - Milestone completion certificate along with documents to support milestone completion claim
D7-1	<p>Conference Room Pilot Report for that specific wave shall contain the following:</p> <ul style="list-style-type: none"> - Pilot demonstration scripts and associated test data - fault reports for any package errors encountered, - Issues related to policies, procedures, package configuration values, new or modified business scenarios or scripts - Milestone completion certificate along with documents to support milestone completion claim
D7-2	<p>Conference Room Pilot Report for that specific wave shall contain the following:</p> <ul style="list-style-type: none"> -Pilot demonstration scripts and associated test data - fault reports for any package errors encountered, - Issues related to policies, procedures, package configuration values, new or modified business scenarios or scripts - Milestone completion certificate along with documents to support milestone completion claim
D7-3	<p>Conference Room Pilot Report for that specific wave shall contain the following:</p> <ul style="list-style-type: none"> - Pilot demonstration scripts and associated test data - fault reports for any package errors encountered, - Issues related to policies, procedures, package configuration values, new or modified business scenarios or scripts - Milestone completion certificate along with documents to support milestone completion claim

Deliverable No.	Deliverable Description
D8-1	<p>Software Deployment report should cover the following:</p> <ul style="list-style-type: none"> - Complete Source Code with documentation - Test Plans and Test cases (including Unit Test Plan, System/Integration Test Plan, User Acceptance Test Plan, Security Test Plan, Load Test Plan) - Software Testing Documentation (including details of defects/bugs/errors and their resolution) - User Acceptance Test Cases, Test Data and Test Results, User Acceptance Test Scripts, Unit Test Cases, Integration Test Results/ Cases - System Integration Tests (SIT) including Performance Tests (PT) - Challan of license procurement or verification through online portal of OEM - Periodic data backup and archival post Go-Live. Backup data should be tested for restorability on a quarterly basis. -Milestone completion certificate along with documents to support milestone completion claim
D8-2	<p>Software Deployment report should cover the following:</p> <ul style="list-style-type: none"> - Complete Source Code with documentation - Test Plans and Test cases (including Unit Test Plan, System/Integration Test Plan, User Acceptance Test Plan, Security Test Plan, Load Test Plan) - Software Testing Documentation (including details of defects/bugs/errors and their resolution) - User Acceptance Test Cases, Test Data and Test Results, User Acceptance Test Scripts, Unit Test Cases, Integration Test Results/ Cases - System Integration Tests (SIT) including Performance Tests (PT) - Challan of license procurement or verification through online portal of OEM - Periodic data backup and archival post Go-Live. Backup data should be tested for restorability on a quarterly basis. - Milestone completion certificate along with documents to support milestone completion claim
D8-3	<p>Software Deployment report should cover the following:</p> <ul style="list-style-type: none"> - Complete Source Code with documentation - Test Plans and Test cases (including Unit Test Plan, System/Integration Test Plan, User Acceptance Test Plan, Security Test Plan, Load Test Plan) - Software Testing Documentation (including details of defects/bugs/errors and their resolution) - User Acceptance Test Cases, Test Data and Test Results, User Acceptance Test Scripts, Unit Test Cases, Integration Test Results/ Cases - System Integration Tests (SIT) including Performance Tests (PT) - Challan of license procurement or verification through online portal of OEM - Periodic data backup and archival post Go-Live. Backup data should be tested for restorability on a quarterly basis. - Milestone completion certificate along with documents to support milestone completion claim
D9	<p>Cloud enabled Data centres establishment report should cover the following:</p> <ul style="list-style-type: none"> - Specifications & Design of DC, NDC & DRC - Installation & Commissioning of DC, NDC & DRC detailed plan

Deliverable No.	Deliverable Description
	<ul style="list-style-type: none"> - Milestone completion certificate along with documents to support milestone completion claim
D10	<p>Report on PDC, NDC readiness should cover the following:</p> <ul style="list-style-type: none"> - Challan of Hardware received from the OEM/ MSPs - Milestone completion certificate along with documents to support milestone completion claim
D11	<p>Client-side computing establishment master report should cover the following:</p> <ul style="list-style-type: none"> - Detailed specifications of devices to be procured across all locations - Location Wise Distribution of End User computing devices - Methodology/ Details of Software for tracking the inventory - Milestone completion certificate along with documents to support milestone completion claim
D12-1	<p>Client-side computing set-up completion for UAT report should cover the following:</p> <ul style="list-style-type: none"> - Devices delivery & installation report - Bill of Material (BOM) of all devices - Challan of Hardware received from the OEM/ MSPs - Milestone completion certificate along with documents to support milestone completion claim
D12-2	<p>Client-side computing set-up completion for UAT report should cover the following:</p> <ul style="list-style-type: none"> - Devices delivery & installation report - Bill of Material (BOM) of all devices - Challan of Hardware received from the OEM/ MSPs - Milestone completion certificate along with documents to support milestone completion claim
D12-3	<p>Client-side computing set-up completion for UAT report should cover the following:</p> <ul style="list-style-type: none"> - Devices delivery & installation report - Bill of Material (BOM) of all devices - Challan of Hardware received from the OEM/ MSPs - Milestone completion certificate along with documents to support milestone completion claim
D13	<p>Master Network infrastructure establishment report should cover the following:</p> <ul style="list-style-type: none"> - Comprehensive Network Design - Specifications of network equipment - Network maintenance plan - Milestone completion certificate along with documents to support milestone completion claim

Deliverable No.	Deliverable Description
D14	<p>Network infrastructure set-up completion at PDC report should cover the following:</p> <ul style="list-style-type: none"> - Established connectivity via demonstration - Network security testing Report <p>Bill of Material (BOM) of network devices & equipment</p> <ul style="list-style-type: none"> - Challan of Hardware received from the OEM/ MSPs - Milestone completion certificate along with documents to support milestone completion claim
D15	<p>Network infrastructure set-up completion for completion between PDC and Port report should cover the following:</p> <ul style="list-style-type: none"> - Established connectivity via demonstration - Network security testing Report - Bill of Material (BOM) of network devices & equipment - Challan of Hardware received from the OEM/ MSPs - Milestone completion certificate along with documents to support milestone completion claim
D16	<p>Network infrastructure set-up completion for LAN networking at Ports report should cover the following:</p> <ul style="list-style-type: none"> - Established connectivity via demonstration - Network security testing Report - Bill of Material (BOM) of network devices & equipment - Challan of Hardware received from the OEM/ MSPs - Milestone completion certificate along with documents to support milestone completion claim
D17	<p>Change Management & Training report should cover the following:</p> <ul style="list-style-type: none"> - Detailed training plan - Communication plan - Training Materials and Curriculums -Change management plan -Release management plan - Milestone completion certificate along with documents to support milestone completion claim
D18-1	<p>Change Management & Training completion report should cover the following:</p> <ul style="list-style-type: none"> - Training session-wise completion reports -Test evaluation reports including evaluation summary - Certification from IPA/port officials confirming successful completion of Change Management & Trainings -Training Manuals, documents, videos, etc. used - Milestone completion certificate along with documents to support milestone completion claim

Deliverable No.	Deliverable Description
D18-2	<p>Change Management & Training completion report should cover the following:</p> <ul style="list-style-type: none"> - Training session-wise completion reports -Test evaluation reports including evaluation summary - Certification from IPA/port officials confirming successful completion of Change Management & Trainings -Training Manuals, documents, videos, etc. used - Milestone completion certificate along with documents to support milestone completion claim
D18-3	<p>Change Management & Training completion report should cover the following:</p> <ul style="list-style-type: none"> - Training session-wise completion reports - Test evaluation reports including evaluation summary - Certification from IPA officials confirming successful completion of Change Management & Trainings -Training Manuals, documents, videos, etc. used - Milestone completion certificate along with documents to support milestone completion claim
D19	<p>Submission of Master Data migration design report should cover the following:</p> <ul style="list-style-type: none"> - Data migration assessment - Migration & transitioning approach - Milestone completion certificate along with documents to support milestone completion claim
D20-1	<p>Scanning & Digitization procedures & specification report should cover the following:</p> <ul style="list-style-type: none"> - Requirements gathering of scanning & digitization of respective ports - Detailed plan of scanning & digitization - Standard Operating manuals of scanning & digitization -Migration of the scanned Data - Milestone completion certificate along with documents to support milestone completion claim <p>Data migration completion report for Wave ONE should cover the following:</p> <ul style="list-style-type: none"> - Details of actual data in wave ONE that has been migrated - Certificate from IPA officials confirming successful completion of data migration - Milestone completion certificate along with documents to support milestone completion claim
D20-2	<p>Scanning & Digitization procedures & specification report should cover the following:</p> <ul style="list-style-type: none"> - Requirements gathering of scanning & digitization of respective ports

Deliverable No.	Deliverable Description
	<ul style="list-style-type: none"> - Detailed plan of scanning & digitization - Standard Operating manuals of scanning & digitization -Migration of the scanned Data - Milestone completion certificate along with documents to support milestone completion claim <p>Data migration completion report for Wave TWO should cover the following:</p> <ul style="list-style-type: none"> - Details of actual data in wave TWO that has been migrated - Certificate from IPA officials confirming successful completion of data migration - Milestone completion certificate along with documents to support milestone completion claim
D20-3	<p>Scanning & Digitization procedures & specification report should cover the following:</p> <ul style="list-style-type: none"> - Requirements gathering of scanning & digitization of respective ports - Detailed plan of scanning & digitization - Standard Operating manuals of scanning & digitization - Migration of the scanned Data - Milestone completion certificate along with documents to support milestone completion claim <p>Data migration completion report for Wave THREE should cover the following:</p> <ul style="list-style-type: none"> - Details of actual data in wave THREE that has been migrated - Certificate from IPA officials confirming successful completion of data migration - Milestone completion certificate along with documents to support milestone completion claim
D21-1	<p>Establishment of IT facilities management system covering the requirements for respective wave should cover the following:</p> <ul style="list-style-type: none"> - Report on Operationalization of IT Help desk - Standard Operating Procedures and Operations Manuals - Setting up of Port Service Centre including its operations workflow and manpower setup - Setting up a Central call centre to cover the scope of work and its requirements along with details on location of setup, number of people deployed in the same, monitoring mechanism, etc. - Milestone completion certificate along with documents to support milestone completion claim
D21-2	<p>Establishment of Full scale IT facilities management system covering the requirements for respective wave should cover the following:</p> <ul style="list-style-type: none"> - Report on Full Scale Operationalization of IT Help desk - Standard Operating Procedures and Operations Manuals

Deliverable No.	Deliverable Description
	<ul style="list-style-type: none"> - Setting up of Full Scale Port Service Centre including its operations workflow and manpower setup - Setting up a Full Scale Central call centre to cover the scope of work and its requirements along with details on location of setup, number of people deployed in the same, monitoring mechanism, etc. - Milestone completion certificate along with documents to support milestone completion claim
D22-1	<p>Actual deployment of Man-power at respective ports including number of people, functions, roles and responsibilities, workflow between central team, project management, etc.</p> <ul style="list-style-type: none"> - Milestone completion certificate along with documents to support milestone completion claim
D22-2	<p>Actual deployment of Man-power at respective ports including number of people, functions, roles and responsibilities, workflow between central team, project management, etc.</p> <ul style="list-style-type: none"> - Milestone completion certificate along with documents to support milestone completion claim
D22-3	<p>Actual deployment of Man-power at respective ports including number of people, functions, roles and responsibilities, workflow between central team, project management, etc.</p> <ul style="list-style-type: none"> - Milestone completion certificate along with documents to support milestone completion claim
D23	<p>Overall System Deployment report should cover the following:</p> <ul style="list-style-type: none"> - Deployment sign-off from IPA/port officials - User Manuals and System Manuals - Go-Live Certificate indicating readiness for roll-out with trainings - Pending Issues in the system, Dependencies - Updated System Design documents, specifications for every change request - Updated user Manuals, administration manuals, training manuals <p>System stabilization report should cover the following:</p> <ul style="list-style-type: none"> - Report indicating results, observations and action items - UAT Sign-off - Latest source code, application deployment files, configuration files for entire solution - Detailed changes description -Details on the overall applications deployed in respective ports -Submission of all scanned files as per requirements of ports -Exit Management Plan of the MSP in case of termination of the project/ expiring of the tenure of the project - Milestone completion certificate along with documents to support milestone completion claim

Deliverable No.	Deliverable Description
D24	<p>SLA Compliance Reports (Monthly) should cover the following:</p> <ul style="list-style-type: none"> - Performance Monitoring reports for system - SLA Compliance Reports - Patches/ Upgrades of all components - Incremental updates to solution - Change Requests Managed - Issue/ Problem/ Bugs/Defect Tracker - IT facility management services review report - Scanning & digitization completion & review - On-Going Project Updates - Audit/ Standard Compliance Reports - Milestone completion certificate along with documents to support milestone completion claim
D25	<p>The report for BCP-DR Drill for two days should include:</p> <ul style="list-style-type: none"> -The duration taken for DR migration - The list of functionalities successfully working through DR. -The health reports of infrastructure and applications. - Milestone completion certificate along with documents to support milestone completion claim
D26	<p>Master Design Document covering integration and interfacing requirements for all functionalities as envisaged in the project</p> <ul style="list-style-type: none"> - Milestone completion certificate along with documents to support milestone completion claim
D27-1	<ul style="list-style-type: none"> -Integration and interfacing requirements for functionalities to be covered -Modalities of Integration and interfacing - Milestone completion certificate along with documents to support milestone completion claim
D27-2	<ul style="list-style-type: none"> -Integration and interfacing requirements for functionalities to be covered -Modalities of Integration and interfacing - Milestone completion certificate along with documents to support milestone completion claim
D27-3	<ul style="list-style-type: none"> -Integration and interfacing requirements for functionalities to be covered -Modalities of Integration and interfacing - Milestone completion certificate along with documents to support milestone completion claim
D28-1	<p>Submission of application for UAT report should include:</p> <ul style="list-style-type: none"> - Development and integration of application code of all functionalities for that wave -sign off of Unit, Integration and system testing completion. -Test execution actuals reports with expected output.

Deliverable No.	Deliverable Description
	<ul style="list-style-type: none"> -Regression testing completion with no major defects. --communication to Port/IPA users for system readiness for UAT - Milestone completion certificate along with documents to support milestone completion claim
D28-2	<p>Submission of application for UAT report should include:</p> <ul style="list-style-type: none"> - Development and integration of application code of all functionalities for that wave -sign off of Unit, Integration and system testing completion. -Test execution actuals reports with expected output. -Regression testing completion with no major defects. --communication to Port/IPA users for system readiness for UAT - Milestone completion certificate along with documents to support milestone completion claim
D28-3	<p>Submission of application for UAT report should include:</p> <ul style="list-style-type: none"> - Development and integration of application code of all functionalities for that wave -sign off of Unit, Integration and system testing completion. -Test execution actuals reports with expected output. -Regression testing completion with no major defects. --communication to Port/IPA users for system readiness for UAT - Milestone completion certificate along with documents to support milestone completion claim
D29	<p>Establishment of Training Infrastructure including port training rooms and Online Learning Portal should include:</p> <p>Sign off from IPA/port users</p> <ul style="list-style-type: none"> - Milestone completion certificate along with documents to support milestone completion claim
D30-1	<p>Submission of training material for functionalities covered in Wave ONE should include:</p> <ul style="list-style-type: none"> -General information -Videos -Presentations -Tutorials/Manuals/Guidance -Reference - Milestone completion certificate along with documents to support milestone completion claim

Deliverable No.	Deliverable Description
D30-2	<p>Submission of training material for functionalities covered in Wave TWO should include:</p> <ul style="list-style-type: none"> -General information -Videos -Presentations -Tutorials/Manuals/Guidance -Reference - Milestone completion certificate along with documents to support milestone completion claim
D30-3	<p>Submission of training material for functionalities covered in Wave THREE should include:</p> <ul style="list-style-type: none"> -General information -Videos -Presentations -Tutorials/Manuals/Guidance -Reference - Milestone completion certificate along with documents to support milestone completion claim
D31-1	<p>Client-side computing establishment wave ONE report should cover the following:</p> <ul style="list-style-type: none"> - Location Wise Distribution of End User computing devices - Methodology/ Details of Software for tracking the inventory - Milestone completion certificate along with documents to support milestone completion claim
D31-2	<p>Client-side computing establishment wave TWO report should cover the following:</p> <ul style="list-style-type: none"> - Location Wise Distribution of End User computing devices - Methodology/ Details of Software for tracking the inventory - Milestone completion certificate along with documents to support milestone completion claim
D31-3	<p>Client-side computing establishment wave THREE report should cover the following:</p> <ul style="list-style-type: none"> - Location Wise Distribution of End User computing devices - Methodology/ Details of Software for tracking the inventory - Milestone completion certificate along with documents to support milestone completion claim
D32-1	<p>Submission of data migration report should cover the following:</p> <ul style="list-style-type: none"> - Detailed data migration plan

Deliverable No.	Deliverable Description
	<ul style="list-style-type: none"> -Data dictionary and data mapping template - Scripts required for importing data that has been migrated - Milestone completion certificate along with documents to support milestone completion claim <p>Data migration completion report for Wave ONE should cover the following:</p> <ul style="list-style-type: none"> - Details of actual data in wave ONE that has been migrated - Certificate from IPA officials confirming successful completion of data migration
D32-2	<p>Submission of data migration report should cover the following:</p> <ul style="list-style-type: none"> - Detailed data migration plan -Data dictionary and data mapping template - Scripts required for importing data that has been migrated - Milestone completion certificate along with documents to support milestone completion claim <p>Data migration completion report for Wave TWO should cover the following:</p> <ul style="list-style-type: none"> - Details of actual data in wave TWO that has been migrated - Certificate from IPA officials confirming successful completion of data migration - Milestone completion certificate along with documents to support milestone completion claim
D32-3	<p>Submission of data migration report should cover the following:</p> <ul style="list-style-type: none"> - Detailed data migration plan -Data dictionary and data mapping template - Scripts required for importing data that has been migrated - Milestone completion certificate along with documents to support milestone completion claim
D33-1	<p>Master Design Document covering integration and interfacing requirements for all functionalities to be covered under Wave ONE</p> <ul style="list-style-type: none"> - Milestone completion certificate along with documents to support milestone completion claim
D33-2	<p>Master Design Document covering integration and interfacing requirements for all functionalities to be covered under Wave TWO</p> <ul style="list-style-type: none"> - Milestone completion certificate along with documents to support milestone completion claim
D33-3	<p>Master Design Document covering integration and interfacing requirements for all functionalities to be covered under Wave THREE</p> <ul style="list-style-type: none"> - Milestone completion certificate along with documents to support milestone completion claim

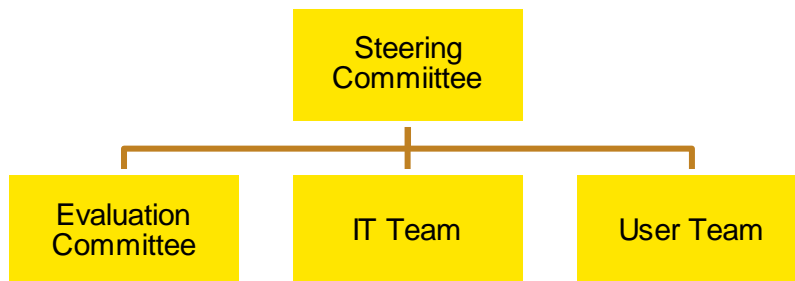
Deliverable No.	Deliverable Description
D34	Go-live of user training mobile app should include: -Sign off from IPA/port users on UI design including the various screen -Beta version -Acceptance testing sign from IPA/port users - Milestone completion certificate along with documents to support milestone completion claim
D35	Establishment of port command centre should include Milestone completion certificate along with documents to support milestone completion claim
D36	Report on DRC readiness should cover the following: - Challan of Hardware received from the OEM/ MSPs - Milestone completion certificate along with documents to support milestone completion claim
D37	Establishment of Port server room should include Milestone completion certificate along with documents to support milestone completion claim
D38	Submission of port specific metering information required for invoicing should include the Milestone completion certificate along with documents to support milestone completion claim
D39	Initiation of exit management plan as per plan should include Milestone completion certificate along with documents to support milestone completion claim

6 Project Governance and acceptance procedure

6.1 Governance Structure

Putting a governance structure around future IT potential (surrounding this solution or any other envisaged solution) is essential to ensure that project implementation stays on track and achieves its strategies and goals. It acts as a mechanism to measure the progress of the implementation. Also, the port solutions today are subject to many regulations. An IT governance framework is an efficient system to ensure compliance. As part of the project governance, each Port shall appoint three committees:

- A Evaluation Committee, which shall evaluate the business solutions proposed by the MSPs as well as the project timelines
- IT team, which will interact with the MSP and steering committee.
- A User Team, along with member of IT team will evaluate the fit of the workflows as proposed by the MSP. In addition, this team will be involved in the UAT during the implementation phase.



6.1.1 Project Steering Committee

The SC plays a key role in guiding and advising on the project implementation and the systemic transformation that the project aims at. The SC shall monitor project implementation at a broader level by coordinating with other committees. Primary responsibility of Steering Committee would be to provide project oversight and monitoring work of implemented and operation committee.

Responsibilities of the user committee shall be:

- Vetting of all deliverables at all locations on clearance of sites
- Monitoring installation, implementation, operations and monthly billing
- Liaising with other committees to provide directions and guidance
- Resolve issues arising during implementation and operations

6.1.2 IT Team

The responsibilities of the IT team shall be:

- Providing support during contract finalization with final selected MSP
- Support during project implementation including the following
 - Project management, monitoring and evaluation during the project development phase after selection of MSP to ensure adherence to the project timelines and requirements
 - Review the project plan submitted by MSP
 - Assist in reviewing the periodic reports and deliverables submitted by MSP. Highlight deviations/issues in deliverables of MSP and assist in its resolution

- Provide assistance in preparing guidelines to conduct testing and acceptance of the solution developed by the MSP including hardware, software and IT infrastructure
- Monitor and maintain issue tracker and keep on updating the status of all the issues from time to time
- Define escalation mechanism for timely resolution of issues and risks

6.1.3 Governance Schedule

- The MSP shall document the agreed structures in a procedural manual under the guidance and supervision of the Nodel Office of each port.
- The agenda for each meeting of the Steering Committee and other committees shall be set to reflect the discussion items related to the scope of work and additional items may be added either with the agreement of the Parties or at the request of either Party.
- Copies of the agenda for meetings along with relevant pre-reading material, shall be distributed.
- All meetings and proceedings will be documented; such documents to be distributed to both Parties and copies shall be kept as a record. All actions, responsibilities and accountabilities arising out of any meeting shall be tracked and managed.
- The Parties shall ensure as far as reasonably practicable that the above formed committees shall resolve the issues and resolve the objectives placed before them and members representing that Party are empowered to make relevant decisions or have easy access to empowered individuals for decisions to be made to achieve this.
- The Parties will proceed in good faith so that the Steering Committee shall resolve the issues and smoothen the performance of the Project.
- The parties agree to attempt to resolve all disputes arising under the Agreement, equitably and in good faith. To this end, the parties agree to provide frank, candid and timely disclosure of all relevant facts, information and documents to facilitate discussions between them/their representatives or senior officers.

6.2 Key Personnel

6.2.1 Project Manager

- (S)He shall be responsible for organizing, planning, directing, and coordinating the overall program effort.
- (S)He shall be responsible for allocating resources to the project
- (S)He shall be responsible for conflict management, issue and dispute resolution.
- (S)He shall participate in all fortnightly / monthly project meetings and project review meetings.
- (S)He shall review quality of project deliverables to ensure compliance with the agreed quality measures and standards.
- (S)He shall ensure compliance to the terms and conditions of the Contract and NDA signed with IPA / individual Port

6.2.2 Port Lead

- (S)He shall be at the onsite office as designated by each Port.
- (S)He shall be responsible for the overall contract performance and shall not serve in any other capacity under this contract.
- (S)He shall be responsible for organizing, planning, directing, and coordinating the overall program effort.
- (S)He shall participate in the steering committee meetings.
- (S)He shall be responsible for overall Project Planning.
- (S)He shall be responsible for managing the team resources and ensuring their optimum allocation.
- (S)He shall review the integration test plan for completeness and correctness.
- (S)He shall manage integration testing along with Solution Architect (Software) and Testing Engineers.
- (S)He shall prepare Performance Test Plan which shall specify the business transactions that shall be tested for performance.
- (S)He shall have extensive experience and proven expertise in managing similar multitask contracts of this type and complexity.
- (S)He shall have a thorough understanding and knowledge of the principles and methodologies associated with program management, vendor management, quality assurance metrics and techniques, and configuration management tools.
- (S)He shall be available onsite for full time during project implementation.

6.2.3 Functional Leads

- (S)He shall have an ability to understand the complexities of the Business and understand the requirements from business users.
- (S)He shall work with the business users of the applications and Programmers to translate the business needs and requirements into Functional specifications which can be used by the Programmers for implementation.
- Provide guidance to IPA / Port on devising effective and efficient approaches to achieve the project objectives.
- (S)He shall be able to analyze and map processes (current state/future state).
- (S)He shall be able to produce high quality documentation.
- (S)He shall be responsible for reporting status and issues to the Project Manager.
- (S)He shall act as a liaison between the technology and domain.
- (S)He shall understand the requirements from the Functions' perspective and translate them into a form (System Requirements Specifications) that can be understood and acted on by the application development and maintenance team.
- (S)He shall assist the QA Team Leader and Testing Engineers in preparation of test plans, test cases, test data, etc.
- (S)He shall assist during User Acceptance Testing & Implementation activities.

- (S)He shall review and provide guidance to Technical Writers while drafting User Manuals, Training Materials, FAQs, etc.

6.2.4 Solution Architect (Hardware and Network)

- The Infrastructure Architect shall have the capability to design platform solutions to support applications, including their integration with database, network, and storage solutions.
- (S)He shall possess extensive detailed working knowledge and acumen in enterprise architecture best practices, including, but not limited to, logical and physical data architectures, network communications, operating systems, applications, data base servers, application servers, web servers, server consolidation, server performance, middleware, etc.
- (S)He shall have the ability to address specialized and complex infrastructure architectural issues.
- (S)He shall have extensive experience in infrastructure architecture discipline(s) of similar complexity as described in the tender.
- (S)He should have the capability to address key security and privacy requirements of the network.
- (S)He should implement using appropriate technologies and thereby design secure network solutions.
- (S)He should have specialization on a range of solutions, including, but not limited to, making appropriate use of PKI, intrusion detection / prevention, VPN, single sign-on, firewalls, and all elements of network-level security.
- (S)He should possess extensive knowledge and experience in network technology, network design, operations, encryption, information access, and authentication processes.

6.3 Key Requirements

6.3.1 Initial Composition, Full Time Obligation; Continuity of Personnel

- 1.1.1.** MSP shall ensure that each member of the Key Personnel devotes substantial working time to perform the services to which that person has been assigned as per the proposal.
- 1.1.2.** MSP shall not make any changes to the composition of the Key Personnel and not require or request any member of the Key Personnel to cease or reduce his or her involvement in the provision of the Services during the Term (or agree to any request other than from Purchaser that would have the same effect):
 - i. Unless that person resigns, is terminated for cause, dies, is long-term disabled, is on permitted mandatory leave under Applicable Law or retires; and
 - ii. without Purchaser's prior written consent. The clauses of non-disclosure agreement shall always operate in any such case.

6.3.2 Evaluations

- a. MSP shall carry out an evaluation of the performance of each member of the Key Personnel in connection with the Services at least once in each Contract Year. MSP shall provide reasonable

written notice to Purchaser of the date of each evaluation of each member of the Key Personnel and Purchaser shall be entitled to provide MSP with input for each such evaluation.

- b. MSP shall promptly provide the results of each evaluation to Purchaser, subject to Applicable Law.

6.3.3 Replacement

- a. In case the resource has resigned, then the MSP has to inform Purchaser within one week of such resignation.
- b. MSP shall promptly initiate a search for a replacement and use commercially reasonable efforts (including the expenditure of reasonable sums, such as to engage the services of a recruiting firm) to ensure that the role of any member of the Key Personnel is not vacant for any longer than 30 days, subject to reasonable extensions requested by MSP of Purchaser.
- c. Before assigning any replacement member of the Key Personnel to the provision of the Services, MSP shall provide Purchaser with:
 - i. A resume, curriculum vitae and any other information about the candidate that is reasonably requested by Purchaser; and
 - ii. An opportunity to interview the candidate, if required.
- d. The MSP has to provide replacement resource, who scores at least the same marks as the resource proposed originally on the same evaluation parameters defined in this RFP document. Once this confirmation is received, Purchaser may request for an interview of the candidate and notify MSP within mutually agreed timelines. If Purchaser does not request an interview within mutually agreed timelines then it would be deemed as accepted.
- e. If Purchaser does object to the appointment, MSP shall not assign the individual to that position and shall seek an alternative candidate in accordance with this Section.
- f. The MSP has to ensure at least 4 weeks of overlap period in such replacements.

6.3.4 High Attrition

- a. If in the first 6 month period from the Contract Effective Date or in any rolling 12 months period during the Term, 15 percent or more of the members of the Key Personnel cease or reduce their involvement in the Services for any reason other than with Purchaser's prior written consent, MSP shall:
 - i. Provide Purchaser with a reasonably detailed explanation as to the reasons for such change, including, where applicable and permitted, notes from any exit interviews conducted by MSP with any departing member of the Key Personnel; and
 - ii. If such change to Key Personnel has or is likely to have any material adverse impact on the provision of the Services or any substantial part thereof, undertake, at its own costs, such remediation acts as are reasonably necessary in order to improve the retention of the Key Personnel including making reasonable changes to the human resources policies and procedures applicable to the Key Personnel (including those related to compensation, benefits and other conditions so that they are competitive with the market) as may be necessary to ensure that such policies and procedures comply with Best Industry Practice.

6.3.5 Solicitation of Employees

- a. During the Termination Period and thereafter, Purchaser shall have the right to solicit and hire:
 - i. In case of a termination for convenience, all members of the Key Personnel; and
 - ii. In case of a termination other than for convenience, all members of the Key Personnel; plus, in each case, any two members of the MSP Team (other than Key Personnel) of MSP's choice and at its sole discretion.

6.4 Acceptance procedure for Deliverables

MSP is responsible for providing all the deliverable's to IPA as defined in project deliverables. All the project deliverables shall be submitted by MSP for approval through Project Management Information system (PMIS) only. This system will be developed by MSP as a part of system development.

#	Sequence of Activities	Medium	Actor
1	Deliverable acceptance		
1.1	MSP shall upload the deliverables in the system for approval by respective authorities (IPA and ports). And also send an email to designated email addresses along with the deliverable. Soft copy (by e-mail) and two (2) printed drafts of all deliverables shall be submitted to IPA / Ports (one for IPA and one for port). Source code however need not be submitted in hard-copy		MSP
1.2	IPA / Port will review the deliverables and either accept the deliverable or provide feedback on changes to be done in writing within a reasonable period of time The MSP shall make the appropriate revisions and shall resubmit the updated final version to IPA / Port or their verification and feedback/acceptance The MSP should strive to submit the deliverables in parts for getting continuous feedback on the deliverables. The MSP should also engage with IPA / Ports on a continuous basis through meetings (weekly till 6 months after Go-live and fortnightly after this period) and periodic workshops to ensure that progress may be reviewed and feedback provided from time-to-time. Please note that the timelines indicated above are timelines for submission of final deliverables. MSP should plan to submit the draft versions of deliverables before the timelines indicated above to allow reasonable time for review and acceptance by the time indicated above.	PMIS	MSP / IPA / Ports
1.3	Based on an mutually agreed workflow enabled through PMIS, IPA & Port user will approve the deliverables		IPA & Port
2	Payment authorization	PMIS	

2.1	Only when the deliverables are approved within the PMIS, MSP shall raise payment request		MSP
2.2	Port user shall authorize the payment request within PMIS		IPA & Port
3	Payment release from funds		
3.2	Once the payment request is authorized, IPA shall release the payment and shall intimate the port user	Offline	IPA
4	Status update of payment		
4.1	Once the payment release intimation is received from IPA, port user will update the Payment release status in the system	PMIS	IPA/port user

7 Bill of Material

<Refer to ANNEXURE file >

8 ANNEXURES

8.1 Existing system details

<Refer to ANNEXURE file>

8.2 Requirement specifications

8.2.1 Functional specifications

<Refer to ANNEXURE file>

8.2.2 Software Specifications

<Refer to ANNEXURE file>

8.2.3 Technical Specifications

<Refer to ANNEXURE file>

8.3 Volumetric details

<Refer to ANNEXURE file>

Request for Proposal (RFP) for
**“Selection of Managed Service Provider (MSP) for
Implementation of Enterprise Business System in Five Major
Indian Ports”**

VOLUME 3 – Master Service Agreement

Date: 26 December 2016

Bid Reference IPA/ICTD/ERP/2016



Indian



Ports



Association

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1) MASTER SERVICES AGREEMENT

THIS MASTER SERVICE AGREEMENT ("Agreement") is made on this the <***> day of <***> 20... at <***>, India.

BETWEEN

----- Having its office at -----
----- India hereinafter referred to as '**Indian Port Association / 'IPA'**', which expression shall, unless the context otherwise requires, include its permitted successors and assigns);

AND

<***>, a Company incorporated under the <Act Name >, having its registered office at <***> (hereinafter referred to as '**the Managed Service Provider/MSP**' which expression shall, unless the context otherwise requires, include its permitted successors and assigns).

Each of the parties mentioned above are collectively referred to as the '**Parties**' and individually as a '**Party**'.

WHEREAS:

- IPA is desirous for Implementation and Operations Management of Enterprise Business System in five major Indian ports.
- In furtherance of the same, IPA undertook the selection of a suitable Managed Service Provider through a competitive bidding process for implementing the Project and in this behalf issued Request for Proposal (RFP) dated <***> .
- The successful bidder has been selected as the Managed Service Provider on the basis of the bid response set out as Annexure D (Including all the documents submitted as part of the bid submission including technical bid, clarifications, and commercial bids) of this Agreement, to undertake the Project of the development and implementation of the solution, its roll out and sustained operations.

NOW THEREFORE, in consideration of the mutual covenants, promises, assurances, representations and provisions set forth herein, the Parties hereto agree as follows:

DEFINITIONS AND INTERPRETATION

Definitions

Terms and expressions used in this Agreement (including the Introduction) shall have the meanings set out in Schedule I.

Other terms used in this Agreement are defined where they are used and have the meanings there indicated. Unless otherwise specifically defined, those terms, acronyms and phrases in this Agreement that are utilized in the information technology services industry or other pertinent business context shall be interpreted in accordance with their generally understood meaning in such industry or business context.

Interpretation

In this Agreement, unless otherwise specified:

- (a) references to Clauses, Sub-Clauses, Paragraphs, Schedules and Annexures are to clauses, sub-clauses, paragraphs, schedules and Annexures to this Agreement;
- (b) Words denoting singular use the plural and vice-versa and use of any gender includes the other genders;
- (c) references to a '**company**' shall be construed so as to include any company, corporation or other body corporate, wherever and however incorporated or established;
- (d) references to a '**person**' shall be construed so as to include any individual, firm, company, government, state or agency of a state, local or municipal authority or government body or any joint venture, association or partnership (whether or not having separate legal personality);
- (e) a reference to any statute or statutory provision shall be construed as a reference to the same as it may have been, or may from time to time be, amended, modified or re-enacted;
- (f) any reference to a '**day**' (including within the phrase 'business day') shall mean a period of 24 hours running from midnight to midnight unless otherwise specified;
- (g) References to a '**Business day**' shall be construed as a reference to a day (other than Saturday, Sunday and other gazette holidays) on which IPA or its nominated agencies/ partners is generally open for business at their respective locations.
- (h) references to times are to Indian Standard Time;
- (i) a reference to any other document referred to in this Agreement is a reference to that other document as amended, varied, novated or supplemented at any time; and
- (j) All headings and titles are inserted for convenience only. They are to be ignored in the interpretation of this Agreement.
- (k) Managed Service Provider (MSP) has been used for the same entity i.e. bidder selected for the project.

Measurements and Arithmetic Conventions

All measurements and calculations shall be in the metric system and calculations done to 2 (two) decimal places, with the third digit of 5 (five) or above being rounded up and below 5 (five) being rounded down except in money calculations where such amounts shall be rounded off to the nearest INR.

Ambiguities within Agreement

In case of ambiguities or discrepancies within this Agreement, the following principles shall apply:

- as between two Clauses of this Agreement, the provisions of a specific Clause relevant to the issue under consideration shall prevail over those in a general Clause;
- as between the provisions of this Agreement and the Schedules/Annexures, the Agreement shall prevail, save and except as expressly provided otherwise in the Agreement or the Schedules/Annexures; and
- as between any value written in numerals and that in words, the value in words shall prevail.

Priority of documents

- (a) This Agreement, including its Schedules and Annexures, represents the entire agreement between the Parties as noted in this Clause. If in the event of a dispute as to the interpretation or meaning of this Agreement it should be necessary for the Parties to refer to documents forming part of the bidding process leading to this Agreement, then such documents shall be relied upon and interpreted in the following descending order of priority:
- This Agreement along with
 - the SLA agreement,
 - NDA agreement,
 - Schedules and Annexures;
 - the RFP along with subsequently issued corrigendum
 - Technical and commercial proposal submitted by the successful bidder, to the extent they along with subsequently issued clarifications furnished by the MSP in response to the RFP, to the extent they are not inconsistent with any terms of the RFP
- (b) For the avoidance of doubt, it is expressly clarified that in the event of a conflict between this Agreement, Annexures / Schedules or the contents of the RFP, the terms of this Agreement shall prevail over the Annexures / Schedules and Annexures / Schedules shall prevail over the contents and specifications of the RFP.

2) SCOPE OF THE PROJECT

- a) The Managed Service Provider shall be required to develop /customize and implement “Enterprise Business System in five Major Indian Ports”, manage and provide technical support to the solution for the period of 5 years from the date of Go-Live.
- b) The roles and responsibilities of the Parties under this Agreement have been set out in detail as Annexure F of this Agreement and RFP.
- c) For the avoidance of doubt, it is expressly clarified that this Agreement shall govern the provision of the contracted professional services under the SLA to IPA and its nominated agencies. It is anticipated that new or renewal agreements may be undertaken by creating a separate SLA, with schedules and annexures as required, under this Agreement for each additional engagement.

Scope of work

As per the scope of work defined in volume 2 of the RFP.

3) TERM AND DURATION OF THE AGREEMENT

- (a) This Agreement shall come into effect on <***> (hereinafter the “Effective Date”) and shall, unless terminated earlier in accordance with its terms, expire on the date on which this Agreement expires, which shall be a period of five years from ‘Go-Live’ of Project and any extended period notified by IPA.
- (b) In the case of such extension of contract beyond the stipulated period, the warranties, Performance Bank Guarantee, Exit management protocol, insurance etc. shall be extended for equivalent period.
- (c) The Term, for the purposes of any payments to MSP, does not include (a) any extension arising out of breach of any obligations by MSP, (b) unless otherwise agreed, time duration for implementation of exit management plan.

4) CONDITIONS PRECEDENT & EFFECTIVE DATE

Provisions to take effect upon fulfilment of Conditions Precedent

- (a) Subject to express terms to the contrary, the rights and obligations under this Agreement (at any point of time during the course of the Agreement) shall take effect only upon fulfilment of all the Conditions Precedent set out below. However, IPA may at any time at its sole discretion waive fully or partially any of the Conditions Precedent for the Managed Service Provider. For the avoidance of doubt, it is expressly clarified that the obligations of the Parties (or its nominated agencies) under this Agreement shall commence from the fulfilment of the Conditions Precedent as set forth below.

Conditions

a. Conditions Precedent of the Managed Service Provider

The Managed Service Provider shall be required to fulfill the Conditions Precedent which are as follows:

- (i) to provide a Performance Security/Guarantee and other guarantees/ payments as and when required to IPA or its nominated agencies; and
- (ii) to provide IPA or its nominated agencies certified true copies of its constitutional documents and board resolutions authorizing the execution, delivery and performance of this Agreement by the Managed Service Provider.

b. Conditions Precedent of IPA

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.

For the avoidance of doubt, it is expressly clarified that the obligations of the Parties except the financial obligations of IPA under this Agreement shall commence from the fulfilment of the Conditions Precedent as set forth above.

Extension of time for fulfillment of Conditions Precedent

- (a) The Parties may, by mutual agreement extend the time for fulfilling the Conditions Precedent and the Term of this Agreement.
- (b) For the avoidance of doubt, it is expressly clarified that any such extension of time shall be subject to imposition of penalties on the Managed Service Provider linked to the delay in fulfilling the Conditions Precedent.

Non-fulfilment of the Managed Service Provider's Conditions Precedent

- (a) In the event that any of the Conditions Precedent of the Managed Service Provider have not been fulfilled within 15 days of signing of this Agreement and the same have not been waived fully or partially by IPA or its nominated agencies, this Agreement shall cease to exist;
- (b) In the event that the Agreement fails to come into effect on account of non fulfilment of the Managed Service Provider's Conditions Precedent, IPA or its nominated agencies shall not be liable in any manner whatsoever to the Managed Service Provider and IPA shall forthwith forfeit the Performance Guarantee.
- (c) In the event that possession of any of IPA or its nominated agencies facilities has been delivered to the Managed Service Provider prior to the fulfillment of the Conditions Precedent, upon the termination of this Agreement such shall immediately revert to IPA or its nominated agencies, free and clear from any encumbrances or claims.

5) OBLIGATIONS UNDER THE SLA

- (a) The SLA shall be a separate contract in respect of this Agreement and shall be entered into concurrently with this Agreement between IPA and Managed Service Provider;
- (b) In relation to any future SLA entered into between the Parties; each of the Parties shall observe and perform the obligations set out herein.

Change of Control

- (a) In the event of a change of control of the Managed Service Provider during the Term, the Managed Service Provider shall promptly notify IPA of the same in the format set out as Annexure A of this Agreement.
- (b) In the event that the net worth of the surviving entity is less than that of Managed Service Provider prior to the change of control, IPA may within 30 days of becoming aware of such change in control, require a replacement of existing Performance Guarantee furnished by the Managed Service Provider from a guarantor acceptable to IPA (which shall not be Managed Service Provider or any of its associated entities).

- (c) If such a guarantee is not furnished within 30 days of IPA requiring the replacement, IPA may exercise its right to terminate the SLA and/ or this Agreement within a further 30 days by written notice, to become effective as specified in such notice.
- (d) Pursuant to termination, the effects of termination as set out in Clause 15 of this Agreement shall follow.
- (e) For the avoidance of doubt, it is expressly clarified that the internal reorganization of the Managed Service Provider shall not be deemed an event of a change of control for purposes of this Clause unless the surviving entity is of less net worth than the predecessor entity.

Final testing and certification

The Project shall be governed by the mechanism of final acceptance testing and certification to be put into place by IPA and Managed Service Provider as under:

- (a) Final testing and certification criteria will lay down a set of guidelines following internationally accepted norms and standards for testing and certification for all aspects of project development and implementation covering software, hardware and networking including the processes relating to the design of solution architecture, design of systems and sub- systems, coding, testing, business process description, documentation, version control, change management, security, service oriented architecture, performance in relation to compliance with SLA metrics, interoperability, scalability, availability and compliance with all the technical and functional requirements of the RFP and this Agreement;
- (b) Final testing and certification criteria will be finalized from the development stage to ensure that the guidelines are being followed and to avoid large scale modifications pursuant to testing done after the application is fully developed;
- (c) Final testing and certification criteria will consider conducting specific tests on the software, hardware, networking, security and all other aspects;
- (d) Final testing and certification criteria will establish appropriate processes for notifying the Managed Service Provider of any deviations from the norms, standards or guidelines at the earliest instance after taking cognizance of the same to enable the Managed Service Provider to take corrective action; etc.
- (e) The Parties shall each ensure that the range of the Services under the SLA shall not be varied, reduced or increased except with the prior written agreement between IPA and Managed Service Provider in accordance with the Change Control Schedule set out in Schedule II of this Agreement. Save for the express terms of the Terms of Payment Schedule set out as Schedule VI of this Agreement, IPA and its users may purchase any particular category of Services that may become necessary as per the Change Control Schedule set out in Schedule II of this Agreement, without the need to go for a separate procurement process.

6) REPRESENTATIONS AND WARRANTIES

Representations and warranties of the Managed Service Provider

The Managed Service Provider represents and warrants to IPA that:

- (a) it is duly organized and validly existing under the laws of India, and has full power and authority to execute and perform its obligations under this Agreement and other agreements and to carry out the transactions contemplated hereby;
- (b) it is a competent provider of a variety of information technology and business process management services;

- (c) it has taken all necessary corporate and other actions under laws applicable to its business to authorize the execution and delivery of this Agreement and to validly exercise its rights and perform its obligations under this Agreement;
- (d) from the Effective Date, it will have the financial standing and capacity to undertake the Project in accordance with the terms of this Agreement;
- (e) in providing the Services, it shall use reasonable endeavors not to cause any unnecessary disruption to IPA's normal business operations
- (f) this Agreement has been duly executed by it and constitutes a legal, valid and binding obligation, enforceable against it in accordance with the terms hereof, and its obligations under this Agreement shall be legally valid, binding and enforceable against it in accordance with the terms hereof;
- (g) the information furnished in the tender documents and as updated on or before the date of this Agreement is to the best of its knowledge and belief true and accurate in all material respects as at the date of this Agreement;
- (h) the execution, delivery and performance of this Agreement shall not conflict with, result in the breach of, constitute a default by any of the terms of its Memorandum and Articles of Association or any Applicable Laws or any covenant, contract, agreement, arrangement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;
- (i) there are no material actions, suits, proceedings, or investigations pending or, to its knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi-judicial or other authority, the outcome of which may result in the breach of this Agreement or which individually or in the aggregate may result in any material impairment of its ability to perform any of its material obligations under this Agreement;
- (j) it has no knowledge of any violation or default with respect to any order, writ, injunction or decree of any court or any legally binding order of any Government Instrumentality which may result in any adverse effect on its ability to perform its obligations under this Agreement and no fact or circumstance exists which may give rise to such proceedings that would adversely affect the performance of its obligations under this Agreement;
- (k) it has complied with Applicable Laws in all material respects and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have an Adverse Effect on its ability to perform its obligations under this Agreement;
- (l) no representation or warranty by it contained herein or in any other document furnished by it to IPA in relation to the Required Consents contains or shall contain any untrue or misleading statement of material fact or omits or shall omit to state a material fact necessary to make such representation or warranty not misleading; and
- (m) no sums, in cash or kind, have been paid or shall be paid, by it or on its behalf, to any person by way of fees, commission or otherwise for entering into this Agreement or for influencing or attempting to influence any officer or employee of IPA in connection therewith. For this purpose IPA will sign integrity pact separately with Managed Service Provider enclosed with this agreement.

Representations and warranties of IPA

IPA represent and warrant to the Managed Service Provider that:

- (a) it has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated herein and that it has taken all actions necessary to execute this Agreement, exercise its rights and perform its obligations, under this Agreement and carry out the transactions contemplated hereby;

- (b) it has taken all necessary actions under Applicable Laws to authorize the execution, delivery and performance of this Agreement and to validly exercise its rights and perform its obligations under this Agreement;
- (c) it has the financial standing and capacity to perform its obligations under the Agreement;
- (d) it is subject to the laws of India, and hereby expressly and irrevocably waives any immunity in any jurisdiction in respect of this Agreement or matters arising thereunder including any obligation, liability or responsibility hereunder;
- (e) this Agreement has been duly executed by it and constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms hereof and its obligations under this Agreement shall be legally valid, binding and enforceable against it in accordance with the terms thereof;
- (f) the execution, delivery and performance of this Agreement shall not conflict with, result in the breach of, constitute a default under, or accelerate performance required by any of the Applicable Laws or any covenant, contract, agreement, arrangement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;
- (g) there are no actions, suits or proceedings pending or, to its knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi-judicial or other authority, the outcome of which may result in the default or breach of this Agreement or which individually or in the aggregate may result in any material impairment of its ability to perform its material (including any payment) obligations under this Agreement;
- (h) it has no knowledge of any violation or default with respect to any order, writ, injunction or any decree of any court or any legally binding order of any Government Instrumentality which may result in any Adverse Effect on IPA or its nominated agencies ability to perform its obligations under this Agreement and no fact or circumstance exists which may give rise to such proceedings that would adversely affect the performance of its obligations under this Agreement;
- (i) it has complied with Applicable Laws in all material respects;
- (j) all information provided by it in the RFP in connection with the Project is, to the best of its knowledge and belief, true and accurate in all material respects; and
- (k) all information provided by it in the RFP in connection with the Project is, to the best of its knowledge and belief, true and accurate in all material respects; and
- (l) upon the Managed Service Provider performing the covenants herein, it shall not at any time during the term hereof, interfere with peaceful exercise of the rights and discharge of the obligations by the Managed Service Provider, in accordance with this Agreement.

7) OBLIGATIONS OF IPA

Without prejudice to any other undertakings or obligations of IPA under this Agreement, IPA shall perform the following:

- (a) To provide any support through personnel to test the system during the Term;
- (b) To provide any support through personnel and/or test data during development, rollout, steady state operation, as well as, for any changes/enhancements in the system whenever required due to scope change that may arise due to business, delivery or statutory/regulatory reasons;
- (c) IPA shall provide the data (including in electronic form wherever applicable/available) to be migrated.
- (d) To authorize the Managed Service Provider to interact for implementation of the Project with external entities such as the authorized banks, trademark database etc.

- (e) Provide prompt Deliverable feedback: IPA or its nominated agencies/ partners shall provide sign offs on the deliverable or its comments for changes. In case the IPA or its nominated agencies/ partners fails to respond and provide feedback on above stated submission, the deliverables or SLA and performance reports will be deemed accepted. Any subsequent rework post acceptance/ deemed acceptance would form the subject of a formal change request under the provisions of this Agreement.

8) OBLIGATIONS OF THE MANAGED SERVICE PROVIDER

- (a) It shall provide to IPA or its nominated agencies/ partners, the Deliverables as set out in Annexure C of this Agreement.
- (b) It shall perform the Services as set out in Section 2 of this Agreement and in a good and workmanlike manner commensurate with industry and technical standards which are generally in effect for international projects and innovations pursuant thereon similar to those contemplated by this Agreement, and so as to comply with the applicable Service Levels set out with this Agreement.
- (c) It shall ensure that the Services are being provided as per the Project Timelines set out in the RFP.

9) APPROVALS AND REQUIRED CONSENTS

- (a) The Parties shall cooperate to procure, maintain and observe all relevant and regulatory and governmental licenses, clearances and applicable approvals (hereinafter the "Required Consents") necessary for the Managed Service Provider to provide the Services. The costs of such Approvals shall be borne by the Party normally responsible for such costs according to local custom and practice in the locations where the Services are to be provided.
- (b) IPA or its nominated agencies/partners shall use reasonable endeavors to assist Managed Service Provider to obtain the Required Consents. In the event that any Required Consent is not obtained, the Managed Service Provider and IPA will co-operate with each other in achieving a reasonable alternative arrangement as soon as reasonably practicable for IPA to continue to process its work with as minimal interruption to its business operations as is commercially reasonable until such Required Consent is obtained, provided that the Managed Service Provider shall not be relieved of its obligations to provide the Services and to achieve the Service Levels until the Required Consents are obtained if and to the extent that the Managed Service Provider's obligations are not dependent upon such Required Consents.

10) USE OF ASSETS BY THE MANAGED SERVICE PROVIDER

During the Term the Managed Service Provider shall:

- (a) take all reasonable and proper care of the entire hardware and software, network or any other information technology infrastructure components used for the Project and other facilities leased / owned / operated by the Managed Service Provider exclusively in terms of ensuring their usability for the delivery of the Services as per this Agreement (hereinafter the "**Assets**") in proportion to their use and control of such Assets; and
- (b) keep all the tangible Assets in as good and serviceable condition (reasonable wear and tear excepted) as at the date the Managed Service Provider takes control of and/or first uses the Assets and during the entire Term of the Agreement.
- (c) ensure that any instructions or manuals supplied by the manufacturer of the Assets for use of the Assets and which are provided to the Managed Service Provider will be followed by the Managed Service Provider and any person who will be responsible for the use of the Assets;
- (d) take such steps as may be properly recommended by the manufacturer of the Assets and notified to the Managed Service Provider or as may, in the reasonable opinion of the Managed Service Provider, be necessary to use the Assets in a safe manner;
- (e) ensure that the Assets that are under the control of the Managed Service Provider, are kept suitably housed and in conformity with Applicable Law;
- (f) procure permission from IPA and any persons duly authorized by them to enter any land or premises on which the Assets are for the time being sited so as to inspect the same, subject to any reasonable third party requirements;

- (g) not, knowingly or negligently use or permit any of the Assets to be used in contravention of any statutory provisions or regulation or in any way contrary to Applicable Law.
- (h) use best efforts to ensure that no lien, mortgage, hypothecation or any other charge is created over the Assets. MSP agrees that MSP will inform IPA immediately if MSP feels or comes to know that a charge may be / has been created over any Asset(s). In the event a charge is created over any of the Assets / Goods which are owned by IPA, IPA shall have the right to get the charge removed at the risk, cost, expense of the MSP and MSP shall make good all losses, damages, costs, fees, cess, duties, etc. borne or suffered by IPA due to creation of such charge and/or in removal of such charge and/or in discharging the obligations for removal of such charge.

11) ACCESS TO IPA or It's Nominated Agencies'/ Partners' LOCATIONS

- (a) For so long as the Managed Service Provider provides services to IPA location, as the case may be, on a non-permanent basis and to the extent necessary, IPA as the case may be shall, subject to compliance by the Managed Service Provider with any safety and security guidelines which may be provided by IPA as the case may be and notified to the Managed Service Provider in writing, provide the Managed Service Provider with:
- reasonable access with prior approval of IPA, in the same manner granted to IPA employees, to IPA as the case may be location twenty-four hours a day, seven days a week;
 - reasonable work space, access to office equipment as mutually agreed and other related support services in such location and at such other IPA as the case may be location, if any, as may be reasonably necessary for the Managed Service Provider to perform its obligations hereunder and under the SLA.
- (b) Access to locations, office equipment and services shall be made available to the Managed Service Provider on an "as is, where is" basis by IPA as the case may be. The Managed Service Provider agrees to ensure that its employees, agents and contractors shall not use the location, services and equipment referred to in RFP for the following purposes:
- for the transmission of any material which is defamatory, offensive or abusive or of an obscene or menacing character; or
 - in a manner which constitutes a violation or infringement of the rights of any person, firm or company (including but not limited to rights of copyright or confidentiality).

12) MANAGEMENT PHASE

Governance

The review and management process of this Agreement shall be carried out in accordance with the Governance Schedule set out in Schedule V of this Agreement and shall cover all the management aspects of the Project.

Use of Services

- (a) IPA as the case may be or its nominated agencies/ partners, will undertake and use the Services in accordance with any instructions or procedures as per the acceptance criteria as set out in the SLA or this Agreement or any agreement that may be entered into between the Parties from time to time;
- (b) IPA as the case may be or its nominated agencies/ partners shall be responsible for the operation and use of the Deliverables resulting from the Services.

Changes

Unless expressly dealt with elsewhere in this Agreement, any changes under or to this Agreement or under or to the SLA shall be dealt with in accordance with the Change Control Schedule set out in Schedule II of this Agreement.

Security and Safety

- (a) The Managed Service Provider shall comply with the technical requirements of the relevant security, safety and other requirements specified in the Information Technology Act or Telegraph Act including the regulations issued by dept. of telecom (wherever applicable), IT Security Manual of IPA as specifically stated in the RFP and follow the industry standards related to safety and security (including those as stated in the RFP), insofar as it applies to the provision of the Services/Deliverables under this Agreement.
- (b) Each Party to the SLA/Agreement shall also comply with IPA or the Government of India's security standards and policies in force from time to time at each location of which IPA make the Managed Service Provider aware in writing insofar as the same apply to the provision of the Services.
- (c) The Parties to the SLA/Agreement shall use reasonable endeavors to report forthwith in writing to each other all identified attempts (whether successful or not) by unauthorized persons (including unauthorized persons who are employees of any Party) either to gain access to or interfere with IPA as the case may be or any of their nominees data, facilities or Confidential Information.
- (d) The Managed Service Provider shall upon reasonable request by IPA as the case may be or their nominee(s) participate in regular meetings when safety and information technology security matters are reviewed.
- (e) As per the provisions of the SLA or this Agreement, the Managed Service Provider shall promptly report in writing to IPA, any act or omission which they are aware that could have an adverse effect on the proper conduct of safety and information technology security at the facilities of IPA as the case may be.

Cooperation

Except as otherwise provided elsewhere in this Agreement or the SLA, each Party ("**Providing Party**") to this Agreement or to the SLA undertakes promptly to provide the other Party ("**Receiving Party**") with all such information and co-operation which the Receiving Party reasonably requests, provided that such information and co-operation:

- (a) does not require material expenditure by the Providing Party to provide the same;
- (b) is reasonably required by the Receiving Party in order for it to comply with its obligations under this Agreement or the SLA;
- (c) cannot be construed to be Confidential Information; and

(d) is capable of being provided by the Providing Party.

Further, each Party agrees to co-operate with the contractors and subcontractors of the other Party as reasonably requested in order to accomplish the purposes of this Agreement.

13) FINANCIAL MATTERS

Terms of Payment and Service Credits and Debits

(a) In consideration of the Services and subject to the provisions of this Agreement and of the SLA, IPA shall pay the Managed Service Provider for the Services rendered in pursuance of this Agreement, in accordance with the Terms of Payment Schedule set out as Schedule VI of this Agreement.

(b) Payments shall be subject to the application of liquidated damages (for period prior to "Go Live") or SLA penalties and its adjustments/corrections (for post "Go-Live") as may be provided for in the Agreement and the SLA from the relevant milestone(s).

[Note: IPA (on request from successful bidders) can look at having a separate mechanism for settling penalties/ service credits rather than the set off against the invoice as this could revenue recognition issues. However, the successful bidder has to ensure that such settlement happens within a stipulated timeframe]

(c) Save and except as otherwise provided for herein or as agreed between the Parties in writing, IPA shall not be required to make any payments in respect of the Services (or, without limitation to the foregoing, in respect of the Managed Service Provider performance of any obligations under this Agreement or the SLA) other than those covered in Schedule VI of this Agreement. For the avoidance of doubt, it is expressly clarified that the payments shall be deemed to include all ancillary and incidental costs and charges arising in the course of delivery of the Services including consultancy charges, infrastructure costs, project costs, implementation and management charges and all other related costs including taxes which are addressed in this Clause.

Invoicing and Settlement

(a) Subject to the specific terms of the SLA, the Managed Service Provider shall submit its invoices in accordance with the following principles:

(i) IPA shall be invoiced by the Managed Service Provider for the Services. Generally and unless otherwise agreed in writing between the Parties or expressly set out in the SLA, the Managed Service Provider shall raise an invoice as per Schedule VI of this Agreement; and

(ii) Any invoice presented in accordance with this clause shall be in a form as agreed with IPA.

(b) The Managed Service Provider alone shall invoice all payments after receiving due approval of completion of payment milestone from the competent authority. Such invoices shall be accurate and all adjustments to or changes in the terms of payment as stated in Schedule VI of this Agreement. The Managed Service Provider shall waive any charge for a Service that is not invoiced within six months after the end of the month in which the charge relating to such Service is (i) authorized or (ii) incurred, whichever is later.

(c) Payment shall be made within 60 working days of the receipt of invoice along with supporting documents by IPA subject to subject to deduction of applicable liquidated damages and/or service credits/debits. The penalties are imposed on the Managed Service Provider as per the penalty criteria specified in the SLA.

- (d) IPA shall be entitled to delay or withhold payment of any invoice or part of it delivered by the Managed Service Provider under Schedule VI of this Agreement where IPA disputes/withholds such invoice or part of it provided that such dispute is bona fide. The withheld amount shall be limited to that which is in dispute. The disputed / withheld amount shall be settled in accordance with the escalation procedure as set out in Schedule V of this Agreement. Any exercise by IPA under this Clause shall not entitle the Managed Service Provider to delay or withhold provision of the Services.
- (e) The Managed Service Provider shall be solely responsible to make payment to its sub-contractors.

Tax

- (a) IPA or its nominated agencies shall be responsible for withholding taxes from the amounts due and payable to the Managed Service Provider wherever applicable. The Managed Service Provider shall pay for all other taxes in connection with this Agreement, SLA, scope of work and any other engagement required to be undertaken as a part of this Agreement, including, but not limited to, property, sales, use, excise, value-added, goods and services, consumption and other similar taxes or duties.
- (b) IPA or its nominated agencies shall provide Managed Service Provider with the original tax receipt of any withholding taxes paid by IPA or its nominated agencies on payments under this Agreement. The Managed Service Provider agrees to reimburse and hold IPA harmless from any deficiency including penalties and interest relating to taxes that are its responsibility under this paragraph. For purposes of this Agreement, taxes shall include taxes incurred on transactions between and among IPA, the Managed Service Provider and third party subcontractors.
- (c) If, after the date of this Agreement, there is any change of rate of levy under the existing applicable laws of India with respect to taxes and duties, which are directly payable by IPA for providing the goods and services i.e. service tax or any such other applicable tax from time to time, which increase or decreases the cost incurred by the Implementation Agency in performing the Services, then the remuneration and reimbursable expense otherwise payable to the MSP under this Agreement shall be increased or decreased accordingly by correspondence between the Parties hereto, and corresponding adjustments shall be made to the ceiling amounts specified in Schedule VI. However, in case of any new or fresh tax or levy imposed after submission of the proposal the MSP shall be entitled to reimbursement on submission of proof of payment of such tax or levy.
- (d) The Parties shall cooperate to enable each Party to accurately determine its own tax liability and to minimize such liability to the extent legally permissible. In connection therewith, the Parties shall provide each other with the following:
 - (i) any resale certificates;
 - (ii) any relevant information regarding out-of-state or use of materials, equipment or services; and
 - (iii) any direct pay permits, exemption certificates or information reasonably requested by the other Party.

14) ACCEPTANCE OF DELIVERABLES AND TESTING

Acceptance of Deliverables

- (a) The successful completion of the Project requires the acceptance by IPA of all Deliverables prepared and delivered pursuant to the Project. Upon completion of a Deliverable, Managed Service Provider will notify IPA in writing that the Deliverable has been completed and, in the case of Deliverables constituted of software, hardware and networking ("Operational Deliverables"), tested and/or certified as being ready for acceptance ("Ready for Acceptance") by IPA. Promptly after receiving such notice, IPA will evaluate the Deliverable for acceptance in accordance with specific provisions provided in the RFP. The acceptance process outlined below shall not be deemed to extend the Timelines / scheduled completion date for any Deliverable specified in the RFP.

Acceptance Procedure

Acceptance by IPA ("Acceptance") requires that the Deliverables be confirmed in writing by IPA to meet applicable acceptance criteria ("Acceptance Criteria") which, in the case of Operational Deliverables, will include the successful completion of agreed acceptance and performance testing and, in the case of the System as a whole, will include meeting the specifications, performance standards and functional requirements set out in the RFP. In the case of Deliverables that are component parts of the System, in addition to acceptance of the component Deliverables, the System will also be subject to Acceptance in its entirety. Managed Service Provider shall prepare and propose the test procedures, which shall be described in the Acceptance Criteria for each Deliverable and shall be subject to agreement by IPA. While designing the acceptance test procedures the requirements as mentioned in volume II of RFP need to be adhered. The Acceptance tests and test procedures shall be sufficiently broad in scope and rigorous so as to verify that the System and all other Deliverables meet all applicable specifications, acceptance criteria and performance requirements, including assurance that the Deliverables and the System meet such tests of operational integrity as may be reasonably required by IPA. In the case of the System, the Acceptance tests shall consist of unit tests, a system test, and/or stress test. Acceptance procedures for written Deliverables (which are all Deliverables other than Operational Deliverables) and Operational Deliverables are as follows:

- (a) Written Deliverables:
 - i. The Managed Service Provider may submit interim drafts of written Deliverables (e.g., system designs and documentation) to IPA for review. IPA agrees to review each interim draft within a reasonable period of time after receiving it from the Managed Service Provider. When the Managed Service Provider delivers a final written Deliverable to IPA, IPA will have the opportunity to review such written Deliverable for an acceptance period of seven (7) days or such other period as is stated in the RFP or the agreed Project Plan (the "Acceptance Period"). In all cases, IPA's obligation to review a written Deliverable within the applicable Acceptance Period will be contingent on such written Deliverable being delivered to IPA as scheduled. If and to the extent any written Deliverable is delivered earlier or later than scheduled, the Acceptance Period for such written Deliverable shall be extended as reasonably necessary to accommodate the availability of IPA personnel responsible for reviewing such Deliverable. Similarly, if and to the extent multiple written Deliverables are delivered to IPA within an Acceptance Period, the Acceptance Period for all such written Deliverables shall be extended as reasonably necessary to accommodate the availability of IPA personnel responsible for reviewing them.

- ii. IPA agrees to notify the Managed Service Provider in writing by the end of the Acceptance Period either stating that the applicable written Deliverable is accepted / rejected in the form delivered by the Managed Service Provider or describing with reasonable particularity any deficiencies that must be corrected prior to acceptance of such written Deliverable. If the Managed Service Provider does not receive any such notice from IPA by the end of the Acceptance Period, the Managed Service Provider shall promptly notify IPA in writing that no such notice has been received. If the Managed Service Provider does not receive the required notice within seven (7) days after IPA receives such written notification from the Managed Service Provider, such written Deliverable will be deemed to be accepted by IPA.
- iii. If IPA delivers to the Managed Service Provider a timely notice of rejection/deficiencies, the Managed Service Provider will correct the described deficiencies as quickly as possible and, in any event, within ten (10) days after IPA notifies the Managed Service Provider of the rejection/deficiencies (unless otherwise specified in the agreed Project Plan). Upon receipt of a corrected written Deliverable from the Managed Service Provider, IPA will have a period of seven (7) days to review the corrected written Deliverable.

(b) Operational Deliverables:

- i. To the extent not already specified in the RFP or agreed Project Plan, prior to the date on which the Managed Service Provider is scheduled to deliver each Operational Deliverable to IPA, both the Managed Service Provider and IPA will agree upon the testing procedures for the Operational Deliverable, including without limitation detailed test cases and expected results (the "Acceptance Tests"). The Acceptance Tests will be designed to determine whether the Operational Deliverable contains any defects. IPA will have the opportunity during the Acceptance Period to evaluate and test each Operational Deliverable in accordance with the following procedures by executing the Acceptance Tests.
- ii. When the Managed Service Provider has completed an Operational Deliverable, it will deliver the Operational Deliverable at the Installation Site (if not already there), install such Deliverable (if not already installed), and perform an installation test reasonably acceptable to IPA to verify that the Deliverable has been properly delivered and installed. The Managed Service Provider shall notify IPA when the Operational Deliverable is 'Ready for Acceptance', provided that, unless otherwise agreed, such notice shall not occur prior to the successful completion by the Managed Service Provider of any installation tests. Such notice will start the Acceptance Period, which will be fifteen (15) days or such other period as is stated in the RFP or agreed Project Plan. As was the case with written Deliverables, IPA's obligation to review any Operational Deliverable within the applicable Acceptance Period will be contingent on such Operational Deliverable being delivered to IPA as scheduled. If and to the extent any Operational Deliverable is delivered earlier or later than scheduled, the Acceptance Period for such Operational Deliverable shall be extended as reasonably necessary to accommodate the availability of the IPA personnel responsible for reviewing such Operational Deliverable. Similarly, if and to the extent multiple Operational Deliverables are delivered to IPA within an Acceptance Period, the Acceptance Period for all Operational Deliverables shall be extended as reasonably necessary to accommodate the availability of the IPA personnel responsible for reviewing them.
- iii. IPA shall notify the Managed Service Provider in writing by the end of the Acceptance Period stating that the Operational Deliverable is accepted/rejected in the form delivered by the Managed Service Provider or describing the defects as provided in Clause 14.2 (b) (iv) below. If the Managed Service Provider does not receive any notice of defects from IPA by the end of the Acceptance Period, the Managed Service Provider shall promptly notify IPA in writing that no such notice was received. If Managed Service Provider does not receive a notice of defects within seven (7) days after IPA receives such written notification from the Managed Service Provider, such Operational Deliverable will be deemed accepted by IPA.

- iv. If IPA determines during the Acceptance Period that the Operational Deliverable as delivered by the Managed Service Provider deviates from its approved specifications or otherwise fails to successfully complete applicable Acceptance Tests (or a defect), IPA will inform the Managed Service Provider in writing, describing the defect(s) in sufficient detail to allow the Managed Service Provider to recreate/rectify them. The Managed Service Provider will correct any defects in an Operational Deliverable as quickly as possible after receiving IPA's notice of the defects and, in any event, within ten (10) days after receiving such notice (unless otherwise specified in the Project Plan/RFP), and provide the corrected Operational Deliverable to IPA for re-testing within such ten (10) day period.
- v. IPA will have a reasonable additional period of time after receipt of the corrected Operational Deliverable to re-test it so as to confirm its proper functioning. The Managed Service Provider will correct any further defects identified by IPA during the re-test as quickly as possible, but in no event more than ten (10) days after IPA notifies the Managed Service Provider of the further defects, unless otherwise specified in the agreed Project Plan or RFP or agreed by IPA.

(c) Correction of Deficiencies in Deliverables:

- i. The Managed Service Provider is unable to correct all deficiencies preventing Acceptance of a Deliverable for which it is responsible after a reasonable number of repeated efforts (but not more than three (3), IPA may at its election:
 - allow the Managed Service Provider to continue its efforts to make corrections; or
 - accept the Deliverable with its Deficiencies and deduct such proportionate amounts from the Managed Service Providers fees as deemed appropriate by IPA; or
 - terminate this Agreement for cause in accordance with the procedures set forth in Clause 15 (except that IPA is under no obligation to provide the Managed Service Provider any further opportunity to cure) and recover its damages subject to the limitations set forth in this Agreement.

Acceptance

IPA shall be deemed to have accepted the Deliverables and/or System upon the date of delivery to the Managed Service Provider by IPA of a notice (the "Acceptance Notice") to that effect.

15) TERMINATION AND SUSPENSION

Material Breach

- (a) In the event that either Party believes that the other Party is in Material Breach of its obligations under this Agreement, such aggrieved Party may terminate this Agreement upon giving a one month's notice for curing the Material Breach to the other Party. In case the Material Breach continues, after the notice period, IPA or Managed Service Provider, as the case may be will have the option to terminate the Agreement. Any notice served pursuant to this Clause shall give reasonable details of the Material Breach, which could include the following events and the termination will become effective:
 - (i) If the Managed Service Provider is not able to deliver the services as per the SLAs defined in RFP which translates into Material Breach, then IPA may serve a 30 days written notice for curing this Material Breach. In case the Material Breach continues, after the expiry of such notice period, IPA will have the option to terminate this Agreement. Further, IPA may after affording a reasonable opportunity to the Managed Service Provider to explain the circumstances leading to such a breach.
 - (ii) If there is a Material Breach by the Purchaser or its nominated agencies which results in not providing support for effecting data migration or not providing the certification of User Acceptance then the Implementation Agency will give a one month's notice for curing the Material Breach to the Purchaser. After the expiry of such notice period, the Implementation Agency will have the option to terminate the Agreement.
- (b) IPA may by giving a one month's written notice, terminate this Agreement if a change of control of the Managed Service Provider has taken place. For the purposes of this Clause, in the case of Managed Service Provider, change of control shall mean the events stated in Clause 5, and such notice shall become effective at the end of the notice period as set out in Clause 5.1 (c).
- (c) In the event that Managed Service Provider undergoes such a change of control, IPA may, as an alternative to termination, require a full Performance Guarantee for the obligations of Managed Service Provider by a guarantor acceptable to IPA or its nominated agencies. If such a guarantee is not furnished within 30 days of IPA's demand, IPA may exercise its right to terminate this Agreement in accordance with this Clause by giving 15 days further written notice to the Managed Service Provider.
- (d) The termination provisions set out in this Clause shall apply mutatis mutandis to the SLA.

Termination for Convenience

- (a) IPA may at any time terminate the Contract for any reason by giving the managed service provider a notice of termination that refers to this clause.
- (b) Upon receipt of the notice of termination under this clause, the MSP shall either as soon as reasonably practical or upon the date specified in the notice of termination:
 - cease all further work, except for such work as IPA may specify in the notice of termination for the sole purpose of protecting that part of the System already executed, or any work required to leave the site in a clean and safe condition;
 - terminate all subcontracts, except those to be assigned to IPA pursuant to Clause 15.2 (d) below;
- (c) remove all MSP's Equipment from the site, repatriate the MSP's and its Subcontractors' personnel from the site, remove from the site any wreckage, rubbish, and debris of any kind;
- (d) in addition, the MSP shall:
 - deliver to IPA the parts of the System executed by the MSP up to the date of termination;

- to the extent legally possible, assign to IPA all right, title, and benefit of the MSP to the System, or Subsystem, as at the date of termination, and, as may be required by the Purchaser, in any subcontracts concluded between the MSP and its Subcontractors;
- deliver to IPA all non-proprietary drawings, specifications, and other documents prepared by the MSP or its Subcontractors as of the date of termination in connection with the System.

Effects of termination

- (a) In the event that IPA terminates this Agreement pursuant to failure on the part of the Managed Service Provider to comply with the conditions as contained in this Clause and depending on the event of default, Performance Guarantee furnished by Managed Service Provider may be forfeited.
- (b) Upon termination of this Agreement, the Parties will comply with the Exit Management Schedule set out as Schedule III of this Agreement.
- (c) In the event that IPA or the Managed Service Provider terminates this Agreement, the compensation will be decided in accordance with the Exit Management Schedule set out as Schedule III of this Agreement.
- (d) IPA agrees to pay Managed Service Provider for
 - all charges for Services Managed Service Provider provides and any Deliverables and/or system (or part thereof) Managed Service Provider delivers through termination, and
 - reimbursable expenses Managed Service Provider incurs through termination. If IPA terminates without cause, IPA also agrees to pay any applicable adjustment expenses Managed Service Provider incurs as a result of such termination (which Managed Service Provider will take reasonable steps to mitigate).
- (e) Any and all payments under this clause shall be payable only after the Managed Service Provider has complied with and completed the transition and exit management as per the Exit Management Plan to the satisfaction of IPA. In case of expiry of the Agreement, the last due payment shall be payable to the Managed Service Provider after it has complied with and completed the transition and exit management as per the Exit Management Plan to the satisfaction of IPA.
- (f) In the event of termination of the Contract under Clause 15.2, IPA shall pay to the MSP the following amounts:
 - the Contract Price, properly attributable to the parts of the System executed by the MSP as of the date of termination;
 - the costs reasonably incurred by the MSP in the removal of the MSP's Equipment from the site and in the repatriation of the MSP's and its Subcontractors' personnel;
 - any amount to be paid by the MSP to its Subcontractors in connection with the termination of any subcontracts, including any cancellation charges;
 - costs incurred by the MSP in protecting the System and leaving the site in a clean and safe condition pursuant to Clause 15.2; and
 - the cost of satisfying all other obligations, commitments, and claims that the MSP may in good faith have undertaken with third parties in connection with the Contract and that are not covered by Clause 15.3 (d) above.

Termination of this Agreement due to bankruptcy of Managed Service Provider

- (a) IPA may serve written notice on Managed Service Provider at any time to terminate this Agreement with immediate effect in the event that the Managed Service Provider reporting an apprehension of bankruptcy to IPA or its nominated agencies

Suspension

- a) The Managed Service Provider shall, if ordered in writing by IPA, temporarily suspend the performance of any services or any part thereof under this Agreement for such specified/ ordered period and time. IPA shall inform the Managed Service Provider about such suspension at least 30 days in advance. The Managed Service Provider shall not be entitled to claim compensation for any loss or damage sustained by it by reason of such temporary suspension of the work for a continuous period of 30 days. IPA may consider suitable compensation to the Managed Service Provider in event of suspension extending beyond a continuous period of 30 days. An extension of time for completion, corresponding with the delay caused by any such suspension of the works as aforesaid shall be granted to the Managed Service Provider, if written request for the same is made. In case the suspension of works lasts for a period of more than 3 months, the Managed Service Provider shall have the right to request IPA to pay reasonable immobilization and mobilization charges as may be consented to by IPA.
- b) In the event that IPA suspends the progress of work for a period in excess of 30 days in aggregate, rendering the Managed Service Provider to extend its performance guarantee then IPA shall bear only the cost of extension of such bank guarantee for such extended period restricted to the normal bank rates as applicable in the banking procedures subject to the Managed Service Provider producing the requisite evidence from the bank concerned.
- c) IPA may suspend this Agreement only (i) prior to giving consent to the Managed Service Provider for purchase of goods and production licenses; and (ii) after the Go-Live.
- d) Notwithstanding the foregoing in clause 16, Order for Infrastructure items including Hardware, Software licenses and other system software etc. shall be placed by the Managed Service Provider only after receipt of written confirmation from IPA in this regard. IPA may request the Managed Service Provider for deferment of procurement of such components for maximum period of twelve months. In such case the Managed Service Provider will be paid a pre-defined maintenance cost for the application support and the team deployed. In case IPA requests for deferment of procurement of infrastructure the timelines will extend accordingly. Also, the SLA relating to infrastructure will apply from the date when IPA gives intimation to the Managed Service Provider to start procurement.

16) INDEMNIFICATION & LIMITATION OF LIABILITY

- a) Subject to Clause 16.2 below, Managed Service Provider (the "Indemnifying Party") undertakes to indemnify IPA (the "Indemnified Party") from and against all Losses on account of bodily injury, death or damage to tangible personal property arising in favor of any person, corporation or other entity (including the Indemnified Party) attributable to the Indemnifying Party's negligence or willful default in performance or non-performance under this Agreement.
- b) If the Indemnified Party promptly notifies Indemnifying Party in writing of a third party claim against Indemnified Party that any Service provided by the Indemnifying Party infringes a copyright, trade secret or patents incorporated in India of any third party, Indemnifying Party will defend such claim at its expense and will pay any costs or damages that may be finally awarded against Indemnified Party.
- c) Indemnifying Party will not indemnify the Indemnified Party, however, if the claim of infringement is caused by
- Indemnified Party's misuse or modification of the Service;
 - Indemnified Party's failure to use corrections or enhancements made available by the Indemnifying Party;

- Indemnified Party's use of the Service in combination with any product or information not owned or developed by Indemnifying Party;
 - Indemnified Party's distribution, marketing or use for the benefit of third parties of the Service; or
 - information, direction, specification or materials provided by Indemnified Party or any third party contracted to it. If any Service is or likely to be held to be infringing, Indemnifying Party shall at its expense and option either
 - procure the right for Indemnified Party to continue using it,
 - replace it with a non-infringing equivalent,
 - modify it to make it non-infringing. The foregoing remedies constitute Indemnified Party's sole and exclusive remedies and Indemnifying Party's entire liability with respect to infringement.
- d) The indemnities set out in Clause 16 shall be subject to the following conditions:
- (i) the Indemnified Party as promptly as practicable informs the Indemnifying Party in writing of the claim or proceedings and provides all relevant evidence, documentary or otherwise;
 - (ii) the Indemnified Party shall, at the cost of the Indemnifying Party, give the Indemnifying Party all reasonable assistance in the Defense of such claim including reasonable access to all relevant information, documentation and personnel provided that the Indemnified Party may, at its sole cost and expense, reasonably participate, through its attorneys or otherwise, in such Defense;
 - (iii) if the Indemnifying Party does not assume full control over the Defense of a claim as provided in this Article, the Indemnifying Party may participate in such Defense at its sole cost and expense, and the Indemnified Party will have the right to defend the claim in such manner as it may deem appropriate, and the cost and expense of the Indemnified Party will be included in Losses;
 - (iv) the Indemnified Party shall not prejudice, pay or accept any proceedings or claim, or compromise any proceedings or claim, without the written consent of the Indemnifying Party;
 - (v) all settlements of claims subject to indemnification under this Clause will:
 - a. be entered into only with the consent of the Indemnified Party, which consent will not be unreasonably withheld and include an unconditional release to the Indemnified Party from the claimant or plaintiff for all liability in respect of such claim; and
 - b. include any appropriate confidentiality agreement prohibiting disclosure of the terms of such settlement;
 - (vi) the Indemnified Party shall account to the Indemnifying Party for all awards, settlements, damages and costs (if any) finally awarded in favor of the Indemnified Party which are to be paid to it in connection with any such claim or proceedings;
 - (vii) the Indemnified Party shall take steps that the Indemnifying Party may reasonably require to mitigate or reduce its loss as a result of such a claim or proceedings;
 - (viii) in the event that the Indemnifying Party is obligated to indemnify an Indemnified Party pursuant to this Article, the Indemnifying Party will, upon payment of such indemnity in full, be subrogated to all rights and defenses of the Indemnified Party with respect to the claims to which such indemnification relates; and
 - (ix) if a Party makes a claim under the indemnity set out under Clause 16.1 above in respect of any particular Loss or Losses, then that Party shall not be entitled to make any further claim in respect of that Loss or Losses (including any claim for damages).

- e) The liability of either Party (whether in contract, tort, negligence, strict liability in tort, by statute or otherwise) for any claim in any manner related to this Agreement, including the work, deliverables or Services covered by this Agreement, shall be the payment of direct damages only which shall in no event exceed one time the total contract value payable under this Agreement. The liability cap given under this Clause 16.3 shall not be applicable to the indemnification obligations set out in Clause 16 and breach of Clause 12.4 and 19.
- f) In no event shall either party be liable for any consequential, incidental, indirect, special or punitive damage, loss or expenses (including but not limited to business interruption, lost business, lost profits, or lost savings) nor for any third party claims (other than those set-forth in Clause 16.1) even if it has been advised of their possible existence.
- g) The allocations of liability in this Section 16 represent the agreed and bargained-for understanding of the parties and compensation for the Services reflects such allocations. Each Party has a duty to mitigate the damages and any amounts payable under an indemnity that would otherwise be recoverable from the other Party pursuant to this Agreement by taking appropriate and commercially reasonable actions to reduce or limit the amount of such damages or amounts.

17) FORCE MAJEURE

Definition of Force Majeure

The Managed Service Provider or IPA as the case may be, shall be entitled to suspend or excuse performance of its respective obligations under this Agreement to the extent that such performance is impeded by an event of force majeure ("Force Majeure"). "Force Majeure" shall mean any event beyond the reasonable control of IPA or of the MSP, as the case may be, and which is unavoidable notwithstanding the reasonable care of the party affected.

Force Majeure events

- a) A Force Majeure shall include, without limitation, the following:
 - war, hostilities, or warlike operations (whether a state of war be declared or not), invasion, act of foreign enemy, and civil war;
 - strike, sabotage, lockout, embargo, import restriction, port congestion, lack of usual means of public transportation and communication, industrial dispute, shipwreck, shortage or restriction of power supply, epidemics, quarantine, and plague;
 - earthquake, landslide, volcanic activity, fire, flood or inundation, tidal wave, typhoon or cyclone, hurricane, storm, lightning, or other inclement weather condition, nuclear and pressure waves, or other natural or physical disaster;
- b) If either party is prevented, hindered, or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances of the event of Force Majeure within fourteen (14) days after the occurrence of such event.
- c) The party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract for so long as the relevant event of Force Majeure continues and to the extent that such party's performance is prevented, hindered, or delayed. The time for achieving Final Acceptance shall be extended.
- d) The party or parties affected by the event of Force Majeure shall use reasonable efforts to mitigate the effect of the event of Force Majeure upon its or their performance of the Contract and to fulfill its or their obligations under the Contract, but without prejudice to either party's right to terminate the Contract under Clause 17.
- e) No delay or nonperformance by either party to this Contract caused by the occurrence of any event of Force Majeure shall:
 - constitute a default or breach of the Contract;
 - give rise to any claim for damages or additional cost or expense occasioned by the delay or nonperformance,if, and to the extent that, such delay or nonperformance is caused by the occurrence of an event of Force Majeure.

- f) If the performance of the Contract is substantially prevented, hindered, or delayed for a single period of more than sixty (60) days on account of one or more events of Force Majeure during the time period covered by the Contract, the parties will attempt to develop a mutually satisfactory solution, failing which, either party may terminate the Contract by giving a notice to the other.
- g) In the event of termination pursuant to Clause 17, the rights and obligations of IPA and the MSP shall be as specified in the clause titled Termination.
- h) Notwithstanding Clause 17.2 (e), Force Majeure shall not apply to any obligation of IPA to make payments to the MSP under this Contract.
- i) For the avoidance of doubt, it is expressly clarified that the failure on the part of the MSP under this Agreement or the SLA to implement any disaster contingency planning and back-up and other data safeguards in accordance with the terms of this Agreement or the SLA against natural disaster, fire, sabotage or other similar occurrence shall not be deemed to be a Force Majeure event. For the avoidance of doubt, it is further clarified that any negligence in performance of Services which directly causes any breach of security like hacking aren't the forces of nature and hence wouldn't be qualified under the definition of "Force Majeure". In so far as applicable to the performance of Services, Managed Service Provider will be solely responsible to complete the risk assessment and ensure implementation of adequate security hygiene, best practices, processes and technology to prevent any breach of security and any resulting liability therefrom (wherever applicable).

18) CONFIDENTIALITY

- a) IPA or its nominated agencies shall allow the Managed Service Provider to review and utilize highly confidential public records and the Managed Service Provider shall maintain the highest level of secrecy, confidentiality and privacy with regard thereto.
- b) Additionally, the Managed Service Provider shall keep confidential all the details and information with regard to the Project, including systems, facilities, operations, management and maintenance of the systems/facilities.
- c) IPA shall retain all rights to prevent, stop and if required take the necessary punitive action against the Managed Service Provider regarding any forbidden disclosure.
- d) The Managed Service Provider shall execute a corporate non-disclosure agreement with IPA in the format provided by IPA and shall ensure that all its employees, agents and sub-contractors involved in the project execute individual non-disclosure agreements, which have been duly approved by IPA with respect to this Project.
- e) For the avoidance of doubt, it is expressly clarified that the aforesaid provisions shall not apply to the following information:
 - information already available in the public domain;
 - information which has been developed independently by the Managed Service Provider;
 - information which has been received from a third party who had the right to disclose the aforesaid information;
 - Information which has been disclosed to the public pursuant to a court order.
- f) To the extent the Managed Service Provider shares its confidential or proprietary information with IPA for effective performance of the Services, the provisions of the Clause 18.1 to 18.3 shall apply mutatis mutandis on IPA.
- g) Notwithstanding anything to the contrary mentioned hereinabove, the MSP shall have the right to share the Letter of Intent / work order provided to it by IPA in relation to this Agreement, with its prospective purchasers solely for the purpose of and with the intent to evidence and support its work experience under this Agreement.

19) AUDIT, ACCESS AND REPORTING

- a) The Managed Service Provider shall allow access to IPA to all information which is in the possession or control of the Managed Service Provider and which relates to the provision of the Services as set out in the Audit, Access and Reporting Schedule and which is reasonably required by IPA to comply with the terms of the Audit, Access and Reporting Schedule set out as Schedule IV of this Agreement.

20) INTELLECTUAL PROPERTY RIGHTS

- a) Products and fixes: All products and related solutions and fixes provided pursuant to this work order shall be licensed according to the terms of the license agreement packaged with or otherwise applicable to such product. Managed Service Provider would be responsible for arranging any licenses associated with products. "Product" means any computer code, web-based services, or materials comprising commercially released, pre-release or beta products (whether licensed for a fee or no charge) and any derivatives of the foregoing which are made available to IPA for license which is published by product owner or its affiliates, or a third party. "Fixes" means product fixes that are either released generally (such as commercial product service packs) or that are provided to you when performing services (such as workarounds, patches, bug fixes, beta fixes and beta builds) and any derivatives of the foregoing.
- b) Bespoke development: Subject to the provisions of Clause 20 (c) and 20 (d) below, upon payment, the IPR rights for any bespoke development done during the implementation of the project will lie with IPA.
- c) Pre-existing work: All IPR including the source code and materials developed or otherwise obtained independently of the efforts of a party under this Agreement ("pre-existing work") including any enhancement or modification thereto shall remain the sole property of that party. During the performance of the services for this agreement, each party grants to the other party (and their sub-contractors as necessary) a non-exclusive license to use, reproduce and modify any of its pre-existing work provided to the other party solely for the performance of such services for duration of the Term of this Agreement. Except as may be otherwise explicitly agreed to in a statement of services, upon payment in full, the Managed Service Provider should grant IPA a non-exclusive, perpetual, fully paid-up license to use the pre-existing work in the form delivered to IPA as part of the service or deliverables only for its internal business operations. Under such license, either of parties will have no right to sell the pre-existing work of the other party to a Third Party. IPA's license to pre-existing work is conditioned upon its compliance with the terms of this Agreement and the perpetual license applies solely to the pre-existing work that bidder leaves with IPA at the conclusion of performance of the services.
- d) Residuals: In no event shall Managed Service Provider be precluded from independently developing for itself, or for others, anything, whether in tangible or non-tangible form, which is competitive with, or similar to, the deliverables, set-out in this Agreement or Annexure. In addition, subject to the confidentiality obligations, Managed Service Provider shall be free to use its general knowledge, skills and experience, and any ideas, concepts, know-how, and techniques that are acquired or used in the course of providing the Services.

21) WARRANTY

Standard:

- a) The MSP warrants that the Project, including all the system(s), materials and goods supplied pursuant to the Agreement, shall be free from any defect or deficiency in the material, design, engineering, and workmanship that prevent the system and/or any of its systems(s) from fulfilling the technical requirements or that limit in a material fashion the performance, reliability, or extensibility of the system and/or any of its sub-system(s). Commercial warranty provisions of products supplied under the Agreement shall apply to the extent they do not conflict with the provisions of this Agreement.
- b) The MSP also warrants that the products, materials and other goods supplied under the Agreement are new, unused and incorporate all recent improvements in design that materially affect the system’s or subsystem’s ability to fulfill the technical requirements specified in the RFP.
- c) In addition, the MSP warrants that all Goods components to be incorporated into the System form part of the MSP/OEM’s and/or Subcontractor’s current product lines.
- d) The warranty period shall commence from the date of Final Acceptance of the System (or of any major component or subsystem for which phased Go-Live is provided for in the Agreement) or on expiry of the products commercial warranty, whichever is earlier and shall extend for as follows:

Component	Period
Hardware	Till the end of Agreement
COTS Software	6 Months post completion of the agreement
Bespoke Software	6 months post completion of the agreement

- e) If during the warranty period any defect or deficiency is found in the material, design and performance/workmanship of the Project and other Services provided by the MSP, the MSP shall promptly, in consultation and agreement with Purchaser, and at the Implementation Agency’s sole cost repair, replace, or otherwise make good (as the MSP shall, at its discretion, determine) such default, defect or deficiency as well as any damage to the system caused by such default, defect or deficiency. Any defective component, excluding hard disks, that has been replaced by the MSP shall remain the property of the MSP.
- f) The MSP may, with the consent of IPA, remove from the site any product and other goods that are defective, if the nature of the defect, and/or any damage to the System caused by the defect, is such that repairs cannot be expeditiously carried out at the site. If the repair, replacement, or making good is of such a character that it may affect the efficiency of the System, IPA may give the MSP notice requiring that tests of the defective part be made by the IA immediately upon completion of such remedial work, whereupon the MSP shall carry out such tests. If such part fails the tests, the MSP shall carry out further repair, replacement, or making good (as the case may be) until that part of the System passes such tests. The tests shall be agreed upon by IPA and the MSP.
- g) If the MSP fails to commence the work necessary to remedy such defect or any damage to the System caused by such defect within a reasonable time period, IPA may, following notice to the MSP, proceed to do such work or contract a third party (or parties) to do such work, and the reasonable costs incurred by IPA in connection with such work shall be paid to IPA by the MSP or may be deducted by the IPA from any amount due to the MSP.
- h) If the System or any of its sub-systems cannot be used by reason of such default, defect or deficiency and/or making good of such default, defect or deficiency, the warranty period for the Project shall be extended by a period equal to the period during which the Project or any of its system could not be used by IPA because of such defect and/or making good of such default, defect or deficiency.

- i) Items substituted for defective parts of the System during the Warranty Period shall be covered by the Warranty for the remainder of the Warranty Period applicable for the part replaced or three (3) months, whichever is greater.
- j) The MSP shall have no liability in the case of breach of this warranty due to (i) use of the deliverables on any environment (hardware or software) other than the environment recommended or approved by the MSP, (ii) the combination, operation, or use of some or all of the deliverables with information, software, specifications, instructions, data, or materials not approved by the MSP; (iii) the deliverables having been tampered with, altered or modified by IPA without the written permission of MSP, or (iv) use of the deliverables otherwise than in terms of the relevant documentation
- k) Implied Warranty: The warranties provided herein are in lieu of all other warranties, both express and implied, and all other warranties, including without limitation that of merchantability or fitness for intended purpose is specifically disclaimed.
- l) The Managed Service Provider shall have no liability in the case of breach of this warranty due to (i) use of the deliverables on any environment (hardware or software) other than the environment recommended or approved by the Managed Service Provider, (ii) the combination, operation, or use of some or all of the deliverables with information, software, specifications, instructions, data, or materials not approved by the Managed Service Provider; (iii) the deliverables having been tampered with, altered or modified by IPA without the written permission of the Managed Service Provider, or (iv) use of the deliverables otherwise than in terms of the relevant documentation.

22) LIQUIDATED DAMAGES

- a) Time is the essence of the Agreement and the delivery dates are binding on the MSP. In the event of delay or any gross negligence in implementation of the project before Go-Live, for causes solely attributable to the MSP, in meeting the deliverables, IPA shall be entitled at its option to recover from the MSP as agreed, liquidated damages, as defined in SLA for each completed week or part thereof subject to a limit of 10% of the total contract value.
- b) The Parties agree that SLA penalties defined in the Service Level Agreement are liquidated damages and that the deduction of any Service Credit by IPA shall be its exclusive monetary remedy for failure of MSP to meet the Service Levels and is in full and final settlement of any claim which IPA may have for Losses caused by the failure to meet a Service Level to which a Service Credit applies, provided that this Clause shall not limit the exercise by IPA of its rights to terminate the Agreement for Material Breach and the associated consequences of termination.

23) Escrow Agreement

- a) MSP shall comply with the escrow provisions below for all Bespoke Development & customized codes (including subcontractor-owned materials and other Third Party Material incorporated in MSP's Proprietary Material), except to the extent MSP demonstrates to the satisfaction of the IPA that compliance is not permitted by the nature of MSP's limited rights in such material.
- b) Within ninety (90) days after IPA's acceptance of the Solution, the Parties shall enter into a software escrow agreement ("Escrow Agreement") with a reputable, independent, third party that provides software escrow services among its principal business offerings ("Escrow Agent"). The Escrow Agreement shall provide for the regular deposit into escrow of all source code (including without limitation all make files, configurational files, data tables upon which execution is dependent, and the like, collectively the "Source Code"), object code, and documentation with respect to all Public Material and Implementation Agency's Proprietary Material (and cumulative updates thereof), together with (a) continually updated instructions as to the compilation, installation, configuration, deployment, and use of the Source Code, and (b) a list of all non-deposited third party software used in conjunction with the Source Code to provide the full functionality of the deposited materials. In the event of the termination

or expiration of the initial Escrow Agreement or any successor agreement, with minimal delay the Parties shall enter into a substantially equivalent agreement with a successor provider of software escrow services (who shall then be known as the "Escrow Agent").

- c) MSP will make its initial deposit of Source Code within fifteen (15) days after the effective date of the Escrow Agreement.
- d) MSP shall periodically update the escrow deposit as the Parties shall agree in the Escrow Agreement. In addition to other usual and customary terms, the Escrow Agreement shall provide that IPA shall be entitled to obtain the deposited materials from escrow upon the IPA's making a proper claim for release from escrow in the event that (c) proper written notice is given to the Escrow Agent that release of the copy of the deposited materials is pursuant to applicable IPA bankruptcy, insolvency, reorganization, or liquidation statute; (d) MSP files articles of dissolution (but not if MSP is consolidated or merged into another entity); (e) the Contract expires or terminates for Material Breach of MSP.
- e) The release of deposited materials from escrow shall not confer upon IPA any right of ownership in the deposited materials or the underlying intellectual property embodied therein. In the event of the release of deposited materials to IPA from escrow, IPA shall use the deposited materials solely for the benefit of IPA and its constituents.
- f) The release of materials from escrow, without more, shall not cause any further amounts to accrue as payable to MSP by IPA, and the term of the IPA's possessory and usage rights with respect to the released materials shall be perpetual.
- g) The Escrow Agreement shall provide for its automatic termination upon the earlier of five (5) years after the expiration or termination of this Contract, or, release of all Source Code to IPA and the IPA's subsequent confirmation of compliance with the terms of the Escrow Agreement. MSP shall pay the escrow costs, as well as all costs associated with causing its subcontractors and other third parties to abide by the Escrow Agreement.

24) INSURANCE COVER

Obligation to maintain insurance

In connection with the provision of the Services, the Managed Service Provider must have and maintain

- (a) for the Agreement Period, valid and enforceable insurance coverage for
 - (i) public liability;
 - (ii) either professional indemnity or errors and omissions;
 - (iii) product liability;
 - (iv) theft, fire and natural calamity
 - (v) workers compensation as required by law; and
 - (vi) any additional types specified in Schedule I; and
- (b) for one year following the expiry or termination of the Agreement valid and enforceable insurance policies (if relevant) in the amount not less than the Insurance Cover specified in Schedule I.

Certificates of currency

The Managed Service Provider must, on request by IPA, provide current relevant confirmation of insurance documentation from its insurance brokers certifying that it has insurance as required by this Clause 24. The Managed Service Provider agrees to replace any coverage prior to the date of expiry/cancellation.

Non-compliance

IPA may, at its election, terminate this Agreement upon the failure of Managed Service Provider, or notification of such failure, to maintain the required insurance coverage. Inadequate insurance coverage for any reason shall not relieve Managed Service Provider of its obligations under this Agreement.

25) MISCELLANEOUS

Personnel

- (a) The personnel assigned by Managed Service Provider to perform the Services shall be employees of Managed Service Provider or its subcontractor(s), and under no circumstances shall such personnel be considered employees of IPA. The Managed Service Provider shall have the sole responsibility for the supervision and control of the personnel deployed in the Project and for payment of such personnel's compensation, including salary, withholding of income taxes and social security taxes, worker's compensation, employee and disability benefits and the like and shall be responsible for all obligations of an employer subject to Applicable Law.
- (b) The Managed Service Provider shall use its best efforts to ensure that sufficient Managed Service Provider personnel are assigned to perform the Services and those personnel have appropriate qualifications to perform the Services. After discussion with Managed Service Provider, IPA shall have the right to require the removal or replacement of any Managed Service Provider personnel performing work under this Agreement based on bonafide reasons. In the event that IPA requests that any Managed Service Provider personnel be replaced, the substitution of such personnel shall be accomplished pursuant to a mutually agreed upon schedule.
- (c) In the event that IPA and Managed Service Provider identify any personnel of Managed Service Provider as "Key Personnel", then the Managed Service Provider shall not remove such personnel from the Project without the prior written consent of IPA unless such removal is the result of an unavoidable circumstance including but not limited to resignation, termination, medical leave, etc.
- (d) Except as stated in this Clause, nothing in this Agreement or the SLA will limit the ability of Managed Service Provider to freely assign or reassign its employees; provided that Managed Service Provider shall be responsible, at its expense, for transferring all appropriate knowledge from personnel being replaced to their replacements. IPA shall have the right to review and approve Managed Service Provider's plan for any such knowledge transfer. Managed Service Provider shall maintain the same or higher standards for skills and professionalism among replacement personnel as in personnel being replaced.
- (e) Each Party shall be responsible for the performance of all its obligations under this Agreement or the SLA as the case may be and shall be liable for the acts and omissions of its employees and agents in connection therewith.
- (f) Neither Party will solicit for employment or knowingly hire an employee of the other Party with whom such Party has contact pursuant to project engagements under this Agreement. This restriction shall not apply to employees of either Party responding to advertisements in job fairs or news media circulated to the general public.

Independent Contractor

Nothing in this Agreement or the SLA shall be construed as establishing or implying any partnership or joint venture between the Parties to this Agreement or the SLA and, except as expressly stated in this Agreement or the SLA, nothing in this Agreement or the SLA shall be deemed to constitute any Parties as the agent of any other Party or authorizes either Party to:

- (a) incur any expenses on behalf of the other Party;

- (b) enter into any engagement or make any representation or warranty on behalf of the other Party;
- (c) pledge the credit of or otherwise bind or oblige the other Party; or
- (d) Commit the other Party in any way whatsoever without in each case obtaining the other Party's prior written consent.

Sub-contractors

Except the work permitted to be sub-contracted, Managed Service Provider shall not subcontract any work without IPA's prior written consent. However, the Managed Service Provider shall provide the list of all the other services planned to be sub contracted, within 30 days of signing the Agreement. It is clarified that the Managed Service Provider shall be the principal employer for all claims arising from the liabilities statutory or otherwise, concerning the sub-contractors. The Service provider undertakes to indemnify IPA from any claims on the grounds stated hereinabove. Notwithstanding the sub-contracting, the Managed Service Provider shall remain solely responsible for and liable for successful delivery of Deliverables and accomplishment of the Project.

Assignment

- (a) All terms and provisions of this Agreement shall be binding on and shall inure to the benefit of IPA and their respective successors and permitted assigns.
- (b) Subject to Clause 4.4, the Managed Service Provider shall not be permitted to assign its rights and obligations under this Agreement to any third party.
- (c) IPA may assign or novate all or any part of this Agreement and Schedules/Annexures, and the Managed Service Provider shall be a party to such novation, to any third party contracted to provide outsourced services to IPA or any of its nominees.

Trademarks, Publicity

Neither Party may use the trademarks of the other Party without the prior written consent of the other Party except that Managed Service Provider may, upon completion, use the Project as a reference for credential purpose. Except as required by law or the rules and regulations of each stock exchange upon which the securities of one of the Parties is listed, neither Party shall publish or permit to be published either along or in conjunction with any other person any press release, information, article, photograph, illustration or any other material of whatever kind relating to this Agreement, the SLA or the business of the Parties without prior reference to and approval in writing from the other Party, such approval not to be unreasonably withheld or delayed provided however that Managed Service Provider may include IPA or its client lists for reference to third parties subject to the prior written consent of IPA not to be unreasonably withheld or delayed. Such approval shall apply to each specific case and relate only to that case.

Notices

- (a) Any notice or other document which may be given by either Party under this Agreement or under the SLA shall be given in writing in person or by pre-paid recorded delivery post, email or by facsimile transmission.
- (b) In relation to a notice given under this Agreement, any such notice or other document shall be addressed to the other Party's principal or registered office address as set out below:

Shri. XXXXX

<< ADDRESS >>

Email:

With a copy to:

Managed Service Provider

Tel:

Fax:

Email:

Contact:

- (c) In relation to a notice given under the MSA / SLA, a Party shall specify the Parties' address for service of notices, any such notice to be copied to the Parties at the addresses set out in this Clause.
- (d) Any such notice or other document shall be deemed to have been given to the other Party (or, if relevant, its relevant associated company) when delivered (if delivered in person) if delivered between the hours of 9.30 am and 6.00 pm at the address of the other Party set forth above or if sent by fax, provided the copy fax is accompanied by a confirmation of transmission, or on the next working day thereafter if delivered outside such hours, and 7 days from the date of posting (if by letter) or if sent by email.
- (e) Either Party to this Agreement or to the SLA may change its address, telephone number, facsimile number and nominated contact for notification purposes by giving the other reasonable prior written notice of the new information and its effective date.

Variations and Further Assurance

- (a) No amendment, variation or other change to this Agreement or the SLA shall be valid unless authorized in accordance with the change control procedure as set out in the Change Control Schedule set out in Schedule II of this Agreement. Such amendment shall be made in writing and signed by the duly authorized representatives of the Parties to this Agreement or the SLA.
- (b) Each Party to this Agreement or the SLA agrees to enter into or execute, without limitation, whatever other agreement, document, consent and waiver and to do all other things which shall or may be reasonably required to complete and deliver the obligations set out in this Agreement or the SLA.

Severability and Waiver

- (a) If any provision of this Agreement or the SLA, or any part thereof, shall be found by any court or administrative body of competent jurisdiction to be illegal, invalid or unenforceable the illegality, invalidity or unenforceability of such provision or part provision shall not affect the

other provisions of this Agreement or the SLA or the remainder of the provisions in question which shall remain in full force and effect. The relevant Parties shall negotiate in good faith in order to agree to substitute for any illegal, invalid or unenforceable provision a valid and enforceable provision which achieves to the greatest extent possible the economic, legal and commercial objectives of the illegal, invalid or unenforceable provision or part provision.

- (b) No failure to exercise or enforce and no delay in exercising or enforcing on the part of either Party to this Agreement or the SLA of any right, remedy or provision of this Agreement or the SLA shall operate as a waiver of such right, remedy or provision in any future application nor shall any single or partial exercise or enforcement of any right, remedy or provision preclude any other or further exercise or enforcement of such right, remedy or provision or the exercise or enforcement of any other right, remedy or provision.

Compliance with Applicable Law

Each Party to this Agreement accepts that its individual conduct shall (to the extent applicable to its business like the Managed Service Provider as an information technology service provider) at all times comply with all laws, rules and regulations of government and other bodies having jurisdiction over the area in which the Services are undertaken provided that changes in such laws, rules and regulations which result in a change to the Services shall be dealt with in accordance with the Change Control Schedule set out in Schedule II of this Agreement.

Professional Fees

All expenses incurred by or on behalf of each Party to this Agreement and the SLA, including all fees of agents, legal advisors, accountants and actuaries employed by either of the Parties in connection with the negotiation, preparation and execution of this Agreement or the SLA shall be borne solely by the Party which incurred them.

Ethics

The Managed Service Provider represents, warrants and covenants that it has given no commitments, payments, gifts, kickbacks, lavish or expensive entertainment, or other things of value to any employee or agent of IPA in connection with this agreement and acknowledges that the giving of any such payment, gifts, entertainment, or other things of value is strictly in violation of IPA standard policies and may result in cancellation of this Agreement, or the SLA.

Entire Agreement

This Agreement and the SLA with all schedules & annexures appended thereto and the contents and specifications of the RFP constitute the entire agreement between the Parties with respect to their subject matter, and as to all other representations, understandings or agreements which are not fully expressed herein, provided that nothing in this Clause shall be interpreted so as to exclude any liability in respect of fraud, misrepresentation and corrupt practice.

Amendment

Any amendment to this Agreement shall be made in accordance with the Change Control Schedule set out in Schedule II of this Agreement by mutual written consent of all the Parties.

26) GOVERNING LAW AND DISPUTE RESOLUTION

- (a) This Agreement shall be governed by and construed in accordance with the laws of India, without giving effect to conflict of law rules. The parties expressly agree to exclude the application of the U.N. Convention on Contracts for the International Sale of Goods (1980) to this Agreement and the performance of the parties contemplated under this Agreement, to the extent that such convention might otherwise be applicable.
- (b) Any dispute arising out of or in connection with this Agreement or the SLA shall in the first instance be dealt with in accordance with the escalation procedure as set out in the Governance Schedule set out as Schedule V of this Agreement.
- (c) In case the escalations do not help in resolution of the problem within 3 weeks of escalation, both the parties should agree on a mediator for communication between the two parties. The process of the mediation would be as follows:
 - Aggrieved party should refer the dispute to the identified mediator in writing, with a copy to the other party. Such a reference should contain a description of the nature of the dispute, the quantum in dispute (if any) and the relief or remedy sought suitable.
 - The mediator shall use his best endeavors to conclude the mediation within a certain number of days of his appointment.
 - If no resolution can be reached through mutual discussion or mediation within 30 days then the matter should be referred to Experts for advising on the issue.
- (d) In case the mediation does not help in resolution and it requires expertise to understand an issue, a neutral panel of 3 experts, agreeable to both parties should be constituted. The process of the expert advisory would be as follows:
 - Aggrieved party should write to the other party on the failure of previous alternate dispute resolution processes within the timeframe and requesting for expert advisory. This is to be sent with a copy to the mediator.
 - Both parties should thereafter agree on the panel of experts who are well conversant with the issue under dispute
 - The expert panel shall use his best endeavors to provide a neutral position on the issue.
 - If no resolution can be reached through the above means within 30 days then the matter should be referred to Arbitration.
- (e) Any dispute or difference whatsoever arising between the parties to this Contract out of or relating to the construction, meaning, scope, operation or effect of this Contract or the validity of the breach thereof shall be referred to a sole Arbitrator to be appointed by mutual consent of both the parties herein. If the parties cannot agree on the appointment of the Arbitrator within a period of one month from the notification by one party to the other of existence of such dispute, then the Arbitrator shall be appointed by the High Court of New Delhi, India. The provisions of the Arbitration and Conciliation Act, 1996 will be applicable and the award made there under shall be final and binding upon the parties hereto, subject to legal remedies available under the law. Such differences shall be deemed to be a submission to arbitration under the Indian Arbitration and Conciliation Act, 1996, or of any modifications, Rules or re-

enactments thereof. The Arbitration proceedings will be held Delhi, India. Any legal dispute will come under the sole jurisdiction of New Delhi, India

- (f) Compliance with laws: Each party will comply with all applicable export and import laws and regulations.
- (g) Risk of Loss: For each hardware item, Managed Service Provider bears the risk of loss or damage up to the time it is delivered to the Managed Service Provider/IPA-designated carrier for shipment to IPA or IPA's designated location.
- (h) Third party components: Managed Service Provider will provide all third party components solely on a pass-through basis in accordance with the relevant third party terms and conditions.

IN WITNESS WHEREOF the Parties have by duly authorized

Representatives set their respective hands and seal on the date first above

Written in the presence of:

WITNESSES:

Signed by:

(Name and designation) **For and on behalf of IPA**

(FIRST PARTY)

Signed by:

(Name and designation)

MANAGED SERVICE PROVIDER

(SECOND PARTY)

(Name and designation) **For and on behalf of Managed Service Provider**

Signed by:

27) SCHEDULES

SCHEDULE I – DEFINITIONS

Term	Definition
"Bidder" or "MSP" or "Lead Bidder"	Could be interchangeably used and it essentially Means the Organization who is fully responsible towards TMC for providing turnkey solution for Supply, Installation, Implementation, Maintenance, and Operations of Software system, maintaining third party DR services and provide related services as per the requirements and terms and conditions specified in this tender / contract. The term SI shall be deemed to include the SI's successors, representatives (approved by the Purchaser), heirs, executors, administrators and permitted assigns, as the case may be, unless excluded by the terms of the contract
Adverse Effect	Means material adverse effect on 1. the ability of the Managed Service Provider to exercise any of its rights or perform/discharge any of its duties/obligations under and in accordance with the provisions of this Agreement and/or 2. the legal validity, binding nature or enforceability of this Agreement;
Agreement	Means this Master Services Agreement, Service Level Agreement and Non-Disclosure Agreement together with all Articles, Annexures, Schedules and the contents and specifications of the RFP; In the event of a conflict between this Agreement and the Schedules, the terms of the Agreement shall prevail;
Applicable Law(s)	Means any statute, law, ordinance, notification, rule, regulation, judgment, order, decree, bye-law, approval, directive, guideline, policy, requirement or other governmental restriction or any similar form of decision applicable to the relevant party and as may be in effect on the date of the execution of this Agreement and during the subsistence thereof, applicable to the Project;
Assets	Means any data, information, deliverable, solutions, services, products and materials tangible or intangible that are procured, produced, developed, installed, maintained and serviced in due course of delivering the scope of Service provided by the Service Provider / System Integrator as per the requirements of the Volume I, II, III of this RFP
Bidder	Means the Organization(s) on whose behalf the tender response has been submitted. In case of Consortium, it shall mean the Organization responsible for meeting all obligations of the Tender / Contract and shall necessarily be the System Integrator.
Business Day	Means any day that is not a Sunday or a public holiday and starts at 9.30 AM.
Business Hours	Shall mean the working time for IPA users. For Web Server and other components which enable successful usage of web portals of IPA the working time should be considered as 24 hours for all the days of the week. It is desired that IT maintenance, other batch processes (like backup) etc. should be planned so that such backend activities have minimum effect on the performance;

Term	Definition
Commercial Off-The-Shelf ('COTS')	refers to software products that are readymade and available for sale, lease, or license to the general public
Confidential Information	Means all information including project Data (whether in written, oral, electronic or other format) which relates to the technical, financial and business affairs, dealers, suppliers, products, developments, operations, processes, data, trade secrets, design rights, know-how, plans, budgets and personnel of each Party and its affiliates which is disclosed to or otherwise learned by the other Party (whether a Party to this Agreement or to the SLA) in the course of or in connection with this Agreement (including without limitation such information received during negotiations, location visits and meetings in connection with this Agreement or the SLA);
Contract	Means the Tender and all Annexes thereto, the Agreement entered into between the selected Bidder together with the Purchaser as recorded in the Contract form signed by the Purchaser and the Bidder including all Annexes thereto and the agreed terms as set out in the bid, all documents incorporated by reference therein and amendments and modifications to the above from time to time.
Contract Value	Means the price payable to the bidder under this Contract for the full and proper performance of its contractual obligations. The Contract Value shall be equal to the total Bid Price
Control	Means, in relation to any business entity, the power of a person to secure <ol style="list-style-type: none"> 3. by Means of the holding of shares or the possession of voting power in or in relation to that or any other business entity, or 4. by virtue of any powers conferred by the articles of association or other document regulating that or any other business entity, that the affairs of the first mentioned business entity are conducted in accordance with that person's wishes and in relation to a partnership, Means the right to a share of more than one half of the assets, or of more than one half of the income, of the partnership;
Deliverables	Means the products, infrastructure and services agreed to be delivered by the Managed Service Provider in pursuance of the agreement as listed in volumes I, II and III of the RFP and defined more elaborately in the Volumes I and II of the RFP in relation to the Implementation and the Maintenance phases and includes all documents related to the user manual, technical manual, design, process and operating manuals, service mechanisms, policies and guidelines (such as security related, data migration related), inter alia payment and/or process related etc., source code and all its modifications;
Document	Means any embodiment of any text or image however recorded and includes any data, text, images, sound, voice, codes or and databases or microfilm or computer generated micro fiche

Term	Definition
Effective Date	Means the date on which this Contract comes into force. This Contract shall come into force and effect on the date (the “Effective Date”) of the Purchaser’s notice to the MSP instructing the MSP to begin carrying out the activities.
Final Acceptance Test	Shall be conducted on completion of the following: 1. Data Center operational, 2. Deployment & operational hardware and networking at requisite locations, 3. 3) UAT of the overall integrated solution
Go-Live	Means commissioning and integration of all the hardware including Data Center, Disaster Recovery Center, the networks, the client side computing devices and all the software applications, including the COTS product configured, customized and used successfully by all the intended users of IPA for the scope of work as defined in the RFP
Intellectual Property Rights	Means and includes all rights in the Bespoke Software, its improvements, upgrades, enhancements, modified versions that may be made from time to time, database generated, compilations made, source code and object code of the software, the said rights including designs, copyrights, trademarks, patents, trade secrets, moral and other rights therein.
Intellectual Property Rights (‘IPR’)	Means any patent, copyright, trademark, trade name, service marks, brands, propriety information, Application Software whether arising before or after the execution of this Contract and the right to ownership and registration of these rights.
Material Breach	Means a breach by either Party (IPA or Managed Service Provider) of any of its obligations under this Agreement which has or is likely to have an Adverse Effect on the Project which such Party shall have failed to cure;
Original Equipment Manufacturer (‘OEM’)	Means the owner of the IPR or manufacturer of Goods for any equipment / system / software / product which is providing such goods to the Purchaser under the scope of this Tender / Contract
Parties	Means IPA and Managed Service Provider for the purposes of this Agreement and “ Party ” shall be interpreted accordingly;
Performance Bank Guarantee	“Performance Guarantee” and “Performance Bank Guarantee” shall mean the guarantee provided by a Nationalized / Scheduled Bank to IPA on behalf of the Managed Service Provider for the amount specified in -as specified in respective Sections of the Volume I of the RFP
Planned Application Downtime	Means the unavailability of the application services due to maintenance activities such as configuration changes, upgradation or changes to any supporting infrastructure wherein prior intimation (at least two working days in advance) of such planned outage shall be given and approval sought from IPA as applicable;

Term	Definition
Project	Means entire scope of work as envisaged in the Volumes I, II and III of the RFP including Design, Development, Implementation, Operations, Management and Maintenance across all the locations as envisaged in the RFP and as per the terms and conditions laid down in the RFP and services in conformance to the SLA
Project Data	Means all proprietary data of the project generated out of project operations and transactions, documents and related information including but not restricted to user data which the managed service Provider obtains, possesses or processes in the context of providing the Services to the users pursuant to this Agreement and the SLA;
Project Implementation	Means Project Implementation as per the testing standards and acceptance criteria prescribed by IPA or its nominated agencies;
Purchaser	Means Indian Ports Association (IPA)
Replacement Managed Service Provider	Means any third party that IPA or its nominated agencies appoint to replace Managed Service Provider upon expiry of the Term or termination of this Agreement or the SLA to undertake the Services or part thereof;
Required Consents	Means the consents, waivers, clearances and licenses to use IPA's Intellectual Property Rights, rights and other authorizations as may be required to be obtained for the software and other items that IPA or their nominated agencies are required to make available to Managed Service Provider pursuant to this Agreement;
Selected Bidder	Means the Organization(s) selected by Purchaser as a result of the tendering process described in this tender document
Service Level	Means the level of service and other performance criteria which will apply to the Services delivered by the Service provider as set out in the SLA
Services	Means the services delivered to the Stakeholders of IPA or its nominated agencies, employees of IPA or its nominated agencies, and to professionals or stakeholders as defined in Volumes I, II and III of the RFP, using the tangible and intangible assets created, procured, installed, managed and operated by the Managed Service Provider including the tools of information and communications technology and includes but is not limited to the list of services specified in Volume I and Volume II of the RFP
SLA	Means the Performance and Maintenance SLA executed by and between Managed service provider and IPA, in terms of the Service Level Requirements as per the model set out in this Agreement;

Term	Definition
Software	Means the software designed, developed / customized, tested and deployed by the Managed Service Provider for the purposes of the rendering the Services to the Stakeholders of the Project and includes the source code (in case of Bespoke development) along with associated documentation, which is the work product of the development efforts involved in the Project and the improvements and enhancements effected during the term of the Project, but does not include the third party software products except for the customization components on such products (including the COTS products used for the product), proprietary software components and tools deployed by the Managed Service Provider and which, i.e., the bespoke software, shall be solely owned by the IPA.
Third Party Systems	Means systems (or any part thereof) in which the Intellectual Property Rights are not owned by IPA or Managed Service Provider and to which Managed Service Provider has been granted a license to use and which are used in the provision of Services.

SCHEDULE II – CHANGE CONTROL SCHEDULE

- a) This Schedule describes the procedure to be followed in the event of any proposed change to the Master Service Agreement ("**MSA**"), Project Implementation Phase, SLA and Scope of Work and Functional Requirement Specifications. Such change shall include, but shall not be limited to, changes in the scope of services provided by the Managed Service Provider and changes to the terms of payment as stated in the Terms of Payment Schedule.
- b) IPA and MSP recognize that frequent change is an inevitable part of delivering services and that a significant element of this change can be accomplished by re-organizing processes and responsibilities without a material effect on the cost. The MSP will endeavor, wherever reasonably practicable, to effect change without an increase in the terms of payment as stated in the Terms of Payment Schedule and IPA will work with the Managed Service Provider to ensure that all changes are discussed and managed in a constructive manner. This Change Control Schedule sets out the provisions which will apply to all the changes to this agreement and other documents except for the changes in SLAs for which a separate process has been laid out in the SLA Agreement.

a. CHANGE CONTROL NOTE ("CCN")

- (i) Change requests in respect of the MSA, the Project Implementation, the operation, the SLA or Scope of work and Functional Requirement specifications will emanate from the Parties' respective Project Manager who will be responsible for obtaining approval for the change and who will act as its sponsor throughout the Change Control Process and will complete Part A of the CCN attached as Annexure A hereto. CCNs will be presented to the other Party's Project Manager who will acknowledge receipt by signature of the CCN.
- (ii) The MSP and IPA, during the Project Implementation Phase and IPA during the Operations and Management Phase and while preparing the CCN, shall consider the change in the context of the following parameter, namely whether the change is beyond the scope of Services including ancillary and concomitant services required and as detailed in the RFP and is suggested and applicable only after the testing, commissioning and certification of the Pilot Phase and the Project Implementation Phase as set out in this Agreement.
- (iii) It is hereby also clarified here that any change of control suggested beyond 15 % of the value of this Project will be beyond the scope of the change control process and will be considered as the subject matter for a separate bid process and a separate contract. It is hereby clarified that the 15 % of the value of the Project as stated in herein above is calculated on the basis of bid value submitted by the Managed Service Provider and accepted by IPA or its nominated agencies or as decided and approved by IPA or its Nominated Agencies. For arriving at the cost/ rate for change up to 15% of the project value, the payment terms and relevant rates as specified in Annexure D shall apply.
- (iv) The SLAs defined in this contract are subject to modifications/amendments in view of the annual review or to meet any other project requirements. Any such change in SLA will not be considered as a change request.

b. Quotation

- (i) The MSP shall assess the CCN and complete Part B of the CCN, in completing the Part B of the CCN the MSP shall provide as a minimum:
 - 1. a description of the change
 - 2. a list of deliverables required for implementing the change;
 - 3. a time table for implementation;
 - 4. an estimate of any proposed change
 - 5. any relevant acceptance criteria
 - 6. an assessment of the value of the proposed change;
 - 7. Material evidence to prove that the proposed change is not already covered within the Agreement and the scope of work
- (ii) Prior to submission of the completed CCN to IPA, the Managed Service Provider will undertake its own internal review of the proposal and obtain all necessary internal approvals. As a part of this internal review process, the MSP shall consider the materiality of the proposed change in the context of the MSA and the Project Implementation affected by the change and the total effect that may arise from implementation of the change.

c. Costs

Each Party shall be responsible for its own costs incurred in the quotation, preparation of CCNs and in the completion of its obligations described in this process provided the MSP meets the obligations as set in the CCN. In the event the MSP is unable to meet the obligations as defined in the CCN then the cost of getting it done by third party will be borne by the MSP.

d. Obligations

The MSP shall be obliged to implement any proposed changes once approval in accordance with above provisions has been given, with effect from the date agreed for implementation and within an agreed timeframe. MSP will not be obligated to work on a change until the parties agree in writing upon its scope, price and/or schedule impact.

SCHEDULE – III - EXIT MANAGEMENT SCHEDULE

1. PURPOSE

- 1.1. This Schedule sets out the provisions, which will apply on expiry or termination of the MSA, the Project Implementation, Operation and Management SLA.
- 1.2. In the case of termination of the Project Implementation and/or Operation and Management, the Parties shall agree at that time whether, and if so during what period, the provisions of this Schedule shall apply.
- 1.3. The Parties shall ensure that their respective associated entities carry out their respective obligations set out in this Exit Management Schedule.

2. TRANSFER OF ASSETS

- 2.1. IPA shall be entitled to serve notice in writing on the MSP at any time during the exit management period as detailed hereinabove requiring the MSP and/or its subcontractors to provide IPA with a complete and up to date list of the Assets within 30 days of such notice. IPA shall then be entitled to serve notice in writing on the MSP at any time prior to the date that is 30 days prior to the end of the exit management period requiring the MSP to sell the assets, if any, to be transferred to IPA or its nominated agencies at book value as determined as of the date of such notice in accordance with the provisions of relevant laws.
- 2.2. In case of contract being terminated by IPA, IPA reserves the right to ask MSP to continue running the project operations for a period of 6 months after termination orders are issued.
- 2.3. Upon service of a notice under this Article the following provisions shall apply:
 - (i) In the event, if the Assets to be transferred are mortgaged to any financial institutions by the MSP, the MSP shall ensure that all such liens and liabilities have been cleared beyond doubt, prior to such transfer. All documents regarding the discharge of such lien and liabilities shall be furnished to IPA.
 - (ii) All risk in and title to the Assets to be transferred / to be purchased by IPA pursuant to this Article shall be transferred to IPA, on the last day of the exit management period.
 - (iii) MSP shall be paid the depreciated book value of the infrastructure cost and other assets. The depreciation rates and method followed will be as per Income Tax Rules.
 - (iv) Payment to the outgoing MSP shall be made to the tune of last set of completed services / deliverables, subject to SLA requirements.
 - (v) The outgoing MSP will pass on to IPA and/or to the Replacement MSP, the subsisting rights in any leased properties/ licensed products on terms not less favorable to IPA/ Replacement MSP, than that enjoyed by the outgoing MSP.

3. COOPERATION AND PROVISION OF INFORMATION

- 3.1. During the exit management period:
 - (i) The Managed Service Provider will allow IPA or its nominated agency access to information reasonably required to define the then current mode of operation associated with the provision of the services to enable IPA to assess the existing services being delivered;

- (ii) promptly on reasonable request by IPA, the MSP shall provide access to and copies of all information held or controlled by them which they have prepared or maintained in accordance with this agreement relating to any material aspect of the services (whether provided by the Managed Service Provider or sub-contractors appointed by the Managed Service Provider). IPA shall be entitled to copy of all such information. Such information shall include details pertaining to the services rendered and other performance data. The Managed Service Provider shall permit IPA to have reasonable access to its employees and facilities as reasonably required by the Chairman, Project Implementation Unit (PIU) to understand the methods of delivery of the services employed by the Managed Service Provider and to assist appropriate knowledge transfer.

4. CONFIDENTIAL INFORMATION, SECURITY AND DATA

- 4.1. The Managed Service Provider will promptly on the commencement of the exit management period supply to IPA or its nominated agency the following:
 - (i) information relating to the current services rendered and customer and performance data relating to the performance of consortium partners in relation to the services;
 - (ii) documentation relating to Project's Intellectual Property Rights;
 - (iii) documentation relating to sub-contractors;
 - (iv) all current and updated data as is reasonably required for purposes of IPA transitioning the services to its Replacement Managed Service Provider in a readily available format nominated by IPA, its nominated agency;
 - (v) all other information (including but not limited to documents, records and agreements) relating to the services reasonably necessary to enable IPA, or its Replacement Managed Service Provider to carry out due diligence in order to transition the provision of the Services to IPA, or its Replacement Managed Service Provider (as the case may be).
- 4.2. Before the expiry of the exit management period, the Managed Service Provider shall deliver to IPA or its nominated agency all new or up-dated materials from the categories set out in Schedule above and shall not retain any copies thereof, except that the Managed Service Provider shall be permitted to retain one copy of such materials for archival purposes only.
- 4.3. Before the expiry of the exit management period, unless otherwise provided under the MSA, IPA or its nominated agency shall deliver to the Managed Service Provider all forms of Managed Service Provider confidential information, which is in the possession or control of IPA or its users.

5. EMPLOYEES

- 5.1. Promptly on reasonable request at any time during the exit management period, the Managed Service Provider shall, subject to applicable laws, restraints and regulations (including in particular those relating to privacy) provide to IPA or its nominated agency a list of all employees (with job titles) of the Managed Service Provider dedicated to providing the services at the commencement of the exit management period.
- 5.2. Where any national, regional law or regulation relating to the mandatory or automatic transfer of the contracts of employment from the Managed Service Provider to IPA or its nominated agency, or a Replacement Managed Service Provider ("Transfer Regulation") applies to any or all of the

employees of the Managed Service Provider, then the Parties shall comply with their respective obligations under such Transfer Regulations.

- 5.3. To the extent that any Transfer Regulation does not apply to any employee of the Managed Service Provider, department, or its Replacement Managed Service Provider may make an offer of employment or contract for services to such employee of the Managed Service Provider and the Managed Service Provider shall not enforce or impose any contractual provision that would prevent any such employee from being hired by the Chairperson, PIU or any Replacement Managed Service Provider.

6. TRANSFER OF CERTAIN AGREEMENTS

On request by IPA or its nominated agency the Managed Service Provider shall effect such assignments, transfers, licenses and sub-licenses as the Chairperson, PIU may require in favour of the Chairperson, PIU, or its Replacement Managed Service Provider in relation to any equipment lease, maintenance or service provision agreement between Managed Service Provider and third party lessors, vendors, and which are related to the services and reasonably necessary for the carrying out of replacement services by IPA or its nominated agency or its Replacement Managed Service Provider.

7. RIGHTS OF ACCESS TO PREMISES

- 7.1. At any time during the exit management period, where Assets are located at the Managed Service Provider's premises, the Managed Service Provider will be obliged to give reasonable rights of access to (or, in the case of Assets located on a third party's premises, procure reasonable rights of access to) IPA or its nominated agency and/or any Replacement Managed Service Provider in order to make an inventory of the Assets.
- 7.2. The Managed Service Provider shall also give IPA or its nominated agency, or any Replacement Managed Service Provider right of reasonable access to the Implementation Partner's premises and shall procure IPA or its nominated agency and any Replacement Managed Service Provider rights of access to relevant third party premises during the exit management period and for such

period of time following termination or expiry of the MSA as is reasonably necessary to migrate the services to IPA or its nominated agency, or a Replacement Managed Service Provider.

8. GENERAL OBLIGATIONS OF THE SERVICE PROVIDER

- 8.1. The Managed Service Provider shall provide all such information as may reasonably be necessary to effect as seamless a handover as practicable in the circumstances to IPA or its nominated agency or its Replacement Managed Service Provider and which the Managed Service Provider has in its possession or control at any time during the exit management period.
- 8.2. For the purposes of this Schedule, anything in the possession or control of any Managed Service Provider, associated entity, or sub-contractor is deemed to be in the possession or control of the Managed Service Provider.
- 8.3. The Managed Service Provider shall commit adequate resources to comply with its obligations under this Exit Management Schedule.

9. EXIT MANAGEMENT PLAN

- 9.1. The Managed Service Provider shall provide IPA or its nominated agency with a recommended exit management plan ("Exit Management Plan") which shall deal with at least the following aspects of exit management in relation to the MSA as a whole and in relation to the Project Implementation, and the Operation and Management SLA.
 - (i) A detailed program of the transfer process that could be used in conjunction with a Replacement Managed Service Provider including details of the means to be used to ensure continuing provision of the services throughout the transfer process or until the cessation of the services and of the management structure to be used during the transfer;
 - (ii) plans for the communication with such of the Managed Service Provider's sub-contractors, staff, suppliers, customers and any related third party as are necessary to avoid any material detrimental impact on IPA's operations as a result of undertaking the transfer;
 - (iii) (if applicable) proposed arrangements for the segregation of the Managed Service Provider's networks from the networks employed by IPA and identification of specific security tasks necessary at termination;
 - (iv) Plans for provision of OEM support for the hardware and software components and any other contingent support for a period of 9 months after the expiry or termination of the contract period as the case may be.
- 9.2. The Managed Service Provider shall re-draft the Exit Management Plan annually thereafter to ensure that it is kept relevant and up to date.
- 9.3. Each Exit Management Plan shall be presented by the Managed Service Provider to and approved by IPA.
- 9.4. The terms of payment as stated in the Terms of Payment Schedule include the costs of the Managed Service Provider complying with its obligations under this Schedule.
- 9.5. In the event of termination or expiry of MSA, and Project Implementation, each Party shall comply with the Exit Management Plan.
- 9.6. During the exit management period, the Managed Service Provider shall use its best efforts to deliver the services.
- 9.7. Payments during the Exit Management period shall be made in accordance with the Terms of Payment Schedule.

- 9.8. This Exit Management plan shall be furnished in writing to IPA within 90 days from the Effective Date of this Agreement.

SCHEDULE – IV - AUDIT, ACCESS AND REPORTING

1. PURPOSE

This Schedule details the audit, access and reporting rights and obligations of IPA or its nominated agency and the Managed Service Provider.

2. AUDIT NOTICE AND TIMING

- 2.1. As soon as reasonably practicable after the Effective Date, the Parties shall use their best endeavors to agree to a timetable for routine audits during the Project Implementation Phase and the Operation and Management Phase. Such timetable during the Implementation Phase, IPA or its nominated agency and thereafter during the operation Phase, IPA or its nominated agency shall conduct routine audits in accordance with such agreed timetable and shall not be required to give the Managed Service Provider any further notice of carrying out such audits.
- 2.2. IPA or its nominated agency may conduct non-timetabled audits at his/ her own discretion if it reasonably believes that such non-timetabled audits are necessary as a result of an act of fraud by the Managed Service Provider, a security violation, or breach of confidentiality obligations by the Managed Service Provider, provided that the requirement for such an audit is notified in writing to the Managed Service Provider a reasonable period time prior to the audit (taking into account the circumstances giving rise to the reasonable belief) stating in a reasonable level of detail the reasons for the requirement and the alleged facts on which the requirement is based. If the Managed Service Provider considers that the non-timetabled audit was not appropriate, the matter shall be referred to the escalation procedure as set out in the Governance Schedule.
- 2.3. The frequency of audits shall be a (maximum) half yearly, provided always that IPA or its nominated agency shall endeavor to conduct such audits with the lowest levels of inconvenience and disturbance practicable being caused to the Managed Service Provider. Any such audit shall be conducted by with adequate notice of 2 weeks to the Managed Service Provider.
- 2.4. IPA will ensure that any 3rd party agencies (except CAG) appointed to conduct the audit will not be the competitor of Managed Service Provider and will be bound by confidentiality obligations.

3. ACCESS

The Managed Service Provider shall provide to IPA or its nominated agency reasonable access to employees, subcontractors, suppliers, agents and third party facilities as detailed in the RFP, documents, records and systems reasonably required for audit and shall provide all such persons with routine assistance in connection with the audits and inspections. The Chairperson, PIU / Steering Committee shall have the right to copy and retain copies of any relevant records. The Managed Service Provider shall make every reasonable effort to co-operate with them.

4. AUDIT RIGHTS

- 4.1. IPA or its nominated agency shall have the right to audit and inspect suppliers, agents and third party facilities (as detailed in the RFP), data centres, documents, records, procedures and systems relating

to the provision of the services, but only to the extent that they relate to the provision of the services, as shall be reasonably necessary to verify:

- (i) The security, integrity and availability of all data processed, held or conveyed by the Partner on behalf of IPA and documentation related thereto;
- (ii) That the actual level of performance of the services is the same as specified in the SLA;
- (iii) That the Managed Service Provider has complied with the relevant technical standards, and has adequate internal controls in place; and
- (iv) The compliance of the Managed Service Provider with any other obligation under the MSA and SLA.
- (v) Security audit and implementation audit of the system shall be done once each year, the cost of which shall be borne by the Managed Service Provider.
- (vi) For the avoidance of doubt the audit rights under this Schedule shall not include access to the Managed Service Provider's profit margins or overheads, any confidential information relating to the Managed Service Provider's employees, or (iii) minutes of its internal Board or Board committee meetings including internal audit, or (iv) such other information of commercial-in-confidence nature which are not relevant to the Services associated with any obligation under the MSA.

5. AUDIT RIGHTS OF SUB-CONTRACTORS, SUPPLIERS AND AGENTS

- 5.1. The Managed Service Provider shall use reasonable endeavors to achieve the same audit and access provisions as defined in this Schedule with sub-contractors, suppliers and agents who supply labor, services, equipment or materials in respect of the services. The Managed Service Provider shall inform IPA or its nominated agency prior to concluding any sub-contract or supply agreement of any failure to achieve the same rights of audit or access.
- 5.2. REPORTING: The Managed Service Provider will provide quarterly reports to the Chairperson, PIU / Steering committee regarding any specific aspects of the Project and in context of the audit and access information as required by IPA or its nominated agency.

6. ACTION AND REVIEW

- 6.1. Any change or amendment to the systems and procedures of the Managed Service Provider, or sub-contractors, where applicable arising from the audit report shall be agreed within thirty (30) calendar days from the submission of the said report.
- 6.2. Any discrepancies identified by any audit pursuant to this Schedule shall be immediately notified to IPA or its nominated agency and the Managed Service Provider Project Manager who shall determine

what action should be taken in respect of such discrepancies in accordance with the terms of the MSA.

7. TERMS OF PAYMENT

The MSP shall bear the cost of any audits and inspections as per the scope of work defined in Volume – II of the RFP. The terms of payment are exclusive of any costs of the Managed Service Provider and the sub-contractor, for all reasonable assistance and information provided under the MSA, the Project Implementation, Operation and Management SLA by the Managed Service Provider pursuant to this Schedule.

8. RECORDS AND INFORMATION

For the purposes of audit in accordance with this Schedule, the Managed Service Provider shall maintain true and accurate records in connection with the provision of the services and the Managed Service Provider shall handover all the relevant records and documents upon the termination or expiry of the MSA.

SCHEDULE – V - GOVERNANCE SCHEDULE

1. PURPOSE

The purpose of this Schedule is to:

- (i) establish and maintain the formal and informal processes for managing the relationship between IPA and the Managed Service Provider including the outputs from other Schedules to this Agreement;
- (ii) define the principles that both Parties wish to follow to ensure the delivery of the Services;
- (iii) ensure the continued alignment of the interests of the Parties;
- (iv) ensure that the relationship is maintained at the correct level within each Party;
- (v) create the flexibility to revise and maintain the relationship and this Agreement during the Term;
- (vi) set out the procedure for escalating disagreements; and
- (vii) enable contract administration and performance management.

2. GOVERNANCE STRUCTURE

- 2.1. Project Managers: The relationship under this Agreement will be managed by the Project Managers appointed by each Party, who will provide the interface between the executive management of the respective Parties.
- 2.2. Project Implementation Unit (PIU): Within 7 days following the Effective Date, IPA, Project Consultant and the Managed Service Provider shall each appoint a Project Manager. In the event that either Party wishes to substitute its Project Manager it will do so in manner in which the original appointment is made and notify the other Party of such substitution as soon as reasonably practicable but at the latest within 7 days of the substitution.
- 2.3. The Project Managers shall have responsibility for maintaining the interface and communication between the Parties.
- 2.4. The PIU will meet formally on a fortnightly / monthly / quarterly, as required, basis at a time and location to be agreed between them. These meetings will cover, as a minimum, the following agenda items: (i) consideration of Quarterly Performance Reports; (ii) consideration of matters arising out of the Change Control Schedule; (iii) issues escalated in accordance with the escalation procedure as set out in the Governance Schedule; (iv) matters to be brought before the PIU in accordance with the MSA and the Schedules; (v) any matter brought before the PIU by the Managed Service Provider under this Article; and (vi) any other issue which either Party wishes to add to the agenda.
- 2.5. In the event that there is any material factor which affects the delivery of the Services or the terms of payment as stated in the Terms of Payment Schedule, the Parties agree to discuss in the PIU any appropriate amendment to the Agreement or any Service Level Agreements or Statement of Works including any variation to the terms of payment as stated in the Terms of Payment Schedule. Any variation so agreed shall be implemented through the change control procedure as set out in the Change Control Schedule.

3. GOVERNANCE PROCEDURES

- 3.1. The Managed Service Provider shall document the agreed structures in a procedures manual.
- 3.2. The agenda for each meeting of the PIU shall be set to reflect the discussion items referred to above and extraordinary items may be added either with the agreement of the Parties or at the request of

either Party. Copies of the agenda for meetings of the PIU, along with relevant pre-reading material, shall be distributed at least one week in advance of the relevant meeting.

- 3.3. All meetings and proceedings will be documented such documents to be distributed to the Parties and copies shall be kept as a record. All actions, responsibilities and accountabilities arising out of any meeting shall be tracked and managed.
- 3.4. The Parties shall ensure as far as reasonably practicable that the PIU shall resolve the issues and resolve the objectives placed before them and that members representing that Party are empowered to make relevant decisions or have easy access to empowered individuals for decisions to be made to achieve this.
- 3.5. In order formally to submit a Disputed Matter to the aforesaid for a, one Party ("Claimant") shall give a written notice ("Dispute Notice") to the other Party. The Dispute Notice shall be accompanied by (a) a statement by the Claimant describing the Disputed Matter in reasonable detail and (b) documentation, if any, supporting the Claimant's position on the Disputed Matter.
- 3.6. The other Party ("Respondent") shall have the right to respond to the Dispute Notice within 7 days after receipt of the Dispute Notice. In the event that the parties are unable to resolve the Disputed Matter within a further period of 7 days, it shall refer the Disputed Matter to next level of the dispute resolution for action as per the process mentioned in article 9.1.
- 3.7. All negotiations, statements and / or documentation pursuant to these Articles shall be without prejudice and confidential (unless mutually agreed otherwise).
- 3.8. If the Disputed Matter is having a material effect on the operation of the Services (or any of them or part of them) the Parties will use all their respective reasonable endeavors to reduce the elapsed time in reaching a resolution of the Disputed Matter.

SCHEDULE – VI - TERMS OF PAYMENT SCHEDULE

As per the payment terms defined in volume 1 of RFP.

28) ANNEXURES

ANNEXURE A – FORMAT FOR CHANGE CONTROL NOTICE

Change Control Note		CCN Number:
Part A: Initiation		
Title:		
Originator:		
Sponsor:		
Date of Initiation:		
Details of Proposed Change		
(To include reason for change and appropriate details/specifications. Identify any attachments as A1, A2, and A3 etc.)		
Authorised by IPA		Date:
Name:		
Signature:	Date:	
Received by the MSP		
Name:		
Signature:		
Change Control Note		CCN Number:
Part B : Evaluation		
(Identify any attachments as B1, B2, and B3 etc.)		
Changes to Services, charging structure, payment profile, documentation, training, service levels and component working arrangements and any other contractual issue.		
Brief Description of Solution:		
Impact:		
Deliverables:		

Timetable:	
Charges for Implementation:	
(including a schedule of payments)	
Other Relevant Information:	
(including value-added and acceptance criteria)	
Authorised by the Managed Service Provider	Date:
Name:	
Signature:	

Volume 3 - Request for Proposal (RFP) for "Selection of Managed Service Provider (MSP) for Enterprise Business System in Five Major Indian Ports"

Change Control Note	CCN Number :
Part C : Authority to Proceed	
Implementation of this CCN as submitted in Part A, in accordance with Part B is: (tick as appropriate)	
Approved	

Rejected Requires Further Information (as follows, or as Attachment 1 etc.)	
For IPA and its nominated agencies	For the Managed Service Provider
Signature	Signature
Name	Name
Title	Title
Date	Date

ANNEXURE B - LIST OF SERVICES PROVIDED BY THE MANAGED SERVICE PROVIDER

As per the scope of work defined in Volume 2 of RFP.

ANNEXURE C – REQUIRED DELIVERABLE AND ASSOCIATED TIMELINES

As per deliverables and timelines defined in Volume 1 of RFP.

ANNEXURE D – Pre-Qualification, Technical and Commercial Proposal submitted by Bidder

Bid Response

ANNEXURE E – BILL OF MATERIAL

As per the bill of material defined in RFP Volume 2 and the proposal submitted by the bidders.

ANNEXURE F – ROLES AND RESPONSIBILITIES OF THE PARTIES

Roles and Responsibilities of Managed Service Provider

- a) Preparation of Detailed Project Plan in line with the overall plan provided in the RFP. The same should be prepared in consultation with IPA.
- b) Procure, install, commission, operate and maintain:
- c) Requisite hardware & system software at IPA's HQ, Data Center and other locations as per the requirements mentioned in this RFP
- d) Networking equipment, connectivity and LAN as per the requirements mentioned in this RFP,
- e) Meet the defined SLAs for the performance of the system.
- f) Addressing technology obsolescence by appropriate upgradation, replacement and / or replenishment of systems deployed at various locations (data center, HQ and other locations).
- g) Insure the entire hardware against the infrastructure deployed at various locations for the entire duration of the contract against vandalism, theft, fire and lightning.
- h) Keep all system software i.e. OS, antivirus, office applications etc., for Servers, PCs etc. at Data Centre and various locations, up to date by installing regular upgrades / patches.
- i) Rectification of system software problems due to crashing or malfunctioning of the OS, RDBMS or front end within the time limits to meet the SLAs as defined in RFP.
- j) Develop / customize, deploy and maintain the requisite Software Solution as per the requirements of IPA at appropriate locations.
- k) Provide necessary support for the resolution of bugs, patches & upgrades of the software solution.
- l) Provide necessary manpower for managing the Change Requests.
- m) Design various manuals like User manual, Trouble Shooting manual etc. for the system.
- n) Provide computer basic skills training and advanced training on application modules to the staff members and stakeholders of IPA.

- o) Maintain the business continuity.
- p) Deploy requisite manpower and infrastructure for the digitization of the existing data.
- q) Deploy the required manpower to manage the operations.
- r) Ensuring the SLAs for downtime of system, software development / customization, procurement and delivery of hardware & networking equipments, errors in data entry are met.
- s) Management and quality control of all services and infrastructure.
- t) Regular Backup as per the schedule and Disaster Recovery.
- u) Generation of MIS reports as per the requirements of IPA.
- v) Generation of the report for the monitoring of SLAs.
- w) Meet the defined Technical Specifications for the IT Infrastructure including Hardware and networking equipments keeping in mind the application and future requirements of the Corporation.
- x) Obtaining relevant Certifications and adherence to respective Industry Standards as detailed in the RFP.
- y) Any other services which is required for the successful execution of the project.

Roles and Responsibilities of IPA

- a) Provide adequate space at IPA for setting up of infrastructure, software development and other activities to be carried out by the Bidder.
- b) Coordination between all the divisions for providing necessary information for the study and development / customization of the necessary solution.
- c) Coordinate with Bidder for conducting workshops for the Stakeholder departments.
- d) Provide the data available in the form of physical files or existing databases to the selected bidder for digitization purposes.
- e) Deployment of staff members of IPA for verification of the digitized data within the defined timelines.
- f) Ensure that Data Backups are being taken regularly by bidder as per the schedule agreed upon.
- g) Ensure that the hardware and other infrastructure deployed at HQ, DC etc. meets the specifications as mentioned in RFP and is maintained properly to meet the SLAs as defined in RFP.
- h) Monitoring of overall timelines, SLAs and calculation of penalties accordingly.
- i) Conducting UAT for the application solution deployed.
- j) Issuing the Acceptance Certificate on successful deployment of the software application, hardware deployed, digitized data and for other components of the Scope of Work (wherever required).
- k) To create internal capacity now for execution of the project after takeover from the bidder.
- l) Ensuring the staff members and other stakeholders attend the training programs as per the schedule defined by the bidder and agreed upon by IPA.
- m) Provide sign off on the deliverables of the project including SRS, design documents etc.
- n) Any other requirements that could arise during operations for effective governance and to meet any administrative requirement.

ANNEXURE G - NON-DISCLOSURE AGREEMENT

THIS AGREEMENT is made on this the <***> day of <***> 20--- at <***>, India.

BETWEEN

----- having its office at -----
----- India hereinafter referred to as 'IPA' or '-----', which expression shall, unless the context otherwise requires, include its permitted successors and assigns);

AND

<***>, a Company incorporated under the Companies Act, 1956, having its registered office at <***> (hereinafter referred to as '**the Managed Service Provider/MSP**' which expression shall, unless the context otherwise requires, include its permitted successors and assigns).

Each of the parties mentioned above are collectively referred to as the 'Parties' and individually as a 'Party'.

WHEREAS:

1. IPA is desirous to implement the project of -----.
2. IPA and Managed Service Provider have entered into a Master Services Agreement dated <***> (the "MSA") as well as a Service Level Agreement dated <***> (the "SLA") in furtherance of the Project.
3. Whereas in pursuing the Project (the "**Business Purpose**"), a Party ("Disclosing Party") recognizes that they will disclose certain Confidential Information (as defined hereinafter) to the other Party ("Receiving Party").
4. Whereas such Confidential Information (as defined hereinafter) belongs to Receiving Party as the case may be and is being transferred to the Disclosing Party to be used only for the Business Purpose and hence there is a need to protect such information from unauthorized use and disclosure.

NOW THEREFORE, in consideration of the mutual covenants, promises, assurances, representations and provisions set forth herein, the Parties hereto agree as follows:

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

SIGNED, SEALED AND DELIVERED
For and on behalf of the Implementation
Agency by: IPA

SIGNED, SEALED AND DELIVERED
For and on behalf of the Nodal
Agency by:

(Signature)

(Signature)

(Name): Shri.

(Name)

Volume 3 - Request for Proposal (RFP) for "Selection of Managed Service Provider (MSP) for Enterprise Business System in Five Major Indian Ports"

(Designation):

(Designation)

(Address)

(Address)

(Fax No.)

(Fax No.)

In the presence of:

- 1.
- 2.

29) SERVICE LEVEL AGREEMENT

THIS AGREEMENT is made on this the <***> day of <***> 20--- at <***>, India.

BETWEEN

----- having its office at -----
----- India hereinafter referred to as 'IPA' or '-----', which expression shall, unless the context otherwise requires, include its permitted successors and assigns);

AND

<***>, a Company incorporated under the Companies Act, 1956, having its registered office at <***> (hereinafter referred to as '**the Managed Service Provider/MSP**' which expression shall, unless the context otherwise requires, include its permitted successors and assigns).

Each of the parties mentioned above are collectively referred to as the 'Parties' and individually as a 'Party'.

WHEREAS:

1. IPA is desirous to implement the project of -----.
2. IPA and Managed Service Provider have entered into a Master Services Agreement dated <***> (the "MSA") as well as a Service Level Agreement dated <***> (the "SLA") in furtherance of the Project.

NOW THEREFORE, in consideration of the mutual covenants, promises, assurances, representations and provisions set forth herein, the Parties hereto agree as follows:

1. Definitions & Interpretation

a) Definitions

Terms and expressions used in this Agreement (including the Introduction) shall have the meanings set out in Annexure below

b) Interpretation

In this Agreement, unless otherwise specified:

- References to Clauses, Sub-Clauses, Paragraphs and Schedules are to clauses, sub-clauses, paragraphs of and schedules to this Agreement;
- Use of any gender includes the other genders;
- References to a 'company' shall be construed so as to include any company, corporation or other body corporate, wherever and however incorporated or established;
- references to a 'person' shall be construed so as to include any individual, firm, company, government, state or agency of a state, local or municipal authority or government body or any joint venture, association or partnership (whether or not having separate legal personality);
- a reference to any statute or statutory provision shall be construed as a reference to the same as it may have been, or may from time to time be, amended, modified or reenacted;
- any reference to a 'day' (including within the phrase 'business day') shall mean a period of 24 hours running from midnight to midnight;
- references to a 'business day' shall be construed as a reference to a day on which the ports are generally open for business;
- references to times are to Indian Standard Time;

- a reference to any other document referred to in this Agreement is a reference to that other document as amended, varied, novated or supplemented at any time; and
- all headings and titles are inserted for convenience only. They are to be ignored in the interpretation of this Agreement.

c) Measurements & Arithmetic Conventions

All measurements and calculations shall be in the metric system and calculations done to 2 (two) decimal places, with the third digit of 5 (five) or above being rounded up and below 5 (five) being rounded down except in money calculations where such amounts shall be rounded off to the nearest INR.

d) Ambiguities within Agreement

In case of ambiguities or discrepancies within this Agreement, the following principles shall apply:

- as between two Clauses of this Agreement, the provisions of a specific Clause relevant to the issue under consideration shall prevail over those in a general Clause;
- as between the provisions of this Agreement and the Schedules, the Agreement shall prevail, save and except as expressly provided otherwise in the Agreement or the Schedules; and
- as between any value written in numerals and that in words, the value in words shall prevail.

e) Priority of Agreements

The Parties hereby expressly agree that for the purpose of giving full and proper effect to this Agreement, the MSA and this Agreement shall be read together and construed harmoniously. In the event of any conflict between the MSA and this Agreement, the provisions contained in the MSA shall prevail over this Agreement.

2. Structure

This SLA shall operate as a legally binding services agreement specifying terms which apply to the Parties in relation to the provision of the Services by the MSP to IPA and its nominated agencies under this Agreement and the MSA.

3. Objectives of SLA

The Implementation Agency shall be required to ensure that the Service Levels which shall ensure the following:

- Improving the efficiency of operations for the taxation departments.
- Leveraging the benefits in new system in order to:
 - Reduce of manual records and replace with computerized standardized documents.
 - Infuse transparency in operations by enabling the stakeholders to have easy access to the records and provision of login ids and biometrics to infuse accountability in operations
 - Enable faster request processing in delivery of services with better turnaround time.
 - Facilitate automated data transfer with state-wide connectivity to prevent unnecessary duplication & simplify preparation of registers and reports.
 - Generate meaningful MIS from the system.
 - Provide inbuilt mechanism of security and quality control for crucial dealer data.

To meet the aforementioned objectives the MSP will provide the Service Levels in accordance with the performance metrics as set out in detail in this Agreement. Further this Agreement shall govern the provision of the contracted services of the Implementation Agency to IPA and its nominated agencies after the Go-Live Date.

4. Scope of SLA

This Agreement has been executed in relation to the outsourcing portion of the Project between the Parties. The detailed Service Levels have been set out below in this Agreement. This Agreement shall ensure the following:

- Establishment of mutual responsibilities and accountability of the Parties;
- Definition each Party’s expectations in terms of services provided;
- Establishment of the relevant performance measurement criteria;
- Definition of the availability expectations;
- Definition of the escalation process;
- Establishment of trouble reporting single point of contact; and
- Establishment of the framework for SLA change management

The following parties are obligated to follow the procedures as specified by this Agreement:

- IPA (Buyer/ Purchaser)
- MSP

5. Agreement Owners

The following personnel shall be notified to discuss the Agreement and take into consideration any proposed SLA change requests:

	Title	Telephone	e-Mail
IPA or its Nominated Agencies/ Partners/ Purchaser/ Buyer	Authorized Representative	<***>	<***>
MSP	<***>	<***>	<***>

6. Contact List

In the event that there is any change in the listed contacts, the same shall be communicated and updated prior to such change occurring. The Single Point of Contact (“POC”) for the MSP shall be <***> and will be available 24X7.

	Title	Telephone	e-Mail
IPA or its Nominated Agencies/ Partners/ Purchaser/ Buyer	Authorized Representative	<***>	<***>
MSP	<***>	<***>	<***>

7. Principal Contacts

IPA or its nominated agencies/ partners and MSP will nominate a senior staff member to be the principal contact regarding operation of this Agreement. At the date of signing of this Agreement, the nominated principal contacts are:

IPA/ Purchaser/ Buyer principal contact: _____

MSP principal contact: _____

8. Commencement and Duration of this Agreement

Agreement shall commence on the date of Go-Live (hereinafter the "SLA Effective Date") and shall, unless terminated earlier in accordance with its terms or unless otherwise agreed by the Parties, expire on the date on which this Agreement expires or terminates, which shall be a period of FIVE years starting from <the date of the start of Phase III>

9. Exclusions to this Agreement

This Agreement shall not govern the following services:

- Consulting services;
- MSP's business processes not related to the Project.

10. Terms of Payments and Penalties

In consideration of the Services and subject to the provisions of the MSA and this Agreement, the Buyer shall pay the amounts in accordance with the Terms of Payment Schedule of the MSA.

For the avoidance of doubt, it is expressly clarified that IPA and/or its nominated agencies may also calculate a financial sum and debit the same against the terms of payment as defined in the Terms of Payment Schedule of the MSA as a result of the failure of the MSP to meet the Service Levels set out in this Agreement.

10.1. Details of SLA Penalty Mechanism and Calculations

The MSP will get 100% of Quarterly Payout for the concerned quarter if the performance metrics are complied with for all the parameters and the total SLA score in a quarter is 100 or above. The MSP will get lesser payment in case of a lower performance exhibited by a SLA score of less than 100. The maximum penalty to be levied is 10% of Quarterly Payout. The payments will be as per terms defined under Schedule VI of Volume III of this tender.

The payment will be made by IPA for all locations to the bidder on quarterly basis. The quarterly invoice will be submitted by the bidder to the IPA, who will in turn release the 80% of the payment if there is no dispute and after verification/audit of the invoices and necessary documents, release balance 20% payment. The payments will be released subject to acceptance procedure as detailed in Schedule VI of this volume in the tender

The MSP will be eligible for an SLA holiday period wherein the SLAs shall not be applicable. This SLA holiday period will not be more than a quarter from the date of GO-Live of Wave III of the project, until and unless decided or agreed with IPA. The SLA holiday period is for streamlining the SLA measurement and monitoring process of the project.

The payment and SLA penalty applicability will be against the specific PORT SHARE depending on the impact.

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The nature of payment component as defined in the as defined in payment schedule may be either

- i. Shared
- ii. Port specific

Distribution of the same has been covered under Payment Terms in Volume I of this RFP. The values will be calculated separately for port and payment will be made against invoices raised for the port.

The SLA has been divided into two Parts

- A. During implementation till Go-live

Milestone payout: Here the penalty will be applicable port-wise separately against the payment being made as per payment schedule defined under payment schedule of Volume 1

- B. After Go-live (5 years during Phase III)

Quarterly payout: For shared component, the Total Quarterly Payment will be derived as (P1+P2+P3+P4+P5+P6). For Port specific component, the payment will be made against the payment component for the port as defined under payment schedule of volume I

IPA reserves the right to modify the SLAs in terms of addition, alteration or deletion of certain parameters, based on mutual consent of all the parties i.e. IPA, Ports and MSP.

The Penalties will be calculated based on the following table:

S. No.	SLA Score Range	Deductions (Penalties)
Deductions		
1	<=100 & >=95	0.25 % penalty for every point < 100
2	<95 & >=90	0.5 % penalty for every point < 100
3	<90	0.75 % penalty for every point < 100
Note: The percentage penalty would be calculated on the bill raised by the MSP for the concerned quarter.		
<i>Example:</i> <ul style="list-style-type: none"> • SLA Score of 98 will lead to a Penalty of 0.5% (i.e. 2 x 0.25 = 0.5%) • SLA Score of 93 will lead to a Penalty of 3.5% (i.e. 7 x 0.5 = 3.5%) • SLA Score of 88 will lead to a Penalty of 9% (i.e. 12 x 0.75 = 9%) 		

Note

- 1 Annual review SLA shall be done by IPA and appropriate modifications/amendments to the SLAs may be carried out.
- 2 Cascading effect (effect on multiple SLA criterions) of failure or non-performance of a particular project component on SLAs shall be avoided.
- 3 Web-based SLA monitoring tool providing reports against the parameters mentioned below will be used for measurement. IPA and ports may request for supporting documents in certain cases if required. Such tool needs to be deployed after certification from a Third Party CERT-IN agency such as STQC before Go-live of the project.
- 4 Data other than EMS or modification to EMS data for SLA monitoring has to be preapproved.

- 5 Implementation of a Web-based Project Management Information System (PMIS) for Project progress and SLA monitoring has to be carried out by before Go-live of Wave I in order to receive any payment for the project

SLA During Phase I and II: Implementation and Stabilization				
#	Parameter	Metric	Penalty	Measurement
1	Adherence to timelines for Go-live of Wave 1, 2 & 3 as mentioned in Volume I	Up to 4 calendar weeks delay from the timelines as mentioned Volume II	No Penalty	Deliverable submission as updated within PMIS and Monthly progress reports being submitted
		Delay beyond 4 week up to 8 calendar weeks	INR 20,000 per week delay per port milestone	
		Any delay beyond 8 calendar weeks	INR 80,000 per week delay per port milestone ,	
2	Substitution of resources from those	No substitution of resources will be allowed whose CVs have been provided along with the technical bid for the period 15 months from the commencement of Project (other than unavoidable reasons e.g. death, disability, departure from the firm, etc.)	Penalty of Rs. 5,00,000 per substitution of resources whose CVs have been provided along with the technical bid	Request submitted for substitution along with project plan or thereafter
	CVs provided during the technical			
	evaluation			
3	Go-live of all applications at all ports. This will be over and above the parameter Sr. 1 mentioned above.	Upto 4 calendar week delay from the timelines as mentioned in schedule X of Volume II	No Penalty	Deliverable submission as updated within PMIS and Monthly progress reports being submitted.
	In such cases, the bidder is expected to support the application for 5 years after go-live of that specific port	Any delay beyond 4 calendar weeks	INR 1,00,000 per week delay	

Phase III is commenced after all ports are completed with Phase II. Till Phase II the implementation is being carried out port-wise

SLA Parameters during Phase III: Operations and Maintenance Period							
Parameter	Baseline		Lower Performance		Breach		Measurement
	Metric	Score	Metric	Score	Metric	Score	
Application							
<i>Availability for Class I applications supporting POS functionality</i>							
Availability (uptime) of applications for doing business activities, except during scheduled down time as agreed with the department Uptime = {1 - [(Application downtime – maintenance Downtime) / (Total Time – Maintenance Downtime)]}	>=99.5%	5	<99.5% to >= 99%	3	<99%	-3	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter. End-to-end loop back mechanism must be established for checking the availability of services.
Time for opening of Home Page of portal Average must be achieved with maximum homepage opening time till success for 90% or more of the sample cases being within the stipulated time Web-to-web response time	>=3 seconds	3	<3 seconds and >=5 seconds	1	< 5 seconds	-1	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter.
Time for on-line submission of the electronic forms Average must be achieved with maximum time till success for 90% or more of the total submissions within the stipulated time Web-to-web response time	>=5 seconds	3	<5 seconds and >=7 seconds	1	<7 seconds	-1	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter.

SLA Parameters during Phase III: Operations and Maintenance Period							
Parameter	Baseline		Lower Performance		Breach		Measurement
	Metric	Score	Metric	Score	Metric	Score	
Time for uploading data file including xml, txt, etc. (other than images and pdf) on various portals Average must be achieved with maximum time till success for 90% or more of the total uploads within the stipulated time Web-to-web response time	>=20 seconds	3	< 20 seconds and > =30 seconds	2	< 30 seconds	-1	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter.
Time for re-sending of the intimation/alerts through email or mobile app from the date of receipt of information of non-delivery.	>= 30 mins	3	>30 mins to <= 4 hours	0.5	<4 hrs	-1	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter.
<i>Availability for Class II applications other than Class I applications</i>							
Availability (uptime) of applications for doing business activities, except during scheduled down time as agreed with the department Uptime = {1 - [(Application downtime – maintenance Downtime) / (Total Time – Maintenance Downtime)]}	>=99.5%	5	<99.5% to >= 99%	3	<99%	-3	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter. End-to-end loop back mechanism must be established for checking the availability of services.

SLA Parameters during Phase III: Operations and Maintenance Period							
Parameter	Baseline		Lower Performance		Breach		Measurement
	Metric	Score	Metric	Score	Metric	Score	
Time for on-line submission of the electronic forms Average must be achieved with maximum time till success for 90% or more of the total submissions within the stipulated time Web-to-web response time	>=5 seconds	3	< 5 seconds and > =7 seconds	1	NA	NA	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter.
Time for uploading data file including xml, txt, etc. (other than images and pdf) on various portals Average must be achieved with maximum time till success for 90% or more of the total uploads within the stipulated time Web-to-web response time Time for re-sending of the intimation/alerts through email or mobile app from the date of receipt of information of non-delivery.	<=20 seconds	3	<20 seconds to > =30 seconds	2	NA	NA	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter.
	<= 30 mins	1	<30 mins to >= 4 hours	0.5	NA	NA	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter.
<i>API service availability</i>							
Availability of API services for mobile, portal and other third party applications	<=99.5%	5	<99.5% and >=99%	3	<99%	-2	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter. End-to-end loop back mechanism must be established

SLA Parameters during Phase III: Operations and Maintenance Period							
Parameter	Baseline		Lower Performance		Breach		Measurement
	Metric	Score	Metric	Score	Metric	Score	
							for checking the availability of services.
<i>Response time for API Service requests</i>							
Time for providing response to the request received	<=5 seconds	2	< 5 seconds and > =7 seconds	1	< 7 seconds	-1	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter. End-to-end loop back mechanism must be established for checking the availability of services.
<i>Application Maintenance</i>							
Time to deliver the application changes as per desired functionality.	Within Agreed timeline	2	NA	NA	Beyond Agreed timeline	-1	Reports regarding the same to be captured through PMIS tool. All requests will be entered in PMIS by the bidder team as per records and provide status against the same
<i>Documentation Management</i>							
Maintaining document versioning (FRS, SRS, User, Training Manual etc.), application version control,	at the end of every quarter	1	Up to one week beyond the quarter end date	0.5	more than a week beyond the quarter end date	-1	Reports to be displayed through PMIS tool (and if requested by IPA/ports) and emails to

SLA Parameters during Phase III: Operations and Maintenance Period							
Parameter	Baseline		Lower Performance		Breach		Measurement
	Metric	Score	Metric	Score	Metric	Score	
							provide these details
Integration and interfacing							
<i>Data exchange with PCS</i>							
Time to post information to PCS system in form of messages after the transaction carried out within port system	<=10 seconds	3	>10 seconds and <=15 seconds	1	< 15 seconds	-1	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter.
Time to receive and update information in port system after receipt of same from PCS system in form of messages	<=5 seconds	3	>5 seconds and <=7 seconds	1	< 7 seconds	-1	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter.
Time to reconcile all messages exchanged (received and posted with PCS system)	<=24 hours	2	NA	NA	Beyond 24 hours	-1	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter.
<i>Data exchange with other systems</i>							
Time to post information to other system in form of messages after the transaction carried out within port system	as agreed at the time of design	3	NA	NA	Beyond agreed timelines	-1	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values

SLA Parameters during Phase III: Operations and Maintenance Period							
Parameter	Baseline		Lower Performance		Breach		Measurement
	Metric	Score	Metric	Score	Metric	Score	
							against this parameter.
Time to receive and update information in other system after receipt of same from PCS system in form of messages	as agreed at the time of design	3	NA	NA	Beyond agreed timelines	-1	Automated measurement tool to be developed as part of SLA monitoring tool to provide metric values against this parameter.
Compute and Storage Infrastructure							
<i>Data Centre Availability</i>							
Uptime of all components at DC, Port Server Room & DR including but not limited to: <ul style="list-style-type: none"> · Servers · Storage · Tape Library · SAN 	>=99.5%	5	<99.5% and >=99%	3	<99%	-3	Automated measurement tool (EMS) to be developed as part of SLA monitoring tool to provide metric values against this parameter. End-to-end loop back mechanism must be established for checking

SLA Parameters during Phase III: Operations and Maintenance Period							
Parameter	Baseline		Lower Performance		Breach		Measurement
	Metric	Score	Metric	Score	Metric	Score	
<ul style="list-style-type: none"> · Switches · Routers <p>Any downtime for maintenance shall be with prior written intimation and approval of IPA .</p> <p>Uptime = {1 - [(Component downtime – maintenance Downtime) / (Total Time – Maintenance Downtime)]}</p>							the availability of services.
<i>Security Components Availability</i>							
<p>Uptime of all security components for DC and BCP/DR site including but not limited to:</p> <ul style="list-style-type: none"> · Perimeter Security · Firewall etc. <p>Any downtime for maintenance shall be with prior written intimation and approval of IPA.</p> <p>Uptime = {1 - [(Component downtime – maintenance Downtime) / (Total Time – Maintenance Downtime)]}</p>	>99%	5	< 99% to >= 98%	3	<98%	-3	Automated measurement tool (EMS) to be developed as part of SLA monitoring tool to provide metric values against this parameter. End-to-end loop back mechanism must be established for checking the availability of services.

SLA Parameters during Phase III: Operations and Maintenance Period							
Parameter	Baseline		Lower Performance		Breach		Measurement
	Metric	Score	Metric	Score	Metric	Score	
<i>IT Infrastructure Monitoring Availability</i>							
Availability of IT Infrastructure Monitoring Tools (IT Infrastructure Monitoring Tools) at the active site.	>99%	5	< 99% to >= 98%	2	<98%	-2	Automated measurement tool (EMS) to be developed as part of SLA monitoring tool to provide metric values against this parameter. End-to-end loop back mechanism must be established for checking the availability of services.
<i>CPU and RAM Utilization</i>							
Peak CPU and RAM utilization for Application & Database Servers at DC site. The number of such occurrences wherein the CPU utilization is more than 80% for a sustained period of more than 4 hours except for scheduled batch processing tasks.	No Breach	3	NA	NA	CPU utilization is more than 80% for a sustained period of more than 4 hours	equal to n Where n is number of such instances in the reporting period	Automated measurement tool (EMS) to be developed as part of SLA monitoring tool to provide metric values against this parameter. End-to-end loop back mechanism must be established for checking the availability of services.
Network Infrastructure							
<i>Network Latency at Port LAN</i>							

SLA Parameters during Phase III: Operations and Maintenance Period							
Parameter	Baseline		Lower Performance		Breach		Measurement
	Metric	Score	Metric	Score	Metric	Score	
<p>Latency of the Network not more than 50 ms (milli second) and packet loss not more than 5%</p> <p>Average of the month-wise scores shall be taken for the quarterly measurement of the concerned parameter.</p>	No Breach	3	NA	NA	Latency of the Network more than 50 ms and packet loss more than 5% for a sustained period of more than 2 hours	equal to n Where n is number of such instances in the reporting period	Automated measurement tool (EMS) to be developed as part of SLA monitoring tool to provide metric values against this parameter.
<i>Uptime of network for Port Server Room</i>							
<p>Any downtime for maintenance shall be with prior written intimation and approval of IPA.</p> <p>Uptime = {1 - [(Component Downtime – maintenance Downtime) / (Total Time – Maintenance Downtime)]}</p>	>99%	5	< 99% to >= 98%	3	<98%	-3	Automated measurement tool (EMS) to be developed as part of SLA monitoring tool to provide metric values against this parameter.
Operations Infrastructure							
<i>Helpdesk Response time *</i>							
<p>Time taken for sending email response & ticket assignment from the time of registering of request.</p> <p>Must be achieved within agreed timeline for resolution for at least 95% of the cases in a quarter.</p>	<=2 hrs	3	>2 hrs and <=8 hrs	1	> 8 hrs	-1	Automated measurement tool (reports from ticket management system) to be developed as part of SLA monitoring tool to provide metric values against this parameter.

SLA Parameters during Phase III: Operations and Maintenance Period							
Parameter	Baseline		Lower Performance		Breach		Measurement
	Metric	Score	Metric	Score	Metric	Score	
Resolution for Critical incident	<=2 hours	2	< 2 hours to >= 4 hrs	1	< 4 hours	-1	Automated measurement tool (reports from ticket management system) to be developed as part of SLA monitoring tool to provide metric values against this parameter.
Resolution for medium level incident	<=4 hours	2	< 4 hours to >= 8 hrs	1	< 4 hours	-1	Automated measurement tool (reports from ticket management system) to be developed as part of SLA monitoring tool to provide metric values against this parameter.
Resolution for Low level incident	<= 1 day	2	< 1 day to >= 3 days	1	< 3 days	-1	Automated measurement tool (reports from ticket management system) to be developed as part of SLA monitoring tool to provide metric values against this parameter.
<i>Call Centre</i>							
Inbound Calls Response time*	<=20 seconds	3	> 20 seconds and	1.5	>30 seconds	-1	Automated measurement tool (reports

SLA Parameters during Phase III: Operations and Maintenance Period							
Parameter	Baseline		Lower Performance		Breach		Measurement
	Metric	Score	Metric	Score	Metric	Score	
Response time for the calls received at the call center (i.e. the time taken to answer a call landing at the help desk excluding the IVRS time).			<=30 seconds				from call center system) to be developed as part of SLA monitoring tool to provide metric values against this parameter.
Inbound Calls Abandonment Rate* Call abandonment rate (unanswered calls by helpdesk agents) This measures % of calls that were requested for an agent but got disconnected before being answered by the agent. Only calls that get disconnected after 20 seconds from transfer using IVRS options will be considered for computation of this SLA.	<=3%	3	>3% & <=5%	1.5	>5%	-1	Automated measurement tool (reports from call center system) to be developed as part of SLA monitoring tool to provide metric values against this parameter.
Training and capacity building							
<i>Training Rating</i>							
The training and capacity building satisfaction will be measured by feedback rating given by the trainees during online and face to face training. Average rating must be achieved above the specified rating score for more than 80% of the feedback ratings received	Rating >= 80%	2	Rating<80 % and Rating >= 70%	1	Rating < 70%	-1	Feedback rating given by the trainees during online and face to face training and uploaded on PMIS

SLA Parameters during Phase III: Operations and Maintenance Period							
Parameter	Baseline		Lower Performance		Breach		Measurement
	Metric	Score	Metric	Score	Metric	Score	
<i>Training material</i>							
<i>Update of training materials on all portals within 1 week from date of release of modification to software into production environment</i>	Within 1 Week	2	upto 2 weeks	1	more than 2 weeks	-1	Automated measurement tool (reports from PMIS) to be developed as part of SLA monitoring tool to provide metric values against this parameter.
Other Parameters							
<i>Manpower availability</i>							

SLA Parameters during Phase III: Operations and Maintenance Period							
Parameter	Baseline		Lower Performance		Breach		Measurement
	Metric	Score	Metric	Score	Metric	Score	
<p>Manpower availability measures the availability of the required skill sets as proposed by the MSP in its proposal. This parameter shall also take into account the quality of resources in terms of skill set, experience and ability to perform in similar environment besides deployment on the project. In case of replacements, the new resource should be of similar or higher skill set. The skill sets to be taken into account for measuring this parameter includes the following at a minimum:</p> <ul style="list-style-type: none"> • Key Personnel as per Volume I of RFP • Team Leads for each of the tracks/areas • Team members for various skills required for carrying out the activities of the project • Minimum committed resources for IT helpdesk and call center • Production Support Team 	No Deviation	2	NA	NA	In case of deviations	-1	All deviations would be recorded and MIS report shall be made available to the IPA and ports via PMIS
<i>Monthly Project Progress Report</i>							

SLA Parameters during Phase III: Operations and Maintenance Period							
Parameter	Baseline		Lower Performance		Breach		Measurement
	Metric	Score	Metric	Score	Metric	Score	
Submission of monthly progress report including the following: - Progress against project plan for each port - Key dependencies - Details of non-compliances if any - Issues list - Activities completed within the reporting period - Activities to be completed in the next reporting period	Within 2 days from month end	2	NA	NA	Greater than 2 days	-1	Automated measurement tool (reports from PMIS) to be developed as part of SLA monitoring tool to provide metric values against this parameter.

* Classification for Helpdesk services

Severity level	Severity Particulars	Service window
Critical	Outage that impacts ≥ 1 PORT Services & higher management call	24*7
Medium	Outage that does not impact PORT SERVICES but affects department services	24*7
Low	Upgrade, shifting and preventive maintenance	7am to 7pm (Monday to Friday)

11. Updating of this Agreement

- a) The Parties anticipate that this Agreement shall need to be re-evaluated and modified to account for changes in work environment and technology from time to time. Hence they hereby agree to revise the terms of the Agreement on an annual basis.
- b) The Parties hereby agree upon the following procedure for revising this Agreement:
 - i. Any and all changes to this Agreement will be initiated in writing between the Buyer and the Implementation Agency, The service levels in this Agreement shall be considered to be standard for the Buyer and shall only be modified if both Parties agree to an appended set of terms and conditions;
 - ii. Only the Buyer or the MSP may initiate a revision to this Agreement;
 - iii. A notice of the proposed revision (“SLA Change Request”) shall be served to the Buyer or the MSP as the case may be;
 - iv. The SLA Change request would be deemed to be denied in case it is not approved within a period of 45 days;
 - v. In the event that Buyer/MSP approves of the suggested change the change shall be communicated to all the Parties and the SLA
 - vi. Change request would be appended to the Agreement;
 - vii. The Buyer shall update and republish the text of Agreement annually to include all the SLA Change Requests that have been appended to the Agreement during the course of the year. Such republished Agreement shall be circulated to all the Parties within <***> days of such change taking place.

12. Document History

All revisions made to this Agreement shall be listed in chronological order as per the format set out below and a copy of the same shall be provided to the Parties:

Version	Date	Description of Changes
<***>	<***>	<***>

13. Scope of Services

- a) MSP shall ensure that Services are available at various locations as per the requirements of the project;
- b) MSP shall provide support services for addressing problems related to the provision of services of the selected bidder through the POC. Such POC shall be available over telephone on <***> number 24 hours a day, 7 days a week
- c) MSP guarantees that he shall achieve the Service Levels for the Project;
- d) MSP shall be liable to Service Credits in case of failure to comply with the Service Levels. However any delay not attributable to the Implementation Agency shall not be taken into account while computing adherence to the Service Levels.

14. Performance Review

The POC's of both the Buyer and the Implementation Agency shall meet on a quarterly basis to discuss priorities, service levels and system performance. Additional meetings may be held at the request of either the MSP or the Buyer. The agenda for these meetings shall be as follows:

- a) Service performance;
- b) Review of specific problems/exceptions and priorities; and
- c) Review of the operation of this Agreement and determine corrective action to overcome deficiencies.

15. Indemnities

The Parties agree to indemnify each other under this Agreement in accordance with the terms and principles set out in the MSA.

16. Dispute Resolution

Any dispute, difference or claim arising out of or in connection with the Agreement which is not resolved amicably shall be decided in accordance with the dispute resolution procedure as set out in the MSA.

17. Miscellaneous

a) Assignment and Charges

This Agreement shall be binding on and ensure for the benefit of each Party's successors in title. No Party shall assign, or declare any trust in favour of a third party over, all or any part of the benefit of, or its rights or benefits under, this Agreement.

b) Governing Law and jurisdiction

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the courts at the State of Delhi shall have jurisdiction over matters arising out of or relating to this Agreement.

c) Waiver of sovereign immunity

The Parties unconditionally and irrevocably:

- i. agree that the execution, delivery and performance by them of the Agreement constitute commercial acts done and performed for commercial purpose;
- ii. agree that, should any proceedings be brought against a Party or its assets, property or revenues in any jurisdiction in relation to the Agreement or any transaction contemplated by the Agreement, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of such Party with respect to its assets;
- iii. waive any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and
- iv. consent generally to the enforcement of any judgment or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended use of any order or judgment that may be made or given in connection therewith).

d) Variation

This Agreement may only be varied in writing and signed by both Parties

e) Waiver

Waiver including partial or conditional waiver, by either Party of any default by the other Party in the observance and performance of any provision of or obligations under this Agreement:-

- i. shall be in writing
- ii. shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;
- iii. shall not be effective unless it is in writing and executed by a duly authorized representative of the Party; and
- iv. shall not affect the validity or enforceability of this Agreement in any manner.

f) Exclusion of implied warranties

This Agreement expressly excludes any warranty, condition or other undertaking implied at law or by custom or otherwise arising out of any other agreement between the Parties or any representation by either Party not contained in a binding legal agreement executed by both Parties.

g) Survival

a) Termination or expiration of the Term shall:

- not relieve the MSP or the Buyer, as the case may be, of any obligations hereunder which expressly or by implication survive hereof; and
- except as otherwise provided in any provision of this Agreement expressly limiting the liability of either Party, not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of, or caused by, acts or omissions of such Party prior to the effectiveness of such termination or expiration or arising out of such termination or expiration.

b) All obligations surviving termination or expiration of the Term shall cease on termination or expiration of the Term.

h) Entire Agreement

This Agreement and the Annexure together constitute a complete and exclusive statement of the terms of the agreement between the Parties on the subject hereof, and no amendment or modification hereto shall be valid and effective unless such modification or amendment is agreed to in writing by the Parties and duly executed by persons especially empowered in this behalf by the respective Parties. All prior written or oral understandings, offers or other communications of every kind pertaining to this Agreement are abrogated and withdrawn.

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

SIGNED, SEALED AND DELIVERED
For and on behalf of the Implementation
Agency by: IPA

SIGNED, SEALED AND DELIVERED
For and on behalf of the Nodal
Agency by:

(Signature)

(Signature)

Volume 3 - Request for Proposal (RFP) for "Selection of Managed Service Provider (MSP) for Enterprise Business System in Five Major Indian Ports"

(Name): Shri.

(Name)

(Designation):

(Designation)

(Address)

(Address)

(Fax No.)

(Fax No.)

In the presence of:

- 1.
- 2.