

## **EXPRESSION OF INTEREST (EOI)**

### **DEPARTMENT OF REVENUE AND CUSTOMS, MINISTRY OF FINANCE ROYAL GOVERNMENT OF BHUTAN**

#### **1 EOI Reference:**

EOI Title: **Bespoke Development of Electronic Customs Management System (e CMS)**

The Royal Government of Bhutan has received a grant from Asian Development Bank under grant No 0492-BHU (SF) tied to SASEC Transport, Trade Facilitation and Logistic Project (Project No BHU 27284) towards development of Electronic Customs Management System.

DRC has awarded the contract to develop the e CMS to a national IT firm Yangkhor Private Limited in joint association with CrimsonLogic Pte Ltd as a sub-consultant.

As per the work plan, the project is expected to complete within two years (24 months). The project will be executed into two phases;

Phase I: Development of Core functions

Phase II: Development of Non-Core function.

There will be two UAT scheduled as per the Terms of Reference.

Further, as per the Project Proposal, the client (DRC) will depute the System Auditor/System Quality Assurer who will assist DRC with conducting the UATs and will conduct audit within five months of development period to ensure that the project is executed as per requirements outlined the Terms of Reference.

#### **2 Objectives**

DRC has further requested ADB to finance the recruitment of a System Auditor/System Quality Assurer to maximize the success of a project by detecting its potential risks and weaknesses. Further the system audit will be conducted to achieve the following;

- Reliability and integrity of information
- Safeguarding of assets
- Effective and efficient use of resources
- Compliance with significant policies, procedures, laws, regulations and international best practices
- Compliance with the requirement specification as per the Terms of Reference, Functional Requirement Specification /Software Requirement Specification.

### 3 Scope of Project

1. ***State of affairs report:*** To review the overall eCMS application and network technical design and deployment with a view to determining whether these designs are fit for purpose and what gaps exist within these designs and deployments.
2. ***Application software architecture review:*** To provide assurance that the technical architecture of eCMS, Supervisor and other operational and ancillary applications meet the current and future needs of the organization. The Auditor/Assurer must assess control and authorizations, error and exception handling, business process flows within the application software and complementary controls (enterprise level, general, application and specialist IT control) and procedures and validation of reports generated from the system.
3. ***Network architecture and security review:*** Given that the environments customs operate in possess different policy frameworks dictating the storage and transmission of data. Thus, the consultant has to perform a network and data transmission security audit to outline the threats and gaps that are presented by this. The aim of this audit is to provide assurance that the components of our deployments (databases, web and application servers, cache systems, along with other systems) are fully secure and are corresponding to the controls objectives of the control system. Review of internal and external connections to the system, perimeter security, firewall review, router access control lists, port scanning and intrusion detection are some typical areas of coverage.
4. ***User Acceptance Test:*** Ensure that the system development is carried out in line with the requirement specification, keeping in view the best security practices, system performance and scalability/modifiability in the future.
5. ***Data integrity review:*** To provide assurance that the database design and structure provides the best possible design for the organizational needs and corresponding application and future integration needs. The purpose is the scrutiny of live data to verify adequacy of controls and impact of weaknesses, as noticed from any of the above reviews.
6. ***Business continuity review:*** The review includes existence and maintenance of fault tolerant and redundant hardware, backup procedures and storage, and documented and tested disaster recovery/business continuity plan, effectiveness of disaster recovery plan, as well as ensuring existence of well-defined I.S Audit manual and its compliance thereon.
7. The electronic Customs Management System, as its name implies, will be a system for the DRC's Customs Division to manage its operations. This includes, among other things; the registration of importers, exporters and clearing and forwarding agents; the processing of

cargo and passenger manifests; the processing of import, export and transit declarations; automated risk assessment; valuation; applications for duty exemptions and refunds; examinations; penalties and appeals.

#### 4 Detailed EoI and Terms of Reference

The detailed Expression of Interest, Terms of Reference and other relevant details of the assignment could be found on the link below;

##### I. Detailed Tasks Deliverables

<b>Task</b>	<b>Detailed Task</b>	<b>Deliverables</b>
<i>Work Plan</i>	<ul style="list-style-type: none"> <li>The inception report should include the detailed work plan and details on how to carry out each audit as required by the terms of reference</li> <li>Detail plans on each of the audit</li> </ul>	Inception Report
<i>Application software architecture analysis:</i>  <i>Scaling and expansion options and policy framework:</i>	<p>verify and test if the system and application are appropriate, efficient and adequately controlled to ensure valid, reliable, timely, and secure input, processing, and output all levels of system activities. Verify if all the system application are up to date</p> <p>Scalability: - Number of user changes while maintaining other qualities. Support continuous growth to meet user demand and business complexity. It must be possible to extend the minimum hardware configuration needed for the application with additional hardware to support increased workloads.</p> <ol style="list-style-type: none"> <li>Verify if the software architecture is scalable, modifiable and extensible</li> <li>Verify if the architecture is developed to the need of micro service development</li> </ol>	Application software architecture audit report
<i>Security &amp; Privacy policies</i>	<ul style="list-style-type: none"> <li>Security: - Measure of the system's ability to resist unauthorized attempts at usage and denial of service.</li> <li>Checking that raw materials or components involved in the developing process are of suitable</li> </ul>	Network architecture and security audit report

	<p>quality.</p> <ul style="list-style-type: none"> <li>• verify if the development is as per the regulations and international standards when it comes to testing and quality assurance.</li> </ul>	
<p>User Acceptance Test</p>	<p>i. <i>Assist DRC with the UAT:</i></p> <ul style="list-style-type: none"> <li>• Test and audit of the ICT infrastructure, including hardware supporting the system.</li> <li>• verify if the telecommunication controls are in place on the clients (Computer receiving services), Server, and on the network connecting the clients and servers</li> <li>• Evaluate the quality of the delivered services as seen by external and internal users and the effectiveness of the current application architecture and technical infrastructure.</li> <li>• develop test cases</li> </ul>	
<p><i>Testing of system/ developers codes: Verify the system</i></p>	<ul style="list-style-type: none"> <li>• Modifiability: - Ability to make changes to a system quickly and cost effectively.</li> <li>• Portability: - Ability to run under different computing environments. Sometimes considered as a special kind of modifiability.</li> <li>• Functionality: - Ability to do the work for which it was intended.</li> <li>• Extensibility: Ability to for New feature implementation/replacement of components with improved versions and the removal of unwanted or unnecessary features or components.</li> <li>• Conceptual Integrity: - Review and verify the underlying theme or vision that unifies the design of the system at all levels.</li> <li>• Interoperability: -Ability to interact with other sub-subsystem, or a well-defined access to externally-visible functionality and data structures or interaction with other run-time environments.</li> <li>• Usability: - Ability to use the program easily (user friendly)</li> <li>• Maintainability: - Maintainability by verifying how easy it is to maintain the system (Problem fixing, repairing a software system after errors occur.</li> <li>• Efficiency: - Efficiency by verifying the efficiency of</li> </ul>	<ul style="list-style-type: none"> <li>• UAT Report</li> <li>• Test Cases in coordination with DRC</li> <li>• Back up practices report</li> </ul>

	<p>the system in terms of the resources available for execution of software, and how this might impact response times, throughput and storage consumption.</p> <ul style="list-style-type: none"> <li>• Debug-ability /Monitoring: - in terms of preparing application for easy and efficient debugging. Registration of abnormal behaviour. Real-time monitoring.</li> <li>• Development Productivity: - by verifying the cost and time saving mechanism to aid development of applications based on the software architecture.</li> <li>• Logical Access Controls: in terms of ease of Administration: - Review the health of the application. (Refers to the infrastructure, tools, and staff of administrators and technicians needed to maintain E.g. Change physical location of service with minimal impact on the rest of the system.)</li> </ul>	
<p><i>Consistency with requirement Specification audit:</i></p>	<ul style="list-style-type: none"> <li>• Compare the technical infrastructure (hardware/software) of the system in comparison to the technical specification prepared by supplier and the requirement specification, and FRS prepared by DRC, and also good practice. Identify the gaps and system flaws of the (SRS/FRS) and design of the system and also the SOR (Statement of Requirement submitted by DRC.)</li> <li>• Backup practices: Verify if the offline backup implementation as per the RFP.</li> </ul>	<p>Gap Analysis Report and Recommendation</p>
<p>Data integrity review</p>	<p>i. <i>Data integrity audit:</i> Conduct testing and audit of the system and database and application architecture of Customs Management System, and functionalities of the system applications.</p>	<p>Data integrity Audit Report</p>
<p>Business continuity review</p>	<p>i. <i>Business continuity assessment:</i> Ensure maintainability, Interoperability.</p>	<p>Business continuity Audit Report</p>
<p><i>Performance, Scalability and Availability audit:</i></p>	<p>i. System deployment: Verify if the system deployment is easy.</p> <p>ii. Perform stress tests that expose the product to increase transactions.</p> <p>iii. <i>Penetration testing and Vulnerability assessment:</i> verify if the processing facilities is controlled to</p>	<p>Performance, Scalability and Availability Audit Report</p>

	ensure timely accurate and efficient processing of application under normal and potentially disruptive conditions.	
<i>User Management and Security audit:</i>	Proper user management and security	
Incident management	<ul style="list-style-type: none"> <li>● Investigate causes of defects that occur during the testing phase.</li> <li>● Communicating with Quality Control about existing defects and how to prevent them in future products.</li> <li>● Report discovered defects to all relevant departments for correction.</li> <li>● Suggest improvements to system infrastructure and processes to prevent future mistakes during production</li> </ul>	Incident management Audit Report
<i>Software Document Management</i>	<ul style="list-style-type: none"> <li>● the ability of the system to manage the documents effectively and efficiently.</li> </ul>	
Comprehensive Audit Report	<ul style="list-style-type: none"> <li>● Draft Gap Analysis report, with recommendations</li> <li>● Prepare recommendations for DRC on how to improve the gaps and flaws in system applications, system and database management, and ICT infrastructure if any</li> <li>● Develop a Way Forward for the System.</li> </ul>	State of the Art Report

## II. Output/Reporting Requirements.

<b>D</b>	<b>Deliverables</b>	<b>Indicative Time</b>
1	Inception Report	<i>Within 7 Working Days of the contract start</i>
2	Application software architecture audit report	<i>Within 10 Days after the completion of the first visit</i>
	Network architecture and security audit Report	
	Data integrity Audit Report	
	Business continuity Audit Report	
3	User Test Case	<i>7 days before the UAT</i>
	UAT Report ( First UAT)	<i>7 days after the first UAT has been</i>

	Back up practices report	<i>completed</i>
	Data integrity Audit Report	
	Incident management Audit Report	
4	User Test Case	<i>7 days before the UAT</i>
	UAT Report ( First UAT)	<i>7 days after the first UAT has been completed</i>
	Back up practices report	
	Data integrity Audit Report	
	Incident management Audit Report	
5	Comprehensive Report	<i>10 Days after the completion of the Audit</i>

### III.DELIVERABLES

<b>Name</b>	<b>Type</b>	<b>Estimated Submission Date</b>
Inception Report	Final Report	14 <sup>th</sup> Feb 2022
Application software architecture audit report	Final Report	31 <sup>st</sup> March 2022
Network architecture and security audit report	Final Report	31 <sup>st</sup> March 2022
User Acceptance Test Testing of system/ developers codes: Verify the system with the FRS/TRS/ToR	Final Report	13 <sup>th</sup> May 2022
Gap Analysis Report and Recommendation	Final Report	31 <sup>st</sup> May 2022
Data integrity Audit Report		
Business continuity review		
Performance, Scalability and Availability Audit Report, User Management and Security Audit Report, Incident management Audit Report, <i>Software Document Management</i>		
Final Audit Report	Final Report	15 <sup>th</sup> June 2022

#### **IV. Minimum Experience, Skills and Qualification**

The consultant should have the following **minimum** experience and qualification:

- (i) A Bachelor's degree in Information technology, computer science, or a related field and at least 10 years working experience in IT with in-depth technical knowledge and involvement in the development of customs automated system and modernization programs;
- (ii) Have worked on numerous international customs IT projects (minimum two) and have extensive experience on the development of fully customized customs automation project;
- (iii) Considerable experience working with World Customs Organization instruments and tools, especially the RKC, and the familiarity of the development of supporting IT systems is desirable.
- (iv) Have adequate knowledge, experience and involvement in IT project management;
- (v) Should have the required and in-depth technical expertise, knowledge and experience to deliver successfully all the tasks and other requirements of DRC mandated in this ToR and any additional tasks or requirements that may arise over the period;
- (vi) Demonstrated professional competence, cross-cultural interpersonal skills, and excellent English written and oral communication skills;
- (vii) Experience in working in similar countries as Bhutan with similar environment, nature and conditions on customs reform, modernization and automation/IT projects would be an added advantage.
- (viii) Knowledge of current technological developments/trends in area of expertise.
- (ix) Ability to review system backup, disaster recovery and maintenance procedures.
- (x) Knowledge of software requirements for the auditing of computing systems and procedures.
- (xi) Certified IT system auditor will be an added advantage

#### **5 Estimated Budget**

The estimated Budget of the assignment is as indicated below;

Type of Consultancy	Engagement Period	Estimated Competitive Budget
Consulting Firm	108 Days	USD 134,181



## **6 Selection Criteria**

Candidates will be selected in accordance with the procedures set out in the Procurement Regulations for ADB borrowers by the Asian Development Bank.

## **7 Eligibility**

### 7.1 Nationality

A Consulting Firm, and all parties constituting the Consulting Firm, shall have the nationality of an ADB eligible country.

## **8 EoI Submission**

EOI's are to be delivered/submitted to through the ADB'S CMS BY 24<sup>th</sup> January 2022.