DEPARTMENT OF TOURISM
TERMS OF REFERENCE

I. GENERAL INFORMATION

Service/Work Description	:	Information Technology System Development for Tourism Information with Visualization Phase 1
Project/Program Title	:	Procurement of Services of a Consultancy Firm for the Development of a Tourism Information with Visualization System Phase 1
Post Title	:	National Consultant
Duty Station	:	Tourism Development Planning Division – OTDPRIM, Department of Tourism
Duration	:	Approximately 91 Calendar days

II. Introduction

The Department of Tourism (DOT) is currently developing its Information Technology infrastructure with the improvement of its network to be more secure and reliable. Several layers of protection were applied aside from the unified threat management provided by Eastern Telecom. The DOT has in placed a 24/7 technical support and security facility.

Moreover, the DOT has prepared a three (3) year Information System Strategic Plan (ISSP) for 2017-2020 that recommends new digital infrastructure, ICT equipment, and core system to improve the operational and administrative capabilities of the agency. The ISSP identifies improvement of infrastructure in all aspects, including server, data warehouse, storage, desktop, disaster recovery, security, and protection. It also includes core systems such as Planning and Monitoring Online System (PMOS), Electronic Document Control Center (EDCC-QMS), Human Resource Information System (HRIS), etc.

The DOT Data Center houses several applications such as the DOT website, Tourism Marketing website (the Philippine travel), Document Management System, Planning and Monitoring System, Human Resource Information System, Electronic Document Control Center, and others. These systems have contributed to the improvement of the internal and administrative operations of the Department.

However, some areas of operations from the DOT have not been migrated to the most updated and efficient information technology. An example of this is using outdated programming systems and languages such as FoxPro in the database management of

Tourism Statistics. Further, the different programs and applications currently being used by the different sectors of DOT need to be consolidated and integrated into one system.

III. Legal Basis

Under the Implementing Rules and Regulations of the RA 9593, the Office of Tourism Development Planning, Research and Information Management (OTDPRIM) through the Information Technology Division is mandated to oversee the Department's information, communication, and technology networking as well as maintain and enhance the Department's portal and website, hardware, software, and application system to keep them at par with industry and international standards and practices.

IV. Objectives of the Project

The general objective of this project is to develop a Tourism Information System (TIS) with Visualization System to support the data collection, storage, management, process, analysis, and visual with crucial results from identified indicators for the decision-making process. Specifically, the project aims to:

- Create, capture, integrate, and utilize accurate, consistent, timely, and up-to-date Web-based tourism information;
- Develop an Information system for more efficient information storage, where information can be stored, saved, displayed, easily retrieved, and readily accessible to aid and support informed decision-making and business continuity;
- Develop a system that integrates all information of the Department but ensure safety and security to avoid information loss;
- Develop multimedia information formats to be stored within the system;
- Ensure the easy process for information dissemination; and
- Provide training for sustained maintenance and use of the system.

V. Scope of Work and Expected Output

The data management and visualization system shall include developing a dynamic dashboard within a holistic Tourism Information System (TIS).

The consultancy is crucial in creating dynamic linkages between different data forms, GIS data, and statistics, besides creating a cloud-based computing architecture Tourism Information System. The Consultant is expected to deliver timely results in a wide range of areas including but not limited to the following:

Stages	Activities	Expected Output	Schedule
Stage 1	Assessment and Gap Analysis	Assess the current information management system to identify	7 calendar days

		existing gaps and options for implementation. • Consult with the different DOT personnel and stakeholders on Information Storage systems. • Scope information management arrangements to assess how different DOT sectors and offices produce data and information, how is it stored, current databases, identify who is responsible for it, and arrangements, procedures, and coordination for maintenance, use, and data sharing; • Based on this assessment, identify gaps and weaknesses in information management that need to be addressed. • Identify feasible options for developing the TIS and procedures, including advantages/disadvantages of each option, total costs to run the system, keeping in mind internet charges, hardware and software purchases, and any other associated expenses. • Deliver a report on the assessment and gap analysis with TIS Options	
Stage 2	TIS development with Visualization System	• Development of an online application for the TIS with Visualization with four modules of TIS systems. • Datamart / Data Warehouse normalization and ingestion	62 calendar days
Stage 3	Training on efficient and effective use of the Tourism Information System with Visualization	Complete TIS with Visualization System, user manual, and training workshops for DOT Personnel. • Produce a user manual/ guide for the efficient and effective use and maintenance of the	21 calendar days

		TIS and how to edit the TIS to include new data. • Conduct training workshops for DOT personnel on the use and maintenance of the TIS and best practices for information management. • Provide a project completion report.	

Deliverables

The Consultant must submit progress reports on the significant activities required during the development of the TIS with Visualization System. It shall include specifically the following outputs during the engagement:

Documents	DOT Business Process and Inception Report
	Technical, Database Manager, and User Manuals
	Project Completion Report
Database Normalization / Creation	Based on the DOT Business Process and Inception Report. Consultants must have fine-tuned database based on data gathered and meeting with the DOT Personnel
	User Accounts and roles to be created should be defined by this time.
	Data Privacy Compliance: Database Personal Encryption at least AES 256
	Data Privacy Compliance: File Encryption at least AES 256
Customization	Delivery of specification/customization base on approved DOT Business process and inception report
	To have a platform product that has secured web-based for the Information Systems stated, and capability to integrate the DOT current information systems and open for upgrades and additional systems. It should be capable of building database, generate analytical reports, and act as a dissemination and infoboard system. The modules shall include but not limited to an accommodation supply and demand database module, a tourism survey module, data processing module for inbound travelers, and a system for regional supply and demand database. The system shoukdl be able to provide a data gathering capable of offline (push capability) and

	online processes, report generation and data analysis, business analytics including estimation and forecasting, data sharing, infographic and highliyh interactive online dashboards
Data Ingestion	All Data which DOT cleanses need to ingest/convert into the database of the system
	Encoding of historical data if necessary
Data Visualization/DashBoard	Monthly Activity
	Daily Activity
	Historical Data
Report Module	Generate Monthly and Annual Reports (DOT Template)
Audit Trail	Logs for login
	Activity Report
Installation	The proposed system should be installed on DOT Servers, two-tier architecture, and have replication capability
Licenses	All Licenses must be submitted to DOT and must be installed on a designated server
Security	Implementation should follow OWASP Must have encryption Must have SSL Can work behind a load balancer
Data Warehouse	Data on other Datamart must be ingested to data warehouse
	Must be High Available
	Must support Parallel Processing Architecture
	Must have Innovative Query Optimizer
Helpdesk and Technical Support	The bidder's First Level Helpdesk Support, in coordination with the project Manager shall provide the following services:
	24 x 7 available helpdesk personnel and network and systems engineers
	Single telephone contact information
	24 x 7 available telephone service
	Trouble ticket management and escalation service
Training	In-house Training for Visualization and creation of dashboard for 2 days (10 pax) include accommodation and meals (open for adjustment to equivalent valued alternative modality in accordance to IATF-MEID and DOT policies)

	• Securing Visualization (users, roles, and spaces) • Creating basic & advanced visualizations • Query Language (QL) • Creating and interacting with dashboards Reporting and Alerting
	In-house Training for Python for 4 days (10 pax) includes accommodation and meals. ((open for adjustment to equivalent valued alternative modality in accordance to IATF-MEID and DOT policies; Alternative modality bust also be stated on the proposal.) • Basic Concepts • Data Types, Evaluations, and Basic I/O Operations • Flow Control – loops and conditional blocks • Data Collections – Lists, Tuples, and Dictionaries • Functions

	In-house Training Advance Python for 5 days (10 pax) include accommodation and meals. (open for adjustment to equivalent valued alternative modality in accordance to IATF-MEID and DOT policies; Alternative modality bust also be stated on the proposal.)
	
	• Control and Evaluations
	• Data Aggregates
	  ○ Implementing and Using Strings
	  ○ Implementing and using lists
	  ○ lists in lists
	  ○ tuples
	  ○ tuples vs. lists
	  ○ dictionaries
	• Functions and Modules
	Classes, Objects, and Exceptions

	In-house Train the trainer 10 days (50pax/batch: 100 pax) include accommodation and meals. (open for adjustment to equivalent valued alternative modality in accordance to IATF-MEID and DOT policies; Alternative modality bust also be stated on the proposal.)

VI. CONSULTANT QUALIFICATIONS AND EXPERIENCE

Bidding consultants must be consist of a minimum of one (1) personnel per type.

1. **Project Manager**
   - With a minimum of five (5) years of related work experience
   - Must be Certified Project Manager

2. **Data Privacy and Security Compliance Officer**
   - Must have a minimum of five (5) years of work experience
   - Must be a member of the National Association of Data Privacy Officer of the Philippines (NADPOP)
   - Must have at least two (2) years of relevant practice leading to operational compliance of an institution

3. **Full-stack Developer**
   - With a minimum of five (5) years of relevant work experience
   - Must have attended ten (10) hours of training related to Java software development in the past three (3) years
   - Must be knowledgeable on at least one (1) of the following programming language: JAVA and PHP. Knowledge on more than one (1) system including those not stated is preferable.
   - Must be knowledgeable on at least three of the following programming systems: CodeIgniter, Bootstrap, HTML, CSS, JavaScript, jQuery, and REST API. Knowledge on more than three (3) including htose not stated is preferable.
   - Must be knowledgeable in Python programming language
   - Preferably with experience in Agile Methodology
   - Must have experience using version control software, e.g., Git
   - Must be knowledgeable on at least one (1) of the following database systems: PostgreSQL, MySQL, OracleDB, MSSQL. Knowledge on more than one (1) system including those not stated is preferable.

4. **Business Analyst**
   - With three (3) years of relevant work experience
   - Attended at least three (3) training on business analytics in the past three (3) years

5. **Network and System Administrator / Cloud Engineer / Cloud Architect**
   - With three (3) years of relevant work experience
   - Must at least have Cloud Solutions Certification
   - Must be knowledgeable on at least one (1) of the following platform: Microsoft Server, Linux Server.
   - Must be knowledgeable in cloud services

VII. IT Supplier Requirement

1. Must submit authorization/certification of partnership with enterprise search and

analytics.
2. Must be in the information technology system business for at least five (5) years.
3. Must provide at least one (1) technical support number.
4. At least 1 cloud solution Engineer/architect CV and certification of cloud architect must be presented or submitted.
5. Must have at least five (5) personnel that are qualified to fill up all the required personnel above stated. More developers than what is required is preferred.
6. Must have at least four (4) IT-related ongoing or completed contracts or notice to proceed with government agencies.

VIII. Additional Requirements/Technical Specifications

1. Application Support of the Platform

    a. Minimum of Four (4) modules for the DOT Information System as stated on the deliverables.
    b. Must support scalable architecture to support the number of concurrent users
    c. Must support High Available architecture
    d. Must support Disaster recovery architecture when the primary data center is down
    e. Must use the existing infrastructure of DOT
    f. Must have audit logs management
    g. Must have backup and restore plan
    h. Must be able to integrate to other systems of DOT and from other government agencies

2. Enterprise Analytics

    a. Smart suggestions guide you towards visualizations that most effectively communicate your data
    b. Use role-based access control to invite users into specific spaces (and not others), giving them access to specific content and features
    c. Sharing option. Embed a dashboard, share a link, or export to PDF, PNG, XLSX, or CSV files and send as an attachment
    d. Capable of analytics aggregations such as but not limited to Cumulative cardinality aggregation, moving percentiles aggregation, Normalize aggregation, String stats aggregation, etc.
    e. Rapidly create dashboards that pull together charts, maps, and filters to display the complete picture of your analysis
    f. Build customized dashboard-to-dashboard drill-downs that open up additional paths for analysis
    g. Explore underlying data with a single click
    h. Must have log analysis
    i. Must have infrastructure monitoring

j. Must have business analytics
k. Must have application performance monitoring
l. Must have run in a clustered architecture

3. Enterprise Research

    a. Must perform and combine many types of searches — structured, unstructured, geo, metric
    b. Must run in a clustered architecture
    c. Must be scalable
    d. Can add a search box to an app or website
    e. Can Store and analyze logs, metrics, and security event data
    f. Can use machine learning to model the behavior of data in real-time automatically
    g. Manage, integrate, and analyze spatial information using Enterprise Search as a geographic information system (GIS)
    h. Store and process genetic data using Enterprise Search as a bioinformatics research tool
    i. Full-text search includes but is not limited to relevance scoring, highlighting, corrections, suggestions, percolations, query profiler, etc.

4. Machine Learning Features

    Must be capable of:
    - File import wizard
    - Data Visualizer
    - Anomaly detection on time series
    - Outlier detection
    - Regression
    - Classification
    - Population/entity analysis
    - Log message categorization
    - Root cause indication
    - Altering on anomalies
    - Forecasting on time series
    - Inference
    - Feature importance
    - Model snapshot management
    - Language identification

IX. PROJECT DURATION

The TIS with Visualization System shall be completed based on the prescribed timetable. The works shall commence on the date of issuance of Notice to Proceed (NTP).

Deliverables	Duration in Days	Review and Approval Period
Inception Report (IR)	7 calendar days	Maximum 2 workdays (upon receipt of the report)
Development of TIS and Visualization System	62 calendar days	Maximum 5 workdays (upon receipt of the final system)
Training and Manual	21 calendar days	Maximum 3 workdays (upon receipt of Proposed Training Programs)
Total	91 calendar days	

Project duration or schedule is based on calendar days and excludes the approval period. The Information and Technology Division (ITD) shall be provided a copy of each deliverable for review, and DOT shall review and comments within the allotted days prescribed on the above table for each major milestone.

X. IMPLEMENTATION ARRANGEMENTS

The Consultants is contracted under the DOT terms and conditions and undertake the assigned tasks and responsibilities under the direct supervision of the DOT Office of Tourism Development Planning, Research, and Information Management (OTDPRIM). The consultants shall work closely with DOT, especially with the Information and Technology Division (ITD) and Statistics, Economic Analysis and Information Management Division (SEAIMD), DOT Regional Offices, and other stakeholders. ITD, SEAIMD, and DOT Regional Offices shall provide the necessary support in providing administrative support and arranging appointments. The Consultants shall cover all local travel costs and logistical arrangements related to the assignment.

XI. PROJECT BUDGET

The total allocation for the consultancy services for developing the Tourism Information with Visualization System (TIVS) is Twenty-Eight Million, Two Hundred Fifty Thousand Pesos (PhP28,250,000.00). The amount shall include Value-Added Tax (VAT) and all other applicable government taxes and charges and all professional, incidental, administrative costs incurred by the Consultants arising from the performance of the activities covered by the Scope of Work and Services such as but not limited to the cost of conducting meetings; inspections, consultations, training and workshops, Focus Group Discussions and administrative costs such as printing and reproduction costs, etc.; transportation costs; and all other expenses.

Payment Schedule Per Milestone and Reference	Percentage Share from Total Budget	Funding Source:[1]
Provision and Acceptance of Inception and Requirement Analysis	13%	CO
Delivery and acceptance of approved customization one(1) as specification	13%	CO
Delivery and acceptance of approved customization two(2) as specification	19%	CO
Delivery and acceptance of 100% Completed TIS component of the project.	19%	CO
Successful Conduct of Training for Visualization, Beginner Python for Non-Programmer and Advance Python, and Train the Trainer	11%	MOOE
Endorsement and Acceptance of Completion Report and other Documentation Endorsement and Acceptance of Source Code for Customization Endorsement and Acceptance of Manual Endorsement and Acceptance of License	25%	MOOE

[1] See Annex A. For Accounting Division's Guide on Budget Source Distribution

XII. PROPOSAL SUBMISSION

1. Parties interested in being engaged as Consultants for the Project, whether as individuals or organized as a corporation or partnership, (Party Proponent) must secure bid forms and submit proposals to the DOT Bids and Awards Committee (BAC).

2. A detailed technical proposal substantially providing the content of the comprehensive report as part of the Deliverables stated in the Scope of Work must be prepared and submitted by the Party Proponent to the BAC. The Party Proponent may present its proposal that deviates from the outline provided under the Scope of Work. Such proposal substantially covers all the items indicated therein, and the deviation assists in properly considering the Party Proponent's proposal.

3. In addition to the preceding, the proposal should also include a description of the approaches to be used by the proponent, the timetable for implementing the project, the members of its project and their qualifications, and the relevant projects that the proponent its team members have accomplished.

XIII. EVALUATION OF PROPOSAL

The project bids shall be evaluated using the Quality-Based Evaluation Procedures as provided for in R.A. 9184

The criteria for evaluation of the project bids shall be as follows:

- Technical Proposal 100%
    - 35% - Applicable experience of the consultants and members;
    - 35% - Qualifications of the firm; and
    - 30% - Approach and methodology

Project Officers:

MANETTE T. REYES
OIC – SEAIMD

PAUL BRIAN LAO
OIC - ITD

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Approved by:

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Annex A:
For Accounting Division's Guide on Budget Source Distribution

CO	18,250,000.00
MOOE	10,000,000.00
Total:	**28,250,000.00**

Payment Reference per Schedule	Percentage Share from Total Budget	Funding Source:
Provision and Acceptance of Inception and Requirement Analysis	13%	20% CO
Delivery and acceptance of approved customization one(1) as specification	13%	20% CO
Delivery and acceptance of approved customization two(2) as specification	19%	30% CO
Delivery and acceptance of 100% Completed TIS component of the project.	19%	30% CO
Successful Conduct of Training for Visualization, Beginner Python for Non-Programmer and Advance Python, and Train the Trainer	11%	30% MOOE
Endorsement and Acceptance of Completion Report and other Documentation Endorsement and Acceptance of Source Code for Customization Endorsement and Acceptance of Manual Endorsement and Acceptance of License	25%	70% MOOE