



MINISTRY OF DIGITAL ECONOMY AND ENTREPRENEURSHIP

(MoDEE)

Request for Proposal

NUR V2 Lakehouse

RFP NO: 32/eGovt/2026

Deadline:.....

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DISCLAIMER

THIS DOCUMENT IS A REQUEST FOR PROPOSALS (RFP) AND SHALL NOT BE CONSTRUED IN WHOLE OR PART AS A DIRECT OR INDIRECT ORDER. IT SHALL NOT BE CONSTRUED AS A REQUEST OR AUTHORIZATION TO PERFORM WORK AT THE EXPENSE OF THE JORDAN EGOVERNMENT PROGRAM. THE INFORMATION IN THIS RFP IS INTENDED TO ENABLE THE CUSTOMER TO FORMULATE A PROPOSAL IN RESPONSE TO THE PROJECT REQUIREMENTS SET FORTH. ALTHOUGH THIS RFP CONTAINS SUCH ENABLING INFORMATION, BIDDERS MUST MAKE THEIR OWN INDEPENDENT ASSESSMENTS AND INVESTIGATIONS REGARDING THE SUBJECT MATTER OF THIS RFP. MODEE DOES NOT GUARANTEE THE ACCURACY, RELIABILITY, CORRECTNESS OR COMPLETENESS OF THE INFORMATION IN THIS RFP. THE BIDDER REMAINS RESPONSIBLE IN RELATION TO IDENTIFYING ANY FURTHER INFORMATION THAT IT REQUIRES TO PREPARE THE PROPOSAL. THIS RFP SHALL CONSTITUTE PART OF THE CONTRACT THAT WILL BE SIGNED BETWEEN THE MODEE AND THE WINNING BIDDER.

List of abbreviations:

Abbreviations	Definition
ETL	Extract, Transform and Load
CDC	Change Data Capture
GPC	Government Private Cloud
API	Application Programming Interface
OLAP	Online Analytical Processing
OLTP	Online Transaction Processing
SQL	Structured Query Language
ACID	Atomicity, Consistency, Isolation, and Durability
SSO	Single Sign-On
MFA	Multi-Factor Authentication
CPU	Central Processing Unit
DR	Disaster Recovery
GUI	Graphical User Interface
HA	High Availability
JDBC	Java Database Connectivity
LDAP	Lightweight Directory Access Protocol
MPP	Massively Parallel Processing
ODBC	Open Database Connectivity
PII	Personally Identifiable Information
RBAC	Role-Based Access Control
REST	Representational State Transfer
RPO	Recovery Point Objective
RTO	Recovery Time Objective
SFTP	Secure File Transfer Protocol
SLA	Service Level Agreement
TB	Terabyte
ABAC	Attribute-Based Access Control
DLP	Data Loss Prevention

1. introduction:

1.1. RFP Purpose

The winning bidder shall be ultimately responsible for all project management tasks relating to the project.

The winning bidder will be responsible for successful delivery of the project within specified timeframe and has to follow agreed tasks and achieve desired goals and requirements so that the project managed efficiently and effectively.

Responses to this Request for Proposal (RFP) must conform to the procedures, format and content requirements outlined in this document. Deviation may be grounds for disqualification.

1.2. RFP Organization:

This RFP document provides the information needed to enable bidders to submit written proposals for the sought solution. The organization of the RFP is as follows:

Section 1: RFP Organization

Section 2: Overview

This section outlines the RFP's purpose and the related projects.

Section 3: Scope of work and deliverables

This section describes current data infrastructure situation, defines the requirements, scope of work, and deliverables for the required services presented in this RFP.

Section 4: Administrative Procedures and Requirements

This section describes the administrative rules and procedures that guide the proposal and its processes.

Section 5: Support and services

Section 6: Annexes

2. Overview:

2.1 Project Overview

The Ministry of Digital Economy and Entrepreneurship recognizes the transformative power of data in driving the future of Jordan. As the digital frontier expands, so does our ambition to harness its potential, ensuring that Jordan remains a beacon of innovation and progress in the region.

The objective of this RFP is to collaborate with a qualified bidder (as described in section 4.1) to design, implement and support an Data Lakehouse.

This initiative aims to consolidate and leverage the vast data repositories of 45 governmental entities into actionable, timely insights, enhancing our understanding of Jordanians: be it nationals, residents, or the business landscape.

The proposed Data Lakehouse is a modern, open-architecture platform that unifies the flexibility and scale of a Data Lake with the reliability, governance, and query performance of a Data Warehouse.

The platform replaces the existing legacy on-premise Data Warehouse with a modern open-architecture Data Lakehouse supporting batch, incremental CDC, streaming, open storage formats, governed data management, and scalable analytics.

The platform shall support standards-based data access through SQL, JDBC, ODBC, and REST interfaces where required. API management is outside the scope of this procurement.

This RFP invites qualified bidders to deliver a comprehensive, scalable, and secure Data Lakehouse that establishes a unified foundation for government data integration, governance, and analytics while supporting the Ministry's long-term digital transformation objectives, together with all professional services required for its successful delivery, including design, implementation, integration, documentation, knowledge transfer, and post-implementation support, as defined in this RFP.

2.2 Conceptual Platform Architecture

The following conceptual architecture represents the target logical architecture and reference implementation expected for the proposed Data Lakehouse.

The platform ingests data from governmental source systems (Oracle, SQL Server, flat files, REST APIs, and SFTP) through three mechanisms:

- 1- A visual flow-based batch ingestion tool (Apache NiFi or equivalent) for historical and file-based loads
- 2- A log-based incremental CDC connector (Debezium or equivalent) for capturing row-level changes from transactional databases.
- 3- A real-time event streaming pipeline (Apache Kafka or equivalent) for low-latency ingestion of live event streams and time-sensitive government use cases.

Ingested data lands in the object store in open columnar format in the Land zone. Batch and streaming processing engines transform and promote datasets between the Land, Structure, and Consume zones. The batch processing engine reads historical and incremental datasets from the Land zone, applies business logic transformations and data quality validations, and writes cleansed, partitioned output to the Structure zone in open table format. Streaming processing continuously processes real-time event streams and writes the resulting datasets to the appropriate Lakehouse zones as required. Aggregated and analytics-ready datasets are then promoted to the Consume zone.

The semantic and query layer logically sits above the storage layer, providing pre-materialized query acceleration, column-level security, data masking, and federated access through SQL, JDBC, ODBC, and REST interfaces where required for BI dashboards, analytics platforms, and authorized government applications.

The Pipeline Orchestration platform governs the scheduling, dependency management, failure handling, and retry logic for all ingestion, processing, and compaction workflows. Database-level governance, lineage, and cataloging capabilities are embedded across the storage, semantic, and consumption tiers, enforcing automated data lineage tracking, PII classification, access auditing, and policy compliance at all stages.

The conceptual platform architecture described above is summarized in below table, which identifies the major architectural layers, their key components, and their roles within the proposed Data Lakehouse.

Layer	Components	Role
Governmental Source Systems	Oracle, SQL Server, REST APIs, SFTP, Flat Files (CSV, XML, JSON), and other approved enterprise data sources.	Origin of enterprise data from governmental entities
Data Ingestion Layer	Apache NiFi (Batch), Debezium (CDC), Apache Kafka (Event Streaming), or equivalent.	Batch, incremental CDC, and real-time data ingestion into the platform
Data Lakehouse Storage	Land Zone → Structure Zone → Consume Zone (MinIO + Apache Iceberg) or equivalent	Centralized open-format storage supporting ACID transactions, schema evolution, metadata management, time-travel, partitioning, and data lifecycle management.
Data Processing Layer	Apache Spark (Batch) + Spark Structured Streaming or equivalent	Data transformation, business rule execution, cleansing, validation, enrichment, and batch/stream processing.
Pipeline Orchestration	Apache Airflow or equivalent	Workflow scheduling, dependency management, monitoring, SLA tracking, retry

		handling, compaction scheduling, and automation.
Semantic & Query Layer	Dremio or equivalent	Governed semantic layer providing query acceleration, federated data access, security enforcement, BI connectivity, semantic modeling, and standards-based data access through SQL, JDBC, ODBC, and REST interfaces where required.
Governance & Security	Data Catalog, Metadata Management, Data Lineage, Data Classification, RBAC, ABAC, MFA, Audit Logging, Data Masking, PII Protection.	Cross-platform governance, metadata management, security enforcement, regulatory compliance, policy enforcement, and auditing.
High Availability & Disaster Recovery	Cluster High Availability, Backup & Recovery, Replication, Disaster Recovery	Business continuity, redundancy, backup, failover, and recovery.
Consumers	BI Dashboards, Analytics Applications, AI/ML Workloads, Government Applications.	Governed consumption of trusted enterprise data through the semantic layer.

Winning Bidder Activities

- Deliver the conceptual platform architecture in accordance with the architecture and platform components defined in this RFP.
- Ensure the integration of all required platform components.
- Provide comprehensive architecture documentation.
- Deliver a presentation explaining the conceptual platform architecture and the proposed implementation approach.

Technical Proposal Requirements

- Detail how the required platform components interact to deliver the proposed solution.
- Provide a conceptual platform architecture diagram tailored to the MoDEE environment.
- Explain the end-to-end data flow
- Describe the proposed architecture documentation approach, including the documentation to be produced for each platform layer.
- Describe how governance, security, orchestration, monitoring, and platform services are integrated across the proposed architecture.
- Describe the proposed architecture implementation approach, including the sequencing of major platform components and integration activities.

Deliverables

- Conceptual Platform Architecture Diagram.
- Architecture Design Document, including the conceptual architecture, component interaction, architecture principles, design assumptions, component responsibilities, integration points, technology selections, and implementation considerations.
- Presentation materials and presentation session describing the conceptual platform architecture and implementation approach.

2.3 Goals and Functionality

The main objective of this project is to replace the legacy on-premise Data Warehouse with a modern, open, and scalable Data Lakehouse that enables MoDEE and Jordanian government entities to operate, collaborate, and deliver services on the basis of timely, governed, and trusted data. By effectively integrating and analyzing data from all source systems, we aim to achieve the following objectives:

- Reduce data refresh cycles through efficient data integration.
- Establish a governed data with centralized metadata management, lineage, and data discoverability.
- Establish a database-level data governance framework.
- Enable wide data sharing and interoperability.
- Support advanced analytics, business intelligence, and future AI/ML initiatives.
- Decouple storage and compute for independent scalability.
- Provide a scalable and resilient platform for future growth.
- Ensure full data sovereignty by deploying the entire platform on-premise within the Government Private Cloud (GPC).

The proposed platform shall provide the functional capabilities described throughout this RFP to achieve these objectives.

Winning Bidder Activities

- Implement the Data Lakehouse in accordance with the requirements of this RFP.
- Provide supported software versions, supported by the respective software vendor where applicable, for all required platform tools.
- Implement the platform to achieve all functional and technical objectives defined in this RFP.
- Deliver knowledge transfer and provide post-implementation support.

Technical Proposal Requirements

- Describe how the proposed solution meets the project objectives and satisfies the functional and technical requirements defined in this RFP.
- Describe the implementation approach and project methodology.
- Identify the proposed software version for each required platform tool, ensuring that all proposed versions are current, actively supported, and not legacy or end-of-life versions.

- Provide evidence of at least one successful production deployment for each proposed platform tool or technology.

Deliverables

- Fully implemented Data Lakehouse.
- Software Version Matrix.
- Conduct knowledge transfer and provide documentation.

2.4 Mandatory Platform Features and Functional Requirements

The proposed solution must be built on supported open-source technologies.

MoDEE has identified the following required platform tools. Bidders must commit to delivering professional services covering installation, configuration, integration, performance tuning, and ongoing support for all specified tools. Bidders may not substitute tools without prior written approval from MoDEE.

The required tools per layer are:

- 1- Batch Ingestion Tool: Apache NiFi (or equivalent)
- 2- CDC Capture Mechanism: Debezium (or equivalent)
- 3- Real-Time and Near-Real-Time Streaming: Apache Kafka combined with Apache Spark Structured Streaming (or equivalent)
- 4- Batch Processing Engine: Apache Spark (or equivalent)
- 5- Pipeline Orchestration: Apache Airflow (or equivalent)
- 6- Object Store: MinIO (or equivalent)
- 7- Open Table Format: Apache Iceberg (or equivalent)
- 8- Semantic and Query Layer: Dremio (or equivalent)
- 9- Native Data Governance and Metadata Catalog Capabilities

Below is the minimum acceptable solution features for the Data Lakehouse. Bidders must comply with all features listed below in their proposals and must provide documented proof and, where applicable, live demonstration capability for each feature.

Note: Not providing a compliance sheet with the below requirements will lead to disqualification.

Mandatory Solution Compliance Matrix			
Criterion	Mandatory Requirement	Comply (Y/N)	Comments
Platform Architecture	Fully open-architecture Data Lakehouse providing end-to-end capabilities across data ingestion (batch and incremental CDC), transformation, open-format storage, semantic layer, governance, and data consumption. The platform shall not rely on proprietary closed data formats for core data storage. The platform shall implement a security-by-design architecture with encryption of data in transit and at rest, centralized audit logging, and		

Mandatory Solution Compliance Matrix			
Criterion	Mandatory Requirement	Comply (Y/N)	Comments
	integration with security monitoring capabilities.		
On-Premise Deployment	All platform components, including object storage, data ingestion, processing, orchestration, query engine, and governance services, shall be deployed entirely on-premise within the Government Private Cloud (GPC). No data shall transit through or reside on any public cloud infrastructure. No data shall traverse or reside outside government infrastructure. All platform administrative access shall be protected using Multi-Factor Authentication (MFA) and Role-Based Access Control (RBAC).		
CDC and Incremental Data Capture	The platform shall support scheduled incremental Change Data Capture (CDC) from all available Oracle and SQL Server source systems, capturing INSERT, UPDATE, and DELETE operations at the row level through log-based CDC. The required CDC tool is Debezium (or equivalent), providing enterprise-supported log-based Change Data Capture through native database transaction log reading. The bidder shall demonstrate an end-to-end CDC flow from a source database change to data availability in the semantic/query layer, including documented processing latency. CDC communications shall use TLS 1.3, secure service accounts, audit logging, integrity validation, and least-privilege access to source databases.		
Real-Time and Near-Real-Time Processing	The platform shall support real-time and near-real-time data ingestion and processing alongside batch processing, enabling low-latency data availability for time-sensitive government		

Mandatory Solution Compliance Matrix			
Criterion	Mandatory Requirement	Comply (Y/N)	Comments
	use cases. The required streaming solution shall consist of Apache Kafka and Apache Spark Structured Streaming (or equivalent), providing reliable event streaming, scalable stream processing, and native integration with the proposed Data Lakehouse. The bidder shall demonstrate a live end-to-end streaming data flow from a source change event to data availability through the Semantic and Query Layer. Streaming communications shall be encrypted in transit and protected through authentication, authorization, monitoring, and access controls to prevent unauthorized access.		
Data Ingestion (Batch and Incremental)	Visual flow-based data ingestion platform capable of connecting to Oracle, SQL Server, REST APIs, SFTP, XML, JSON, and flat-file sources. The platform shall support schema normalization, conversion to open columnar formats, schema drift handling, back-pressure management, and automated error handling. The required ingestion tool is Apache NiFi (or equivalent), providing enterprise-supported visual dataflow management with native connectivity to enterprise data sources and scalable ingestion pipelines. The platform shall implement secure connector authentication, encrypted ingestion channels, secrets management, data validation, and audit trails.		
Batch Processing Engine	Distributed batch-processing engine for large-scale transformation of historical and incremental data loads. The platform shall support SQL and Python interfaces, optimized distributed query execution, and native read/write operations for the selected open table format. The required batch-processing engine is Apache Spark (or equivalent), providing enterprise-supported distributed data processing with native integration to Apache Iceberg (or equivalent).		

Mandatory Solution Compliance Matrix			
Criterion	Mandatory Requirement	Comply (Y/N)	Comments
Open Lakehouse Storage	The platform shall implement an open lakehouse storage layer based on an open table format over open columnar storage, providing ACID transactions, schema evolution, time travel, hidden partitioning, Merge-on-Read support for CDC upserts, and interoperability across all platform components. The required open table format is Apache Iceberg (or equivalent). The platform shall implement encryption at rest, secure key management, immutable data protection, storage auditing, and ransomware resilience controls.		
Object Store	The platform shall provide an S3-compatible on-premise object storage service deployed fully within the Government Private Cloud (GPC). The object store shall support erasure coding for data redundancy, distributed quorum-based high availability, support for multiple data formats within a flat namespace, and horizontal scalability through additional storage nodes without dependency on public cloud infrastructure. The required object store is MinIO (or equivalent). The platform shall implement bucket-level access controls, MFA-protected administration, immutable backup capabilities, and secure storage management controls.		
Semantic Layer and Query Engine	lakehouse query and semantic layer providing columnar processing, query acceleration, predicate pushdown, MPP parallelism, federated data access, and standard connectivity through ODBC, JDBC, and REST interfaces for BI tools and authorized applications. The platform shall support column-level security, row-level security, data masking, and role-based/attribute-based access control. The required semantic and query layer tool is Dremio (or equivalent), providing semantic modeling, governed data access, query acceleration, and interoperability with the Data Lakehouse.		
Pipeline Orchestration	The pipeline orchestration platform shall support code-defined workflows with		

Mandatory Solution Compliance Matrix			
Criterion	Mandatory Requirement	Comply (Y/N)	Comments
	dependency management, batch ingestion triggers, processing job submission, compaction scheduling, and Semantic and Query Layer refresh triggers. The platform shall provide workflow monitoring, SLA monitoring, failure alerting, configurable retry logic with back-off handling, and workflow versioning. The required orchestration platform is Apache Airflow (or equivalent), providing enterprise-supported workflow orchestration capabilities and integration with the Data Lakehouse. The bidder shall demonstrate a working multi-step workflow end-to-end, including failure handling and retry behavior.		
Native Database-Level Governance and Lineage	The platform must implement native database-level governance, metadata management, and lineage capabilities providing: (a) automated end-to-end data lineage captured natively across the ingestion, processing, storage, and semantic layers, demonstrated visually; (b) a searchable data catalog with business glossary, data classification, and asset tagging; (c) column-level and row-level access auditing per user, dataset, and query enforced at the database level; (d) automated PII discovery, classification, tagging, and propagation across the data lifecycle; (e) data masking and dynamic column masking enforced at the semantic layer; (f) RBAC integrated with Active Directory; (g) DLP controls, user activity auditing, and data access monitoring; and (h) full compliance with Jordan's Personal Data Protection Law No. 24 (2023). The solution shall leverage the native governance capabilities of the selected platform components (e.g., NiFi, Spark, Iceberg, Dremio, or equivalent) without requiring a standalone governance platform.		
High Availability and Disaster Recovery	The bidder must provide a documented High Availability (HA) and Disaster Recovery (DR) architecture covering: (a) object store erasure coding and distributed quorum for storage resilience; (b) high availability and failover for the data processing, semantic, and orchestration		

Mandatory Solution Compliance Matrix			
Criterion	Mandatory Requirement	Comply (Y/N)	Comments
	platform components; (c) documented and achievable Recovery Time Objective (RTO) and Recovery Point Objective (RPO) targets; (d) continuous platform operation during one or more node failures; and (e) encrypted replication, protected backups, recovery integrity validation, secure failover mechanisms, and periodic disaster recovery testing.		
Data Access Services	A secure and governed data access capability supporting standard interfaces, including JDBC, ODBC, REST (where required), and high-performance columnar data transfer protocols. Data access shall be provided through the semantic layer without direct access to the underlying lakehouse storage. Authentication, authorization, auditing, and API integration shall comply with applicable MoDEE security and integration policies.		
Scalability	Horizontal scale-out architecture with decoupled object storage and compute, supporting independent expansion of storage and compute resources. The platform must accommodate the current and future data growth of 30+ governmental entities without requiring vertical hardware upgrades. The bidder must describe how new nodes are added to the cluster without service interruption. New nodes must automatically inherit baseline security configurations and support secure cluster enrollment with certificate-based trust.		
Knowledge Transfer and Training	Bidder must provide a formal training and knowledge transfer program covering all platform components (data ingestion tool, CDC and incremental ingestion layer, batch processing engine, orchestration platform, object store, open-format table layer, semantic and query layer, and governance and catalog layer) for a minimum of 12 MoDEE staff members. Training must be delivered in person (online training is not acceptable). The bidder must also provide an Engineer Shadowing Program, together with all training materials and operational documentation. The bidder must		

Mandatory Solution Compliance Matrix			
Criterion	Mandatory Requirement	Comply (Y/N)	Comments
	commit to a post-implementation support model that enables MoDEE staff to independently operate, administer, and maintain the platform.		
Support and Maintenance	Provide support and maintenance for 365 calendar day from preliminary acceptance.		

3. Scope of Work and Deliverables:

This section outlines the technical and functional requirements for the Government Data Lakehouse and Governance, delivered as a single, integrated scope of work. The solution must replace the current on-premise batch Data Warehouse with a modern open-architecture lakehouse using open columnar storage formats and an open table format layer; a visual flow-based ingestion tool (Apache NiFi or equivalent), a real-time event streaming platform (Apache Kafka or equivalent), and a distributed batch processing engine for ingestion and transformation; a lakehouse semantic and query layer; a code-defined pipeline orchestration platform; and a fully integrated governance, lineage, and cataloging layer. The entire platform, including all components, must be deployed on-premise within the Government Private Cloud (GPC), ensuring full data sovereignty.

3.1 Important Notes:

- The cost of all requirements and activities must be included in the fixed lump sum price submitted by the winning bidder.
 - Any required licenses, including, but not limited to, source-system CDC access licenses and the semantic layer platform edition license, must be explicitly itemized and included in the total lump sum price.
 - The duration time for this project will as below:-
1. Complete the full implementation within **365 calendar days** from the commencement date.
 2. Provide support and maintenance for 12month from the primary acceptance date.
- ❖ **The winning bidder must complete the Implementation within 365 calendar days from the commencement date.**
- The bidder must commit to provided support prices for a period of one year after final acceptance.
 - The product must not be custom in-house development and must utilize recognized open-source and enterprise leaders in the Data Lakehouse space.
 - All final deliverables must be submitted as official documents properly bounded, stamped, and signed by the winning bidder.



- The Implementation Phase shall be performed on-site at MoDEE premises. Remote implementation, including via VPN or other remote-access mechanisms, shall not be permitted.
- This RFP covers integrated scope of work delivered under one fixed lump-sum price. The scope comprises the core Data Lakehouse data ingestion, CDC, storage, batch processing, pipeline orchestration, semantic and query layer, secure data access services, and platform administration together with data governance professional services delivered at the database level. All components form one indivisible deliverable; bidders must price the entire scope as a single fixed lump sum.

3.2 Important Definitions:

- **Preliminary Acceptance:** The official acceptance by MODEE after the winning bidder finishes and delivers all work defined in the scope of work and before the start of the maintenance period.
- **Final Acceptance:** The official acceptance by MODEE after the winning bidder finishes and delivers all work in the contract and after the maintenance period.

3.3 Required Solution Infrastructure and Platform Delivery

The infrastructure shall serve as the foundation for enterprise data governance by ensuring that all data is managed, secured, and maintained consistently throughout its lifecycle. It must provide transparent data encryption for data at rest and in motion, LDAP-compliant authentication integrated with MoDEE Active Directory, and comprehensive security monitoring dashboards. Infrastructure shall implement database-level governance using native platform capabilities, including secure key management, granular access controls, and comprehensive audit trails.

Winning Bidder Activities:

- Provide the solution hosted fully within the Government Private Cloud (GPC). No platform component shall have any cloud dependency.
- Design, implement, and maintain the complete solution infrastructure, including virtual machines, object storage nodes, batch processing worker nodes, semantic layer coordinator and executor nodes, and orchestration scheduler nodes within the Government Private Cloud (GPC). The winning bidder shall be fully responsible for provisioning, configuring, and maintaining all infrastructure components throughout the project duration and support period.
- Provide the solution infrastructure architecture detailing the required virtual machines (VMs), object storage nodes, batch processing worker nodes, semantic layer coordinator and executor nodes, orchestration scheduler nodes, and their deployment within the Government Private Cloud.
- Detail each component's functionality, role, integration with other platform components within the Government Private Cloud three-tier architecture (Web, Application, and Data), and document the winning bidder's ongoing maintenance responsibilities.
- Provide the required compute and storage sizing for all VMs and platform nodes to support workloads generated by data from 45 governmental entities within the Government Private Cloud infrastructure provided by the Ministry.

- Ensure that sizing calculations account for encryption, audit logging, monitoring, SIEM integration, backup retention, and disaster recovery requirements.
- Provide the solution logical architecture illustrating component interactions and end-to-end data flow from source systems through ingestion, CDC, processing, object storage, open table format, semantic layer, BI consumers, analytics platforms, and secure data access services etc..
- Ensure the logical architecture identifies all security controls, including encryption points, access control enforcement, audit collection, data classification, and PII protection mechanisms.
- Implement secure network architecture, including network segmentation, security zones, firewall policies, privileged access controls, certificate management, secure communications, and integration with the Ministry's existing security monitoring solution.
- Ensure all platform components comply with the Ministry's Minimum Security Baseline (MSB) requirements and support MFA, RBAC, centralized logging, and other applicable security controls.
- Provide a documented High Availability (HA) and Disaster Recovery (DR) architecture, including documented RTO and RPO targets for all platform components.
- Implement all platform infrastructure provisioning and configuration using Infrastructure as Code (IaC) practices with version-controlled repositories.
- Implement a centralized observability platform providing infrastructure monitoring, centralized logging, distributed tracing, alerting, health monitoring, and operational dashboards.
- Implement a centralized secrets management solution supporting secure storage, rotation, lifecycle management, and controlled access to credentials, certificates, and encryption keys.
- Define and implement platform upgrade procedures supporting rolling upgrades, rollback mechanisms, version compatibility validation, and controlled deployment of new platform versions.
- Provision, configure, harden, patch, monitor, and maintain all platform software components throughout the project duration and support period.
- Provide installation, configuration, administration, operational, and security hardening documentation for all platform components.
- Provide knowledge transfer and operational handover to MoDEE technical teams, including security administration, access management procedures, and monitoring workflows.
- Provide post-implementation support and maintenance services, including security patching, vulnerability remediation, security advisory notifications, and periodic security health assessments throughout the support period.

Technical Proposal Requirements:

- Describe the proposed infrastructure architecture, including the VM sizing plan and node types, demonstrating how the deployment fits within the Government Private Cloud (GPC) provided by the Ministry.
- Provide evidence of at least one comparable on-premise data lakehouse deployment on VMware vSphere, detailing the infrastructure provisioning and ongoing maintenance approach employed.

- Detail the HA and DR strategy for all infrastructure components, including failover procedures, RTO and RPO targets per component, and the documented recovery testing methodology the winning bidder will apply during the support period.
- Describe the proposed cybersecurity architecture and operational security model, including identity and access management for the solution.
- Describe the proposed Infrastructure as Code (IaC) approach, including the technologies to be used, repository structure, deployment workflow, configuration management methodology, and version control practices.
- Describe the proposed observability architecture, including monitoring, centralized logging, distributed tracing, alerting mechanisms, health monitoring capabilities, operational dashboards, and incident notification procedures.
- Describe the proposed secrets management approach, including secure storage, access control, secrets rotation, lifecycle management, auditing, and integration with platform components.
- Describe the proposed upgrade and maintenance strategy, including rolling upgrade approach, rollback procedures, version compatibility management, dependency considerations, and impact mitigation.
- Describe the proposed network architecture, including network segmentation, firewall policies, security zones, communication flows, east-west traffic controls, and alignment with Zero Trust principles.
- Describe the proposed logical platform architecture, including component interactions and end-to-end data flow.
- Describe the functionality, roles, and integration of the proposed platform components within the Government Private Cloud architecture.
- Describe the proposed documentation, operational handover, and knowledge transfer approach.
- Describe the proposed post-implementation support and maintenance model.
- Explain how the proposed solution complies with the Ministry's Minimum Security Baseline (MSB) and other applicable security requirements.
- Describe the proposed sizing methodology and calculations, including resource considerations for security services, SIEM integration, backup retention, monitoring, and disaster recovery requirements.
- Describe the proposed documentation approach, including installation, configuration, administration, operational procedures, and security hardening documentation.

Deliverables:

- Logical infrastructure architecture diagram and as build design document .
- Infrastructure Design and Component Description Document, including platform components, roles, integration points, deployment topology, and maintenance responsibilities.
-
- Computing resources sizing document for all solution components.
- All required licenses with explicit itemization of source-system CDC access licensing costs and the semantic layer platform edition.
- Logical data flow architecture diagram covering ingestion, CDC, processing, storage, semantic layer, BI consumption, and secure data access services

- Security Configuration and Operations Manual for MODEE administrators
- Infrastructure-as-Code repository containing all infrastructure definitions, platform configuration scripts, deployment procedures, and version-controlled source code.
- Configured observability platform, including monitoring dashboards, alerting rules, logging and tracing configuration, health monitoring setup, capacity utilization dashboards, and operational documentation.
- Configured secrets management solution, documented secrets management procedures, access control policies, and secrets lifecycle management documentation.
- Platform upgrade strategy documentation, including upgrade procedures, rollback procedures, version compatibility matrix, and maintenance guidelines.
- Network architecture documentation including network diagrams, communication flows, firewall rules, security zones, and connectivity requirements.
- Installation, Configuration, Administration, and Security Hardening Documentation for all platform components.
- Knowledge Transfer Materials and Operational Handover Report.
- Post-Implementation Support and Maintenance Plan.

3.4 Data Ingestion and CDC

Data ingestion channels shall enforce database-level governance, including data quality standards through validation, profiling, and cleansing at the point of entry. All ingestion APIs must enforce secure authentication, authorization, encryption in transit, and activity logging.

Data ingestion channels shall enforce database-level governance, including metadata registration, data quality validation at the point of entry, lineage tracking, and compliance with national data protection regulations.

Data ingestion is the foundation of the lakehouse platform. The solution must support both batch ingestion and real-time or near-real-time streaming ingestion. For batch and incremental loads, the solution must use log-based incremental CDC to replace the current full-extract, scheduled interval polling model. For real-time and near-real-time use cases, the solution must support event-driven ingestion via a distributed event streaming platform with sub-second data availability. All ingestion components must be selected from the approved tool options listed in the compliance sheet.

Winning Bidder Activities:

- Implement log-based Change Data Capture (CDC) from all source systems using **Debezium** (or an equivalent solution), publishing **INSERT**, **UPDATE**, and **DELETE** change records as ordered, auditable incremental batches. The bidder must identify and include in the proposal all source-system licensing requirements and configuration dependencies (such as enabling supplemental logging or equivalent mechanisms) required to support CDC.
- All ingestion traffic, CDC streams, API integrations, and data transfers must be encrypted in transit using TLS 1.2 or higher. Data stored in staging areas, message queues, object storage, and temporary processing locations must be encrypted at rest.
- Deploy Apache NiFi (or equivalent) for batch ingestion from Oracle, SQL Server, REST APIs, SFTP, flat files, XML, and JSON etc. sources the selected solution must normalize source entity schemas and convert data into an open columnar format before landing it in the object store. Handle schema drift from source systems automatically. If a source column type or name

changes unexpectedly, the ingestion layer must detect, log, and route the affected records to a dead-letter queue without interrupting pipeline execution, and notify the responsible operations team. Implement efficient bulk historical load ingestion for all available data sources, ensuring timely integration of large historical snapshots without impacting ongoing incremental CDC processing performance.

- Implement automated data quality checks at the ingestion layer: automatic detection and routing of missing values, duplicates, type mismatches, and format violations to a data quality log with alerting.
- Implement end-to-end authentication and authorization for all ingestion components, with role-based access control (RBAC) and principle of least privilege. All service accounts, API credentials, database passwords, certificates, and access tokens must be securely managed. Hardcoded credentials within configurations, scripts, or pipelines shall not be permitted.
- All CDC events, ingestion transactions, schema changes, configuration changes, and administrative actions must be audited.
- All ingestion services must support high availability and failover capabilities without data loss, ensuring recovery of CDC positions, offsets.
- Implement schema governance for streaming data flows, including schema version management, compatibility validation, and integration with Apache Kafka (or equivalent) using a schema registry capability.

Technical Proposal Requirements:

- Provide a CDC demonstration showing INSERT, UPDATE, and DELETE change records captured from a test Oracle source and made available for query through the semantic layer after a scheduled incremental run.
- Describe the end-to-end flow of CDC change records from the ingestion layer through the processing layer into the open table format storage layer using a merge-on-read approach. The proposal must explain how data duplication is prevented and how late-arriving, out-of-order, or conflicting events are identified and handled.
- Describe the ingestion tool (Apache NiFi or equivalent), the streaming platform (Apache Kafka or equivalent), and the CDC mechanism (Debezium or equivalent), including their specific configurations for MODEE source system types, administration model, version, and enterprise support arrangement.
- Document the end-to-end processing time from source change to query availability.
- Describe the proposed streaming schema governance approach, including schema registry implementation, schema versioning, compatibility management, change control, and integration with streaming ingestion components.
- Describe the proposed security architecture for the ingestion layer, including encryption in transit and at rest, authentication, authorization, RBAC, credential management, and audit logging.
- Describe the proposed ingestion data quality approach, including validation rules, duplicate detection, schema validation, schema drift handling, dead-letter queue processing, alerting, and historical bulk loading strategy.
- Describe the proposed high availability and failover approach for the ingestion and CDC services, including recovery of CDC positions, streaming offsets, and failure recovery procedures.

Deliverables:

- Deploy, configure, and operationally validated CDC pipelines for all applicable source systems.
- CDC validation report demonstrating successful capture, propagation, and availability of INSERT, UPDATE, and DELETE change records through the semantic layer following scheduled incremental processing.
- Configure batch ingestion workflows for all supported data sources, including schema normalization, open columnar format conversion, historical data loading, and schema drift handling.
- Ingestion Architecture and Operations Document covering ingestion architecture, CDC configuration, security configuration, data quality rules, monitoring, alerting, audit logging, dead-letter queue management, and error-handling procedures.
- Configure schema governance capability, including schema registry configuration, schema definitions, version history, compatibility rules, and operational documentation.
- Configure ingestion security settings, including authentication, authorization, encryption in transit and at rest, credential management, and audit logging configuration.
- Configure data quality rules, validation reports, dead-letter queue configuration, alerting configuration, and operational procedures.
- Configure high availability and failover capabilities for ingestion and CDC services, including recovery of CDC positions and streaming offsets.

3.5 Data Storage (Lakehouse Layer)

The storage layer shall implement native database-level governance, including metadata, data lifecycle management (retention, archival, versioning, disposal) and data standardization using naming conventions and reference data, ACID compliance for integrity, and secure access auditing.

Audit and access logs generated at the storage layer must be stored in an immutable, tamper-resistant format with cryptographic verification (e.g., hash-chaining or write-once storage), and protected against unauthorized modification or deletion, including by platform administrators.

It shall maintain a centralized repository of technical metadata to improve data discovery and reuse.

The lakehouse storage layer replaces the current SQL Server Data Warehouse and staging databases with an open-format, horizontally scalable, on-premise object store. All data is stored in an approved open table format over columnar files. For the object store, the required tool is MinIO (or equivalent). For the open table format layer, the required tool is Apache Iceberg (or equivalent). This eliminates log file bloat, proprietary format lock-in, and the current vertical scalability ceiling.

Winning Bidder Activities:

- Deploy MinIO (or equivalent) as the S3-compatible on-premises object storage platform within GPC, configured with erasure coding for fault tolerance and distributed high-availability capabilities. All data must remain fully on-premises, with no dependency on external cloud connectivity.

- Implement an enterprise Apache Iceberg Catalog (e.g., REST Catalog, Nessie, Hive Metastore, Polaris, or equivalent) to manage table metadata, schema evolution, transactions, and concurrent access across the Lakehouse platform.
- Implement metadata versioning capabilities supporting schema history, lineage version tracking, metadata change tracking, and rollback capabilities for Lakehouse tables and metadata services.
- Implement a three-zone lakehouse architecture on the object store: a-Land zone (raw data as-landed from source), b-Structure zone (open-format, cleansed, and partitioned tables), c-Consume zone (aggregated and semantic-layer-ready tables).
- Configure open table format tables with appropriate partitioning strategies (e.g.date, entity type, or source system) to optimize query performance and pruning. The bidder must demonstrate query performance improvement from partition pruning versus a full table scan.
- Implement orchestration-triggered compaction jobs to resolve the small file problem introduced by high-frequency CDC writes, maintaining query performance and storage efficiency over time.
- Implement and configure backup and recovery for all object store data, Apache Iceberg metadata, and catalog services, including snapshot policies and replication schedules integrated with GPC Backup as a Service.
- Demonstrate the open table format time-travel capability: querying the state of any table as it existed at a specific point in time to support auditing and historical analysis without maintaining separate archive copies.
- Demonstrate open table format schema evolution: adding a new column from a source system without breaking any existing semantic layer queries, processing jobs, or downstream consumers.
- Demonstrate ACID transaction behavior: what happens to data consistency if a processing write job fails mid-execution, and how the open table format transaction log ensures the previous clean state is preserved.
- Implement zone-level, bucket-level, and table-level access controls to ensure appropriate segregation of duties and protection of sensitive government data.
- Perform security hardening of all lakehouse components, including the object store, metadata services, orchestration services, and processing engines, in accordance with vendor best practices.
- Implement object storage lifecycle management policies including data retention, archival, versioning, legal hold, and controlled deletion capabilities in accordance with approved data management requirements.

Technical Proposal Requirements:

- Detail the object store erasure coding configuration, distributed consensus mechanism, and HA topology for the MinIO (or equivalent) deployment, including how storage resilience is maintained within the Government Private Cloud (GPC).
- Describe the proposed Apache Iceberg Catalog architecture, including metadata management, catalog implementation, transaction support, schema evolution, scalability, high availability, and integration with platform components.

- Describe the proposed metadata versioning approach, including schema history management, lineage versioning, metadata change tracking, rollback capabilities, and integration with the Apache Iceberg Catalog.
- Describe the proposed three-zone lakehouse architecture (Land, Structure, Consume), explaining the data lifecycle, transformation logic applied at each zone boundary, and data retention policies per zone.
- Provide partitioning strategies appropriate for the government entity data domains expected in the lakehouse, and explain how compaction schedules are determined and tuned over time.
- Outline the backup and recovery approach for the object store, Apache Iceberg metadata, and catalog services, including RPO and RTO targets per data zone, snapshot scheduling, replication, and integration with GPC Backup as a Service.
- Describe ransomware resilience, immutable storage capabilities, backup isolation controls, and recovery validation procedures.
- Describe the proposed implementation of Apache Iceberg capabilities, including time-travel, schema evolution, and ACID transaction support, and explain how these capabilities will be validated during implementation.
- Describe the proposed storage access control model, including zone-level, bucket-level, and table-level authorization mechanisms and protection of sensitive government data.
- Describe the proposed security hardening approach for the object storage platform, metadata services, and supporting lakehouse components in accordance with vendor best practices.
- Describe the proposed object storage lifecycle management approach, including retention policies, archival strategy, versioning, legal hold, deletion processes, and integration with the Lakehouse storage layer.
- Describe the proposed partitioning strategy and explain how partition pruning improves query performance compared to full table scans.

Deliverables:

- Deploy and configure object storage cluster with documented erasure coding configuration and high-availability (HA) topology.
- Configure open-format tables for all data domains including documented partitioning strategies and compaction schedules.
- Configured Apache Iceberg Catalog, architecture documentation, metadata management configuration, and operational procedures.
- Demonstration results and validation documentation for Apache Iceberg time-travel, schema evolution, and ACID transaction capabilities.
- Configured metadata versioning capabilities with documented schema history, lineage tracking, metadata change management, and rollback procedures.
- Configured storage access control policies and authorization documentation for zones, buckets, and tables.
- Security hardening configuration documentation and implementation report for the object storage platform and associated lakehouse components.
- Technical documentation covering the three-zone Lakehouse architecture, storage sizing, Apache Iceberg Catalog configuration, backup and recovery strategy, object storage configuration, and open-format table management procedures.

- Configured object storage lifecycle policies and documentation covering retention, archival, versioning, legal hold, and deletion procedures.
- Partitioning and Query Performance Validation Report.
- Configured backup and recovery solution for object storage, Apache Iceberg metadata, and catalog services, including snapshot policies, replication configuration, recovery procedures, and operational documentation.

3.6 Data Processing and Pipeline Orchestration

Processing workflows shall integrate native governance for automated lineage tracking covering all transformation processes. All modifications and governance activities during processing must be recorded to support auditing and regulatory compliance.

Processing workflows shall integrate native governance capabilities for automated lineage tracking, data quality checks, and transformation auditing, ensuring compliance with PII protection standards.

The data processing layer handles both real-time stream processing and large-scale batch transformation. For batch processing, the required engine is Apache Spark (or equivalent). For real-time stream processing, the required platform is Apache Kafka (or equivalent) combined with Apache Spark Structured Streaming (or equivalent). For pipeline orchestration, the required platform is Apache Airflow (or equivalent). All pipelines must be version-controlled, code-defined workflows and must be demonstrated end-to-end, not merely described.

Winning Bidder Activities:

- Deploy Apache Spark (or equivalent) for transformation of historical data and incremental CDC change sets. The engine must use native query optimization, read and write Apache Iceberg tables natively, and support Python and SQL interfaces. In addition, deploy Apache Kafka (or equivalent) combined with Apache Spark Structured Streaming (or equivalent) to process real-time CDC event streams from the streaming ingestion layer and write results to the Apache Iceberg storage layer.
- Implement secure service-to-service authentication and authorization between Apache Kafka, Apache Spark, Apache Airflow, the object store.
- Deploy Apache Airflow (or equivalent) to manage all batch and streaming pipelines as code-defined workflows with dependency graphs. The orchestration platform shall manage batch ingestion triggers, processing job submission, workflow dependencies, monitoring, compaction scheduling, semantic layer refresh triggers, SLA monitoring, failure alerting, and configurable retry mechanisms with back-off policies and all SLA monitoring, failure alerting, and retry logic with configurable back-off
- Implement an automated data quality validation framework (e.g., Great Expectations, Deequ, or equivalent) integrated with processing workflows to validate data quality rules, detect anomalies, and prevent invalid data from progressing through the Lakehouse layers.
- Implement secure secrets management for database credentials, API keys, certificates, tokens, and service account credentials. Hardcoded credentials within workflows, scripts, configuration files, or source code repositories shall not be permitted.
- Ensure all pipeline code repositories, platform configurations, and deployment configurations are integrated with version control systems supporting change approval workflows, peer review processes, complete audit history of modifications, and rollback capabilities.

- Implement automated CI/CD pipelines for Apache Airflow DAGs (or equivalent workflow definitions), Apache Spark jobs (or equivalent processing components), Apache NiFi flows (or equivalent data integration workflows), platform configurations, and software releases.
- Define and implement source dataset interface specifications, including schema ownership, version management, data quality validation rules, and agreed data delivery requirements for all integrated source systems.
- Implement job versioning and rollback mechanisms supporting controlled deployment of processing workflows, version compatibility, rollback procedures, and preservation of data consistency.
- Define and execute performance benchmarking activities for data ingestion, CDC processing, streaming latency, batch processing throughput, query performance, and concurrent workload handling.
- Define and implement operational service level objectives (SLOs) covering platform availability, pipeline success rates, processing latency, recovery objectives, and operational performance indicators.

Technical Proposal Requirements:

- Provide a working orchestration platform workflow demonstration chaining the ingestion tool, batch processing engine, and the open-format storage layer including failure, retry, and SLA alert behavior
- Describe how job versioning and rollback are handled if a bad transformation reaches the open-format storage layer, and how data consistency is maintained under concurrent writes.
- Describe the orchestration platform deployment model and the HA strategy for the pipeline scheduler.
- Describe the proposed data quality framework, including validation rules management, automated quality checks, anomaly detection, exception handling, reporting, and integration with processing workflows.
- Describe the proposed streaming architecture, including Apache Kafka (or equivalent), Apache Spark Structured Streaming (or equivalent), CDC event processing, checkpointing, fault tolerance, scalability, and integration with the open table format storage layer.
- The bidder must document the expected end-to-end latency from source system change to query availability through the semantic layer and explain how this latency will be achieved.
- Describe the proposed CI/CD approach, including source code management, automated testing, deployment, rollback procedures, release management, and support for workflow, processing, and platform configuration deployments.
- Describe the proposed approach for managing source dataset specifications, including schema versioning, ownership, data quality validation, change management, and data delivery requirements.
- Describe the proposed service-to-service authentication and authorization architecture, including secure communication between processing, orchestration, messaging, and storage components.
- Describe the proposed secrets management approach for processing and orchestration components, including secure storage, access control, secrets rotation, and integration with platform services.

- Define the proposed performance benchmarking methodology, including KPIs, test scenarios, workload assumptions, measurement approach, and expected performance targets for ingestion, processing, streaming, and query workloads.
- Define the proposed operational SLOs, including availability targets, processing latency objectives, pipeline success criteria, recovery objectives, monitoring approach, and reporting mechanisms.
- Describe the proposed version control strategy for workflow definitions, processing jobs, platform configurations, change approval workflows, peer review, audit history, and rollback capabilities.

Deliverables:

- Deploy and configured batch and streaming processing platforms with documented query optimization settings, streaming configuration, fault tolerance, checkpointing, and native Apache Iceberg integration.
- Deploy and configured orchestration platform with all production workflows under version control, including workflow documentation, dependency definitions, compaction schedules, semantic layer refresh schedules, and operational procedures.
- Documentation covering platform architecture, workflow design patterns, failure handling procedures, recovery procedures, maintenance activities, backfill methodology, and operational runbooks.
- Configure data quality validation framework, including quality rules, validation workflows, anomaly detection configuration, and data quality reporting documentation.
- Live demonstration of end-to-end processing workflows showing ingestion, transformation, orchestration, and semantic layer availability.
- Configure CI/CD pipelines, deployment workflows, release management procedures, configuration management documentation, and supporting operational documentation.
- Source dataset interface specifications documenting schema definitions, ownership, version history, data quality validation rules, and agreed data delivery requirements.
- Configure service-to-service authentication and authorization with supporting security configuration documentation.
- Configure secrets management integration for processing and orchestration components, including operational documentation.
- Performance benchmark report documenting test scenarios, measured KPIs, results, performance analysis, and recommendations.
- Operational SLO definition document including availability, latency, recovery, pipeline success objectives, monitoring metrics, and reporting dashboards.
- Configure job versioning and rollback mechanisms with documented deployment and rollback procedures.
- Version-controlled repositories containing workflow definitions, processing jobs, platform configurations, and change history documentation.

3.7 Semantic Layer, Reporting, and Analytics

The semantic and query layer shall serve as the single governed access point through which all consumers access the Data Lakehouse. It shall enforce role-based access control (RBAC), row-level



security (RLS), column-level masking, PII protection, metadata governance, automated end-to-end lineage visualization from source systems to BI dashboard consumption, and business glossary capabilities. The layer shall provide query acceleration, federated access, and governed data services through SQL, JDBC, ODBC, and REST interfaces where required. All access to lakehouse data shall be governed through the semantic layer without bypassing security controls, metadata governance, lineage tracking, or exposing underlying storage directly to consumers.

Winning Bidder Activities:

- Deploy, configure, and optimize Dremio (or equivalent) as the semantic and query layer.
- Ensure that acceleration structures are built only on secured datasets and do not expose restricted or masked data.
- Validate and demonstrate sub-second query performance using a representative MoDEE workload while confirming that RBAC, row-level security (RLS), and column masking remain fully enforced for accelerated datasets.
- Configure secure data access services supporting JDBC, ODBC, SQL, and REST interfaces where required. Data access shall be governed through the semantic layer and shall not permit direct access to the underlying storage layer.
- Implement secure identity and access management for data access services, including service accounts, workload identities, role-based authorization integrated with MoDEE Active Directory, rate limiting, anomaly detection, and audit logging for all queries and data access events.
- Deploy and configure a searchable data catalog with business glossary.
- The catalog must display all open table format layer tables, semantic layer datasets, ingestion tool flows, and batch processing engine jobs as cataloged, discoverable assets, supporting both technical metadata and business-friendly descriptions.

Technical Proposal Requirements:

- Describe the proposed approach, architecture, implementation methodology, performance optimization techniques, and operational procedures for configuring and managing pre-materialized query acceleration structures to support high-traffic analytics workloads and BI dashboards.
- Describe the security architecture, controls, governance processes, and validation mechanisms that ensure query acceleration structures are created only from authorized datasets while preserving data masking, access restrictions, and data security policies.
- Describe the proposed testing methodology, performance validation approach, acceptance criteria, and security verification process for demonstrating sub-second query performance while ensuring RBAC, row-level security, and column masking remain fully enforced.
- Describe the proposed approach for secure and governed data access, including supported access interfaces, security controls, integration approach, and mechanisms used to provide controlled access to platform data.

- Describe the proposed identity and access management framework, including authentication, authorization, Active Directory integration, workload identities, rate limiting, anomaly detection, audit logging, and monitoring capabilities used to secure data access and prevent misuse.
- Describe the proposed solution, architecture, implementation methodology, metadata management capabilities, search functionality, business glossary features, and governance processes for deploying and maintaining the enterprise data catalog.
- Describe the proposed approach for harvesting, cataloging, governing, and maintaining metadata for all required platform assets, including open table formats, semantic datasets, ingestion pipelines, and processing jobs, while providing comprehensive technical metadata and business-friendly descriptions.
- Describe the representative MoDEE workload that will be used to validate query acceleration performance and explain the proposed acceptance criteria.
- Describe the proposed semantic and query layer architecture, including deployment model, configuration approach, integration with the Lakehouse storage layer, query acceleration capabilities, security enforcement mechanisms, and operational management approach.

Deliverables:

- Deploy and configure semantic and query layer platform, including architecture documentation, configuration settings, query acceleration implementation, optimization results, and operational procedures.
- Provide the implemented security configuration and validation evidence demonstrating that acceleration structures are built only on secured datasets and fully comply with masking and access control requirements.
- Provide the performance benchmarking and security validation reports demonstrating achievement of the required response times while maintaining enforcement of RBAC, RLS, and column masking.
- Deliver the configured data access services, including architecture documentation, interface specifications, security configuration, and integration test results demonstrating secure and governed access to platform data.
- Provide the implemented identity and access management solution, including security configurations, Active Directory integration, audit logging capabilities, and validation results demonstrating compliance with the security requirements.
- Deploy data catalog solution with the configured business glossary, supporting documentation, and governance procedures demonstrating operational readiness.
- Provide the populated data catalog containing all required assets with complete technical metadata, business descriptions, metadata mappings, and validation demonstrating catalog completeness and discoverability.

- Provide performance benchmarking results and live demonstration evidence showing achievement of the required response times while maintaining enforcement of RBAC, RLS, and column masking.
- Provide demonstrated end-to-end lineage visualization from source systems through ingestion, processing, storage, semantic layer, and BI consumption.

3.8 Platform Administration and Knowledge Transfer

The bidder shall ensure that MoDEE's technical team is fully capable of operating, administering, and maintaining the Data Lakehouse after project completion. The bidder shall provide the required operational documentation, structured knowledge transfer activities, and hands-on training to enable effective platform management, troubleshooting, monitoring, and future expansion.

Platform administration shall cover the management of operational activities, including user and access management, security configuration, monitoring, maintenance procedures, and compliance with applicable regulatory requirements. The bidder shall deliver comprehensive operational documentation covering platform architecture, administration procedures, troubleshooting guidelines, backup and recovery procedures, workflow management, and governance practices.

Given the complexity of the platform, the bidder shall provide a formal knowledge transfer and training program to ensure MoDEE staff can independently operate and manage the platform with minimal reliance on vendor support.

Winning Bidder Activities:

- Design and deliver a structured, in-person knowledge transfer and training program for a minimum of 12 MoDEE staff members, covering platform architecture, administration, configuration, monitoring, troubleshooting, data pipelines, workflows, governance, security controls, backup, and disaster recovery procedures.
- Provide the required training environment, materials, practical exercises, schedule, and competency assessment to ensure MoDEE staff can independently operate and maintain the platform. Online training shall not be accepted.
- Implement a Shadowing Engineer program to provide hands-on operational experience for designated MoDEE technical staff during the final implementation phase and throughout the support period.
- Provide 12 months of maintenance and support services from preliminary acceptance, including technical assistance, issue resolution, and committed engineer availability according to agreed SLAs.

Technical Proposal Requirements:

- Provide a detailed training and knowledge transfer plan, including curriculum, training modules, delivery schedule, practical exercises, and competency assessment methodology.

- Describe the Shadowing Engineer program, including execution approach, involved roles, knowledge transfer milestones, and progress tracking mechanism.
- Provide a detailed post-delivery support model, including support tiers, escalation procedures, engineer availability, SLA commitments, and mechanisms to enhance MoDEE team independence.
- Provide a detailed operational documentation plan describing the content, format, and level of detail for administration guides, runbooks, troubleshooting procedures, workflow documentation, and governance procedures.
- Describe the proposed training environment and hands-on exercise approach, including access requirements, practical scenarios, and validation methodology.

Deliverables:

- In-person knowledge transfer and training program for 12 MoDEE staff members, including training environment, training materials, practical exercises, and completion certificates.
- Shadowing Engineer program plan, execution records, and knowledge transfer reports.
- Complete operational documentation package, including architecture diagrams, administration guides, runbooks, troubleshooting procedures, workflow documentation, governance procedures, and handover documents.
- 12 months of maintenance and support services with documented SLA response and resolution commitments.
- Complete operational documentation package, including architecture diagrams, administration guides, security administration procedures, backup and recovery procedures, disaster recovery procedures, runbooks, troubleshooting procedures, workflow documentation, governance procedures, and handover documents.
- Solution Compliance Matrix demonstrating compliance with the project goals, functional requirements, and technical requirements defined in this RFP.

4. ADMINISTRATIVE PROCEDURES AND REQUIREMENTS

4.1 QUALIFIED BIDDERS

Bidders should provide the below minimum qualifications for the company profile and staff, CVs. Deviations may be grounds for disqualifications:

1. Bidder must be a local partner for the provided solution. A valid certified official certificate proving the company is a local Partner for the proposed solution must be provided attached to the technical proposal.
2. References: One similar references projects are required in the last 5 years.
3. **Bidders must provide an accomplishment letter for each project, failing to provide the requested letter may lead to elimination**



4. CVs for the staff who will work on the project. Below are the minimum requirements for the staff qualifications. Bidders must commit with the proposed staff during the support period:

Position	Minimum Experience	Number of resources
Project Manager	3+ years of project management experience	1
Data Lakehouse Architecture Engineer	Last 5 years of experience in data architecture and modeling and at least one successful reference	1
Data Engineer (or equivalent)	3+ years of experience in data engineering and ETL processes	2
DevOps	3+ years of experience in DevOps practices, infrastructure management, CI/CD pipelines, and containerized or virtualized environments (VMware vSphere preferred), with demonstrable hands-on experience managing infrastructure for data lakehouse	1

4.2 RESPONSE PROCEDURES

- 5 All inquiries with respect to this RFP are to be addressed to tenders department in writing to (eGov_tenders@modee.gov.jo) with the subject "NUR V2. Lakehouse".. Responses will be sent in writing no later than Questions and answers will be shared with all Bidders' primary contacts on JONEPS.

4.3 RESPONSE FORMAT

Bidders responding to this RFP should demonstrate up-to-date capabilities and experiences in providing similar services and similar engagements of the same scope, size and nature especially in the public sector.

Bidders should demonstrate the following specific capabilities:

- Partnership, a valid certificate shall be included in the proposal
- Experience in providing technical support and maintenance for similar systems and projects including data power appliances (1projects in last 5 years).
- Experience in web services development, publishing, and consuming, based on XML-based standards such as WSDL and SAOP

Note: Where some skills are not available, the bidder is expected to sub-contract with a reputable consulting firm to cover for this specific skill. In case of subcontracting, the subcontractor has to be approved by MODEE and the contractor will be liable for all works performed by the sub-contractor.

- Bidders' written response to the RFP must include the following in addition to other technical proposal
 - All bidders shall disclose and fill the below information using the following template:

- Please note that if any bidder fails to fill the below information or gives incorrect information, it will be disqualified

Required info	Details
The name of the company (as in the registration license)	
The location of the company	
The owners of the company	
The name and owners of the subcontractor company (if any)	
The name of the Joint Venture members and their owners (if any)	
The name and owners of the local partner (in case of international bidder)	
The human resources working on this tender (names, experience, current employer ...)	
The registration license of the bidder (the subcontractor and the JV member)	Attachment

Part I: Technical Proposal

A. Corporate capability statement : Corporate capability statement must include all the following:

- Corporate technical capabilities and experience in implementing nusr together with detailed description and reference to each component underlined in Section 3: Scope of the project and experience in providing technical support and maintenance for similar systems
- Detailed proposed Team Resumes (each resume will be subjected to the approval of Ministry of Digital Economy and Entrepreneurship, in case of replacements the winning bidder has to abide by the Ministry of Digital Economy and Entrepreneurship requirements for replacements and approvals. In the implementation phase Ministry of Digital Economy and Entrepreneurship reserves the right to request replacement of any resource that cannot fulfill the job)
- Description and references to two similar projects performed in providing technical support and maintenance for similar systems.
- Reference to appropriate work samples
- Current client list, highlighting potential conflict of interest
- Submit work plan resource allocation with their percentage of involvement
- Project Organization Structure

- The technical proposal shall include approach to achieving the scope of work defined in this RFP and delivering each of the major components as specified in the Deliverables section. The evaluation of the proposal will be as described in section 4.4 (response evaluation) In order for the evaluation to progress quickly and effectively, bidders are requested to provide Part I of their proposal as per the format described in Annex 6.2.
- The technical proposal shall include the response to the attached Compliance Table attached in this RFP (Annex 6.2) and delivering each of the major components as specified in the technical proposal requirements. In order for the evaluation to progress quickly and effectively, bidders are requested to provide Part I of their proposal as per the format described in Annex 6.2, non-compliance to the specified format may lead to disqualification.

Part II: Financial proposal

The financial proposal must include the unit prices (rates) for each item identified in the Bill of Quantities. Bidders should fill in their lump sum prices and unit rates and sign the Bill of Quantities (remuneration schedule) and attach both to the financial proposal.

The financial proposal must provide the lump sum prices for all technical activities mentioned in section 3 (Scope of Work) besides the items listed in section 5 (BoQ), where the cost of each activity should be clearly identified.

The pricing should show the proposed linkage between deliverables and payments. Financial proposal should include the Form of Bid (عرض المناقصة) and summary of remuneration (خلاصة بدلات الأتعاب) attached in the Arabic Sample Agreement under (ملحق الاتفاقية رقم 2 و رقم 3) duly filled; signed and stamped by the bidder

The Financial proposal should be submitted in separation of the technical proposal. The financial offer should be inclusive of the General Sales Tax and all applicable fees and taxes.

- على الفريق الثاني ان يشمل سعره الضريبة العامة على المبيعات بنسبة (16 %) الا اذا كانت الشركة خاضعة للضريبة العامة على المبيعات بنسبة (0%) (بموجب كتاب رسمي من هيئة الاستثمار يرفق مع العرض المالي) ويتم عكس هذه النسبة على السعر المقدم من قبلها .
- في حال عدم توضيح الضريبة العامة على المبيعات على السعر المقدم من قبل الشركة يعتبر
-
- سعر الشركة شامل للضريبة العامة على المبيعات بنسبة 16 %.



Financial Proposal Response Format

Please indicate the overall estimated cost of your proposed solution.

Cost should be broken down as per the schedules below as well as the detailed scope of work presented in section 3 of this document.

The price quotation should be all-inclusive fixed lump sum price and provided in Jordanian Dinars (JD). All prices are inclusive of all fees and taxes. All prices are for site delivery.

Services	Amount
Implementation phase	
Support and Maintenance Services	
Any other cost if thaer	
Total	

Total Amount in Words: (Only -----Jordanian Dinars)

Part III: Bid Security

This part includes the original Bid Guarantee.

4.4 RESPONSE SUBMISSION

[Bidders must submit proposals to this RFP to the JONEPS no later than 12:00 PM on [.....] (Jordan Local Time).

- Ministry of Digital Economy and Entrepreneurship
- Tender No: [32/eGovt/2026]
- Tendering Department, 3rd floor
- Ministry of Digital Economy and Entrepreneurship
- 8th circle
- P.O. Box 9903
- Amman 11191 Jordan

Proposals should be submitted as 2 separate parts each partas follows:

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- **Part 1: “NUR V2. Lakehouse - Technical and Corporate Capabilities Proposal AND Financial Proposal”**. This Part must be submitted On JONEPS only .
- **Part 2: “NUR V2. Lakehouse, Bid Bond”** This part (envelope) should contain 1 hard copy submitted to tenders department at modee office number (325) according to dead line published on joneps .

Note: Proposals may be withdrawn or modified and resubmitted in writing any time before the submission date.

Regardless of method of delivery, the proposals must be received ON JONEPS no later than 12:00 PM on (Jordan Local Time). MoDEE will not be responsible for premature opening of proposals not clearly labeled.

4.5 RESPONSE EVALUATION

- The overall proposal will be evaluated both technically and financially, and will be evaluated and awarded according to the clause number 29 of the Government Procurement instructions of 2022 based on a compliance sheet that should be submitted through the technical bidder proposal. MoDEE reserves the right not to select any offer. MoDEE also assumes no responsibility for costs of bidders in preparing their submissions.
- Note: Technical and Financial proposals will opened at the same time for all bidders.

The Ministry of Digital Economy and Entrepreneurship reserves the right not to select any offer. The Ministry of Digital Economy and Entrepreneurship also assumes no responsibility for costs of bidders in preparing their submissions

4.6 FINANCIAL TERMS

Bidders should take into consideration the following general financial terms when preparing and submitting their proposals:

- All prices should be quoted in Jordanian Dinars inclusive of all expenses, governmental fees and taxes, including sales tax
- The type of contract will be a fixed lump sum price contract including costs of all licenses renewal and any additional requirements needed for the proper delivering of the project



- A clear breakdown (table format) of the price should be provided including price for all expenses.
- The bidder shall bear all costs associated with the preparation and submission of its proposal and MoDEE will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the proposal process.
- The bidder shall furnish detailed information listing all commissions and gratuities, if any, paid or to be paid to agents relating to this proposal and to contract execution if the bidder is awarded the contract. The information to be provided shall list the name and address of any agents, the amount and currency paid and the purpose of the commission or gratuity.
- The Bidder shall submit a (Tender Bond) proposal security on a form similar to the attached format in Jordanian Dinars for a flat sum of **(5000 J.D)** one thousand Jordanian Dinars in a separate sealed envelope. The bond will be in the form of a bank guarantee from a reputable registered bank, located in Jordan, selected by the bidder. The bidder shall ensure that the (tender bond) proposal security shall remain valid for a period of 90 days after the bid closing date or 30 days beyond any extension subsequently requested by the purchasing committee, and agreed to by the bidder.
- Any proposal not accompanied by an acceptable proposal security (tender bond) shall be rejected by the purchasing committee as being non-responsive pursuant to RFP.
- The proposal security of the unsuccessful bidders will be returned not later than 30 days after the expiration of the proposal validity period.
- The winning bidder is required to submit a performance bond of 10% of the total value of the contract within 14 days as of the date of award notification letter.
- The proposal security of the winning bidder will be returned when the bidder has signed the contract and has furnished the required performance security.
- The proposal security may, in the sole discretion of the purchasing committee, be forfeited:
 - If the bidder withdraws its proposal during the period of proposal validity as set out in the RFP;
- The winning bidder has to pay the fees of the RFP advertisement issued in the newspapers.
- MoDEE is not bound to accept the lowest bid and will reserve the right to reject any bids without the obligation to give any explanation.
- Bidders must take into consideration that payments will be as specified in the tender documents and will be distributed upon the winning submission and acceptance of the scope of work and of the deliverables and milestones of the scope of work defined for the project by the first party.
- MoDEE takes no responsibility for the costs of preparing any bids and will not reimburse any Bidder for the cost of preparing its bid whether winning or otherwise.

4.7LEGAL TERMS

Bidders should take into consideration the following general legal terms when preparing and submitting their proposals:

- The bidders shall not submit alternative proposal. Alternative proposals will be returned unopened or unread. If the bidder submits more than one proposal and it is not obvious, on the sealed envelope(s), which is the alternative proposal, in lieu of returning the alternative proposal, the entire submission will be returned to the bidder and the bidder will be disqualified.
- The proposal shall be signed by the bidder or a person or persons duly authorized to bind the bidder to the contract. The latter authorization shall be indicated by duly-legalized power of attorney. All of the pages of the proposal, except un-amended printed literature, shall be initialed by the person or persons signing the proposal.
- Any interlineations, erasures or overwriting shall only be valid if they are initialed by the signatory(ies) to the proposal.
- The bid shall contain an acknowledgement of receipt of all Addenda to the RFP, the numbers of which must be filled in on the Form of Bid attached to the Arabic Sample Agreement
- MoDEE requires that all parties to the contracting process observe the highest standard of ethics during the procurement and execution process. The Purchasing committee will reject a proposal for award if it determines that the Bidder has engaged in corrupt or fraudulent practices in competing for the contract in question.

Corrupt Practice means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution

Fraudulent Practice means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of MoDEE, and includes collusive practice among Bidders (prior to or after proposal submission) designed to establish proposal prices at artificial non-competitive levels and to deprive MoDEE of the benefits of free and open competition.

- No bidder shall contact MoDEE, its employees or the Purchasing committee or the technical committee members on any matter relating to its proposal to the time the contract is awarded. Any effort by a bidder to influence MoDEE, its employees, the Purchasing committee or the technical committee members in the purchasing committee's proposal evaluation, proposal comparison, or contract award decision will result in rejection of the bidder's proposal and forfeiture of the proposal security



- The remuneration of the Winning Bidder stated in the Decision of Award of the bid shall constitute the Winning Bidder sole remuneration in connection with this Project and/or the Services, and the Winning Bidder shall not accept for their own benefit any trade commission, discount, or similar payment in connection with activities pursuant to this Contract or to the Services or in the discharge of their obligations under the Contract, and the Winning Bidder shall use their best efforts to ensure that the Personnel, any Sub-contractors, and agents of either of them similarly shall not receive any such additional remuneration.
- A business registration certificate should be provided with the proposal
- The laws and regulations of The Hashemite Kingdom of Jordan shall apply to awarded contracts.
- MoDEE takes no responsibility for the costs of preparing any bids and will not reimburse any bidder for the cost of preparing its bid whether winning or otherwise.
- Bidders must review the Sample Arabic Contract Agreement provided with this RFP and that will be the Contract to be signed with the winning bidder. Provisions in this Sample Arabic Contract Agreement are not subject to any changes; except as may be amended by MoDEE before tender submission; such amendments are to be issued as an addenda.
- Proposals shall remain valid for period of (90) days from the closing date for the receipt of proposals as established by the Purchasing committee.
- The Purchasing committee may solicit the bidders' consent to an extension of the proposal validity period. The request and responses thereto shall be made in writing or by fax. If a bidder agrees to prolong the period of validity, the proposal security shall also be suitably extended. A bidder may refuse the request without forfeiting its proposal security; however, in its discretion, the Purchasing committee may cease further review and consideration of such bidder's proposal. A bidder granting the request will not be required nor permitted to modify its proposal, except as provided in this RFP.
- MoDEE reserves the right to accept, annul or cancel the bidding process and reject all proposals at any time without any liability to the bidders or any other party and/withdraw this tender without providing reasons for such action and with no legal or financial implications to MoDEE.
- MoDEE reserves the right to disregard any bid which is not submitted in writing by the closing date of the tender. An electronic version of the technical proposal will only be accepted if a written version has also been submitted by the closing date.
- MoDEE reserves the right to disregard any bid which does not contain the required number of proposal copies as specified in this RFP. In case of discrepancies between the



original hardcopy, the other copies and/or the softcopy of the proposals, the original hardcopy will prevail and will be considered the official copy.

- MODEE reserves the right to enforce penalties on the winning bidder in case of any delay in delivery defined in accordance with the terms set in the sample Arabic contract. The value of such penalties will be determined in the Sample Arabic contract for each day of unjustifiable delay.
 - Bidders may not object to the technical or financial evaluation criteria set forth for this tender.
 - The winning bidder will be expected to provide a single point of contact to which all issues can be escalated. MODEE will provide a similar point of contact.
 - MODEE is entitled to meet (in person or via telephone) each member of the consulting team prior to any work, taking place. Where project staff is not felt to be suitable, either before starting or during the execution of the contract, MODEE reserves the right to request an alternative staff at no extra cost to MODEE.
 - Each bidder will be responsible for providing his own equipment, office space, secretarial and other resources, insurance, medical provisions, visas and travel arrangements. MODEE will take no responsibility for any non-Government of Jordan resources either within Jordan or during travel to/from Jordan.
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- Any source code, licenses, documentation, hardware, and software procured or developed under NUR V2. Lakehouse' are the property of Modee upon conclusion of '**NUR V2. Lakehouse**'. Written consent of Modee must be obtained before sharing any part of this information as reference or otherwise.
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- Bidders are responsible for the accuracy of information submitted in their proposals. MoDEE reserves the right to request original copies of any documents submitted for review and authentication prior to awarding the tender.
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- The bidder may modify or withdraw its proposal after submission, provided that written notice of the modification or withdrawal is received by the purchasing committee prior to the deadline prescribed for proposal submission. Withdrawal of a proposal after the deadline prescribed for proposal submission or during proposal validity as set in the tender documents will result in the bidder's forfeiture of all of its proposal security (bid bond).



- A bidder wishing to withdraw its proposal shall notify the Purchasing committee in writing prior to the deadline prescribed for proposal submission. A withdrawal notice may also sent by fax, but it must be followed by a signed confirmation copy, postmarked no later than the deadline for submission of proposals.
- The notice of withdrawal shall be addressed to the Purchasing committee the address in RFP, and bear the contract name “**NUR V2. Lakehouse**” “and the words “Withdrawal Notice”.
- Proposal withdrawal notices received after the proposal submission deadline will be ignored, and the submitted proposal will be deemed to be a validly submitted proposal.
- No proposal may be withdrawn in the interval between the proposal submission deadline and the expiration of the proposal validity period. Withdrawal of a proposal during this interval may result in forfeiture of the bidder’s proposal security.
- The Bidder accepts to comply with all provisions, whether explicitly stated in this RFP or otherwise, stipulated in the Governmental Procurement By-Law No8 of 2022 and its Instructions, and any other provisions stated in the Standard Contracting sample Arabic Contract Agreement annexed to this RFP including general and special conditions, issued pursuant to said Unified Procurement By-Law No8 of 2022 and its Instructions
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- The winning bidder shall perform the Services and carry out their obligations with all due diligence, efficiency, and economy, in accordance with the highest generally accepted professional techniques and practices, and shall observe sound management practices, and employ appropriate advanced technology and safe methods. The Winning Bidder shall always act, in respect of any matter relating to this Contract or to the Services, as faithful advisers to MODEE, and shall at all times support and safeguard MODEE’s legitimate interests in any dealings with Sub-contractors or third parties.
- If there is any inconsistency between the provisions set forth in the Sample Arabic Contract Agreement attached hereto or this RFP and the proposal of Bidder; the Sample Arabic Contract Agreement and /or the RFP shall prevail.
- MODEE reserves the right to furnish all materials presented by the winning bidder at any stage of the project, such as reports, analyses or any other materials, in whole or part, to any person. This shall include publishing such materials in the press, for the purposes of informing, promotion, advertisement and/or influencing any third party, including the investment community. MODEE shall have a perpetual, irrevocable, non-transferable, paid-up right and license to use and copy such materials mentioned above and prepare derivative works based on them.

- **Amendments or reservations on any of the Tender Documents:** Bidders are not allowed to amend or make any reservations on any of the Tender Documents or the Arabic Sample contract agreement attached hereto. In case any bidder does not abide by this statement, his proposal will be rejected for being none-responsive to this RFP. If during the implementation of this project; it is found that the winning bidder has included in his proposal any amendments, reservations on any of the tender documents or the Contract; then such amendments or reservations shall not be considered and the items in the tender documents and the Contract shall prevail and shall be executed without additional cost to MODEE and the winning bidder shall not be entitled to claim for any additional expenses or take any other legal procedures.
- Nothing contained herein shall be construed as establishing a relation of principal and agent as between MODEE and the Winning Bidder. The Winning Bidder has complete charge of Personnel and Sub-contractors, if any, performing the Services and shall be fully responsible for the Services performed by them or on their behalf hereunder.
- The Winning Bidder, their Sub-contractors, and the Personnel of either of them shall not, either during the term or after the expiration of the Contract, disclose any proprietary or confidential information relating to the Project, the Services, the Contract, or MODEE's business or operations without the prior written consent of MODEE. The Winning Bidder shall sign a Non-Disclosure Agreement with MODEE as per the standard form adopted by MODEE. A confidentiality undertaking is included.
- Sample Arabic Contract Agreement Approval:

Bidders must review the Sample Arabic Contract Agreement version provided with the RFP, which shall be binding and shall be signed with winning bidder.

Bidders must fill out, stamp and duly sign the Form of Bid (نموذج عرض المناقصة) attached to the Arabic Sample Agreement under (ملحق رقم 1) and enclose it in their financial proposals.

Bidders must fill out the summary payment schedule form sub annex 1 (الملحق رقم 1) which is part of the Arabic Sample Contract version provided with the RFP, sign and stamp it, and enclose it with the Financial Proposal.

Proposals that do not include these signed forms are subject to rejection as being none responsive.

- **PROHIBITION OF CONFLICTING ACTIVITIES**

Neither the Winning Bidder nor their Sub-contractors nor their personnel shall engage, either directly or indirectly, in any of the following activities:

- During the term of the Contract, any business or professional activities in Jordan or abroad which would conflict with the activities assigned to them under this bid; or
- After the termination of this Project, such other activities as may be specified in the Contract.

- INTELLECTUAL PROPERTY RIGHTS PROVISIONS

- Intellectual Property for the purpose of this provision shall mean all copyright and neighboring rights, all rights in relation to inventions (including patent rights), plant varieties, registered and unregistered trademarks (including service marks), registered designs, Confidential Information (including trade secrets and know how) and circuit layouts, and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields.
- Contract Material for the purpose of this provision shall mean all material (includes documents, equipment, software, goods, information and data stored by any means):
 - a) Brought into existence for the purpose of performing the Services;
 - b) incorporated in, supplied or required to be supplied along with the Material referred to in paragraph (a); or
 - c) Copied or derived from Material referred to in paragraphs (a) or (b);
- Intellectual Property in all Contract Material vests or will vest in MODEE. This shall not affect the ownership of Intellectual Property in any material owned by the Winning Bidder, or a Sub-contractor, existing at the effective date of the Contract. However, the Winning Bidder grants to MODEE, or shall procure from a Sub-contractor, on behalf of MODEE, a permanent, irrevocable, royalty-free, worldwide, non-exclusive license (including a right of sub-license) to use, reproduce, adapt and exploit such material as specified in the Contract and all relevant documents.
- If requested by MODEE to do so, the Winning Bidder shall bring into existence, sign, execute or otherwise deal with any document that may be necessary or desirable to give effect to these provisions.
- The Winning Bidder shall at all times indemnify and hold harmless MODEE, its officers, employees and agents from and against any loss (including legal costs and expenses on a solicitor/own client basis) or liability incurred from any claim, suit, demand, action or proceeding by any person in respect of any infringement of Intellectual Property by the Winning Bidder, its officers, employees, agents or Sub-contractors in connection with the performance of the Services or the use by MODEE of the Contract Material. This indemnity shall survive the expiration or termination of the Contract.
- The Winning Bidder not to benefit from commissions discounts, etc. The remuneration of the Winning Bidder stated in the Decision of Award of the bid shall constitute the Winning Bidder sole remuneration in connection with this Project and/or the Services, and the Winning Bidder shall not accept for their own benefit any trade commission, discount, or similar payment in connection with activities pursuant to this Contract or to the Services or in the discharge of their obligations under the Contract, and the Winning Bidder shall use their best efforts to ensure that the Personnel, any Sub-contractors, and agents of either of them similarly shall not receive any such additional remuneration.

- THIRD PARTY INDEMNITY

Unless specified to the contrary in the Contract, the Winning Bidder will indemnify MODEE, including its officers, employees and agents against a loss or liability that has been reasonably incurred by MODEE as the result of a claim made by a third party:

- Where that loss or liability was caused or contributed to by an unlawful, negligent or willfully wrong act or omission by the Winning Bidder, its Personnel, or sub-contractors;
or



- Where and to the extent that loss or liability relates to personal injury, death or property damage.

- LIABILITY

- The liability of either party for breach of the Contract or for any other statutory cause of action arising out of the operation of the Contract will be determined under the relevant law in Hashemite Kingdom of Jordan as at present in force. This liability will survive the termination or expiry of the Contract. Winning bidder's total liability relating to contract shall in no event exceed the fees Winning bidder receives hereunder, such limitation shall not apply in the following cases (in addition to the case of willful breach of the contract):
 - gross negligence or willful misconduct on the part of the Consultants or on the part of any person or firm acting on behalf of the Consultants in carrying out the Services,
 - an indemnity in respect of third party claims for damage to third parties caused by the Consultants or any person or firm acting on behalf of the Consultants in carrying out the Services,
 - infringement of Intellectual Property Rights

4.8 CONFLICT OF INTEREST

- The Winning bidder warrants that to the best of its knowledge after making diligent inquiry, at the date of signing the Contract no conflict of interest exists or is likely to arise in the performance of its obligations under the Contract by itself or by its employees and that based upon reasonable inquiry it has no reason to believe that any sub-contractor has such a conflict.
- If during the course of the Contract a conflict or risk of conflict of interest arises, the Winning bidder undertakes to notify in writing MoDEE immediately that conflict or risk of conflict becomes known.
- The Winning bidder shall not, and shall use their best endeavors to ensure that any employee, agent or sub-contractor shall not, during the course of the Contract, engage in any activity or obtain any interest likely to conflict with, or restrict the fair and independent performance of obligations under the Contract and shall immediately disclose to MoDEE such activity or interest.
- If the Winning bidder fails to notify MoDEE or is unable or unwilling to resolve or deal with the conflict as required, MoDEE may terminate this Contract in accordance with the provisions of termination set forth in the Contract.

4.9 *SECURITY AND SECURITY*

The Winning bidder shall comply and shall ensure that any sub-contractor complies, so far as compliance is required, with the secrecy and security requirements of MoDEE, or notified by MoDEE to the Winning bidder from time to time.

4.10 *DOCUMENT PROPERTY*

All plans, drawings, specifications, designs, reports, and other documents and software submitted by the Winning bidder in accordance with the Contract shall become and remain the property of MoDEE, and the Winning bidder shall, not later than upon termination or expiration of the Contract, deliver all such documents and software to MoDEE, together with a detailed inventory thereof. Restrictions about the future use of these documents, if any, shall be specified in the Special Conditions of the Contract.

4.11 *REMOVAL AND REPLACEMENT OF PERSONNEL*

- Except as MoDEE may otherwise agree, no changes shall be made in the key Personnel. If, for any reason beyond the reasonable control of the Winning bidder, it becomes necessary to replace any of the key Personnel, the Winning bidder shall provide as a replacement a person of equivalent or better qualifications and upon MoDEE approval.
- If MoDEE finds that any of the Personnel have (i) committed serious misconduct or have been charged with having committed a criminal action, or (ii) have reasonable cause to be dissatisfied with the performance of any of the Personnel, then the Winning bidder shall, at MoDEE's written request specifying the grounds thereof, provide as a replacement a person with qualifications and experience acceptable to MoDEE.

4.12 *OTHER PROJECT RELATED TERMS*

MoDEE reserves the right to conduct a technical audit on the project either by MoDEE resources or by third party.

5. Operational Support services and Maintenance

To execute "Operation Support services and Maintenance" component of this project, the winning bidder is required to perform the activities mentioned below for 12 months after obtaining the preliminary acceptance for the system under the scope of work.

The winning bidder shall provide support & maintenance to the E-government Ops Center for the existing or reported problems / changes for the environment under this RFP. Winning bidder shall respond to Modee inquiries according to the required response and resolution matrix (Refer to table 1).

Noting that the system will be under the responsibility of the winning bidder during this period, any additional related activities needed for the proper functioning of the system should be provided by the winning bidder and its cost should be included in the fixed lump sum price submitted by the winning bidder

1. Service level requirements

Severity level

A problem is a critical or serious loss of functionality. Severity level is a mean of assessing and documenting the impact of the loss of functionality to the winning bidder and the impact to the business. The severity level gives restoration or repair priority to problems causing the greatest impact to the business. Below is a description for the various severity levels defined and used at government Ops Center:

Severity One (Urgent)

A severity one (1) issue is a catastrophic business impact: complete loss of a core business process, which needs immediate attention

Severity Two (High)

A severity two (2) issue is critical business impact: significant loss or degradation of services

Severity Three (Medium)

A severity three (3) issue is a medium-to-low impact problem, which involves partial non-critical functionality loss

Severity Four (Low)

A severity four (4) is an important problem but it can wait, as there is no loss of functionality or impact on the business.

Response and Resolution Matrix

Table below describes the response and resolution time required for the different problems severities at eGovernment Ops Center:

Severity	Response Time	Resolution Time
1	1 Hour	8 Hours
2	2 Hours	24 Hours
3	4 Hours	3 working days
4	8 Hours	5 working days

* Support required for Severity 1&2 24*7 and other Severity from 08:00 – 5:00 working days (Sunday -Thursday)

Where:

***Response Time:** The time it takes to acknowledge MODEE's issue in a non-automated way. It is calculated from the time of sending an email explaining the incident, opening a ticket on bidder ticketing system, or conducting a phone call with the assigned support engineer until the time that MODEE is advised their problem has been received and is being addressed

Resolution Time: Is the time taken to resolve the reported incident completely. Resolution Time (Restoration Time) is calculated from the end of the defined response time for each severity level as shown in the above table, it shall include the diagnostic and the fixing time for the reported incident.

2.3 Escalation procedures and penalties

The winning bidder is required to provide the support and maintenance services according to the Response and Resolution Matrix shown in table 1 above. Penalty will be deducted according to table 2 below:

- If the winning bidder passed the Response Time: first level of escalation will be applied by notifying bidder's Technical Support Manager, and assigned contact person.
- If the winning bidder passed the Resolution time without accepted reason from Modee, then Modee is entitled to fix the problem, and to apply penalty on the winning bidder in accordance with the following criteria in table 2 below and all costs incurred by Modee for fixing the problem shall be charged to the winning bidder and deducted from his dues or the performance/ maintenance bond. Noting that penalties will be continue charged to winning bidder until find resolution for the problem.

Severity	Definition	Support Penalty
1	Must be done, essential to business survival. Business can't continue	A penalty of 10 J.D. shall be applied for each Hour pass the resolution time. This penalty shall continue for first 24 hours, if delay continues, then a penalty of 240 JD per day shall be applied, This penalty will be applied until resolving the incident.
2	Should be done, near essential to business survival.	A penalty of 170.D. shall be applied for each day pass the resolution time. This penalty will be applied until resolving the incident.
3	Could be done, high benefit to business if time and resources are available.	A penalty of 130 J.D. shall be applied for each day pass the resolution time. This penalty will be applied until resolving the incident. After 4 days, if the incident not resolved then MoDEE have the right to called 3rd party to resolve the incident and all cost incurred by MoDEE for fixing the problem will be charged to winning bidder in addition to above penalties.

4	Important problem but can wait	A penalty of 100J.D. shall be applied for each day pass the resolution time. This penalty will be applied until resolving the incident.
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Table 2 Penalties

Note that the winning bidder should provide any additional requirements needed for the proper delivering of the project and its cost should be included in the price submitted by the bidder.

Definitions:

- Final Acceptance: the official acceptance by MODEE after the winning bidder finishes and delivers all work in the contract and after the maintenance period.
- Preliminary Acceptance: the official acceptance by MODEE after the winning bidder finishes and delivers all work defined in the scope of work and before the start of maintenance.

Winning Bidder Activities

For the proper completion of the Project, the winning bidder is required to perform the activities mentioned below. The winning bidder should provide any additional related activities needed for the proper fulfillment of the project and its cost should be included in the price submitted by the bidder.

- 1- Assign a contact person / account manager to be responsible during the support and maintenance period of this contract.
- 2- Provide support and maintenance services on 24x7 basis for severities 1&2 and 8x5 for severities 3&4 for the implemented solution by a team which possesses the proper knowledge and proven experience of the proposed solution.
- 3- Ensure the availability of qualified resources at the local partner's premises to provide on-site support when needed.
- 4- Provide resident engineer (min. 3 years of experience) for 3 months, who will be responsible of system stabilization and monitoring, system tuning in coordination with winning bidder team and under winning bidder responsibility, manage ticketing or issue-tracking, and follow up on incidents with all related parties inside and outside MOIN, Act as the first line of support for users encountering technical issues or requiring guidance from preliminary acceptance.
- 5- Provide Support and maintenance services on the above mentioned periods to overall NUR system, this support must be performed by offsite team assigned by the winning bidder locally based in Jordan, in addition, support engineers must be available on site when required.



- 6- Provide detailed implementation plan for any pre-planned maintenance operation that may affect entity services availability, functionality or stability, with necessity to provide roll-back plan before commencing with maintenance operation
- 7- Provide a renewal of the software license (if any and requested) to cover the maintenance and support period.
- 8- Provide communication channels to enable the entity to report incidents that should be tracked and monitored until final resolution by the winning bidder, and keeping entity informed about the status for these incidents until the final resolution.
- 9- Use a ticketing system that records all reported incidents and service request and ensuring government entity have access to both the system and report incident the generated incident-reports, and it shall be able to integrate with the ticketing system in Modee if requested.
- 10- Applying the latest fixes, patches and required updates to the installed software during the support and maintenance period (if required) while ensuring system's integrity, reliability, conformity, and normal operation for all system features including the content
- 11- Define Escalation Procedure including the levels of escalation and name and contact details for contact person.

Deliverables

- Service reports for all reported and resolved incidents approved by a representative from the Modee.
- Proof of licenses renewal (if any available in the scope)
- List of all fix's, patches and upgrades implemented during the support and maintenance period

6. Annexes

6.1 SAMPLE ARABIC AGREEMENT

<Attached>

6.2 KEY RFP DATES

ITEM	DATE (DD/MM/YY)
Deadline for submission of bidders' questions to RFP	ON JONEPS
Expected date for answers to bidders' questions	ON JONEPS
Proposal deadline	ON JONEPS

6.3 CONFIDENTIALITY UNDERTAKING

Confidentiality Undertaking

This Undertaking is made on [DATE] by [NAME] "[Consultant]" to the benefit of the Ministry of Information and Communications Technology, "[Principal]" [8th Circle, P.O. Box 9903, Amman 11191 Jordan].

WHEREAS, MODEE possesses certain financial, technical, administrative and other valuable Information (referred to hereinafter as Confidential Information)

WHEREAS, [Consultant], while performing certain tasks required by the Principal in connection with the (the Project), did access such Confidential Information,

WHEREAS, the Principal considers the Confidential Information to be confidential and proprietary. Confidential Information:

As used in this Agreement, the term "Confidential Information" means all information, transmitted by Principal or any of its subsidiaries, affiliates, agents, representatives, offices and their respective personnel, consultants and winning bidders, that is disclosed to the Winning bidder or coming to his knowledge in the course of evaluating and/or implementing the Project and shall include all information in any form whether oral, electronic, written, type written or printed form. Confidential Information shall mean information not generally known outside the Principal, it does not include information that is now in or hereafter enters the public domain without a breach of this Agreement or information or information known to Winning bidder by Third Party who did not acquire this information from Principal".

The Consultant hereby acknowledges and agrees that:



- (1) The Confidential Information will be retained in the Principal's premises and will not be moved without the express written consent of the Principal. All Confidential Information shall be and remain the property of the Principal, and such Confidential Information and any copies thereof, as well as any summaries thereof, shall be promptly returned to the Principal upon written request and/or destroyed at the Principal's option without retaining any copies. The Winning bidder shall not use the Confidential Information for any purpose after the Project.
- (2) It will use all reasonable means and effort, not less than that used to protect its own proprietary information, to safeguard the Confidential Information.
- (3) the Winning bidder shall protect Confidential Information from unauthorized use, publication, or disclosure.
- (4) It will not, directly or indirectly, show or otherwise disclose , publish, communicate, discuss , announce, make available the contents of the Confidential Information or any part thereof to any other person or entity except as authorized in writing by the Principal.
- (5) It will make no copies or reproduce the Confidential Information, except after the Principal's written consent.

Remedy and damages:

The Winning bidder acknowledges that monetary damages for unauthorized disclosure may not be less than 20% of the Project and that Principal shall be entitled, in addition to monetary damages and without waiving any other rights or remedies, to such injunctive or equitable relief as may be deemed proper by a court of competent jurisdiction.

Employee Access and Control of Information

It is understood that the Winning bidder might need from time to time to discuss the details of confidential Information with other individuals employed within its own or associated companies in order to support, evaluate, and/or advance the interests of the subject business transaction. Any such discussion will be kept to a minimum, and the details disclosed only on a need to know basis. Prior to any such discussion, the Winning bidder shall inform each such individual of the proprietary and confidential nature of the Confidential Information and of the Winning bidder's obligations under this Agreement. Each such individual shall also be informed that by accepting such access, he thereby agrees to be bound by the provisions of this Agreement. Furthermore, by allowing any such access, the Winning bidder agrees to be and remain jointly and severally liable for any disclosure by any such individual that is not in accordance with this Agreement.

Miscellaneous

The obligations and rights of the Parties shall be binding on and inure to the benefit of their respective heirs, successors, assigns, and affiliates. This Agreement may be amended or modified only by a subsequent agreement in writing signed by both parties. Winning bidder may not transfer or assign the Agreement or part thereof. No provision of this Agreement shall be deemed to have been waived by any act or acquiescence on the part of the Principal, its agents or employees, nor shall any waiver of any provision of this Agreement constitute a waiver of any other provision(s) or of the same provision on another occasion. This Agreement shall be construed and enforced according to Jordanian Law. The Winning bidder hereby agrees to the jurisdiction of the Courts of Amman, Jordan and to the jurisdiction of any courts where the Principal deems it appropriate or necessary to enforce its rights under this Agreement.

Term of Agreement

The obligations of the parties under this Agreement shall continue and survive the completion of the Project and shall remain binding even if any or all of the parties abandon their efforts to undertake or continue the Project.



IN WITNESS WHEREOF, the Winning bidder hereto have executed this Agreement on the date first written above.

Consultant:

By: _____

Authorized Officer

6.4 Bidder's Information

All bidders shall disclose and fill the below information using the following template:

Please note that if any bidder fails to fill the below information or gives incorrect information, it will be disqualified

Required info	Details
The name of the company (as in the registration license)	
The location of the company	
The owners of the company	
The name of the Joint Venture members and their owners (if any)	
The name and owners of the local partner (in case of international bidder)	
The human resources working on this tender (names, experience, current employer ...)	
The registration license of the bidder (the subcontractor and the JV member)	Attachment

6.5 Letter of Acceptance of the World Bank's Anticorruption Guidelines and Sanctions Framework¹

¹[Drafting note: This document shall be signed by bidders/proposers/consultants and submitted as part of their bids/proposals. In addition, this document shall be signed by the winning bidder/consultant and incorporated as part of the contract.]



Date: __

Invitation of Bids/Proposals No. _____

To: _____

We, along with our sub-contractors, sub-consultants, service providers, suppliers, agents (whether declared or not) consultants and personnel, acknowledge and agree to abide by the World Bank's policy regarding Fraud and Corruption (corrupt, fraudulent, collusive, coercive, and obstructive practices), as set out and defined in the World Bank's Anti-Corruption Guidelines² in connection with the procurement and execution of the contract (in case of award), including any amendments thereto.

We declare and warrant that we, along our sub-contractors, sub-consultants, service providers, suppliers, agents (whether declared or not), consultants and personnel, are not subject to, and are not controlled by any entity or individual that is subject to, a temporary suspension, early temporary suspension, or debarment imposed by a member of the World Bank Group, including, inter alia, a cross-debarment imposed by the World Bank Group as agreed with other international financial institutions (including multilateral development banks), or through the application of a World Bank Group finding of non-responsibility on the basis of Fraud and Corruption in connection with World Bank Group corporate procurement. Further, we are not ineligible under the laws or official regulations of [Insert name of Employer as per bidding document] or pursuant to a decision of the United Nations Security Council.

We confirm our understanding of the consequences of not complying with the World Bank's Anti-Corruption Guidelines, which may include the following:

- a. rejection of our Proposal/Bid for award of contract;
- b. in the case of award, termination of the contract, without prejudice to any other remedy for breach of contract; and
- c. sanctions, pursuant to the Bank's Anti-Corruption Guidelines and in accordance with its prevailing sanctions policies and procedures as set forth in the Bank's Sanctions Framework. This may include a public declaration of ineligibility, either indefinitely or for a stated period of time, (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner;³ (ii) to be a nominated⁴ sub-contractor, sub-consultant, consultant, manufacturer or

²Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by International Bank for Reconstruction and Development Loans and the International Development Agency Credits and Grants, dated October 15, 2006, and revised in January 2011 and July 2016, as they may be revised from time to time.

³ For the avoidance of doubt, a sanctioned party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification or initial selection), expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

⁴A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the bidding document) is one which has been: (i) included by the bidder in its pre-qualification or initial selection application or bid because it brings specific and critical

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supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project.

We understand that we may be declared ineligible as set out above upon:

- a. completion of World Bank Group sanctions proceedings according to its prevailing sanctions procedures;
- b. cross-debarment as agreed with other international financial institutions (including multilateral development banks);
- c. the application of a World Bank Group finding of non-responsibility on the basis of Fraud and Corruption in connection with World Bank Group corporate procurement; or
- d. temporary suspension or early temporary suspension in connection with an ongoing World Bank Group sanctions proceeding.

For avoidance of doubt, the foregoing effects of ineligibility do not extend to a sanctioned firm's or individual's execution of its ongoing Bank-financed contracts (or its ongoing sub-agreements under such contracts) that are not the subject of a material modification, as determined by the Bank.

We shall permit, and shall cause our sub-contractors, sub-consultants, agents (whether declared or not), personnel, consultants, service providers or suppliers, to permit the Bank to inspect⁵ all accounts, records, and other documents relating to the procurement process and/or contract execution (in the case of award), and to have them audited by auditors appointed by the Bank.

We agree to preserve all accounts, records, and other documents (whether in hard copy or electronic format) related to the procurement and execution of the contract.

Name of the Bidder/Proposer/Consultant: _____

Name of the person duly authorized to sign the Bid/Proposal on behalf of the Bidder/Proposer/Consultant:

experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

⁵Inspections in this context are usually investigative (i.e., forensic) in nature: they involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data, and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third-party verification of information.



Title of the person signing the Letter: _____