

## Terms of Reference (ToR)

### Local Consultant: Database Administrator (DBA) for the CBY Fintech Sandbox

#### Vacancy information

<b>Project Title</b>	Yemen Fintech Sandbox Project (YFSP)
<b>Position</b>	Local Consultant - Database Administrator (DBA)
<b>Duty Station</b>	Aden, Yemen (embedded at CBY premises)
<b>Duration</b>	7 months
<b>Level</b>	NPSA 5 through a third-party contracting firm
<b>No. of positions</b>	1
<b>Supervisor</b>	Administrative: UNDP Fintech Sandbox Project Manager. Day-to-day technical direction: International Senior Technical Advisor (Fintech Sandbox). Substantive technical supervision: designated CBY Sandbox Unit focal point.

#### Background

UNDP is launching the Fintech Sandbox as a new initiative for the Central Bank of Yemen (CBY) to facilitate fintech innovation. The Fintech Sandbox supports financial inclusion by developing pilot tools and assisting fintech entities to develop and pilot their solutions for the financial sector under CBY's oversight. The Fintech Sandbox serves as the foundational step toward launching a full Regulatory Sandbox in Yemen.

The initiative focuses on three core operational pillars:

- Enhancing the Fintech Sandbox operating environment in CBY: establishing the structural governance, operational manuals, and secure IT infrastructure (including enterprise servers and a digital Lab Portal) required to safely manage and monitor sandbox participants.
- Developing technologies: designing and launching targeted pilot technologies such as Unified QR standards and SoftPOS solutions that support the use and operation of Yemen's broader payments infrastructure.
- Organizing a Fintech Hackathon: cultivating local innovation by hosting a competitive hackathon to train local entrepreneurs, test new ideas, and pilot the winning financial solutions through the Fintech Sandbox.

Through this intervention, UNDP ensures the new initiative complements and adds strategic value to the World Bank-funded Yemen Financial Market Infrastructure and Inclusion Project (FMIIP), which is also implemented by UNDP for CBY.

#### Objective of the role

The objective of this assignment is to engage a Database Administrator to support CBY in managing, securing, and maintaining the database environment supporting the Fintech Sandbox. The DBA supports CBY in administering the legacy Oracle 7 environment and in planning and implementing a controlled transition or integration to Oracle 19c, prioritizing stabilization and performance hardening of the existing Oracle 7 environment first, then supporting CBY in the migration or integration to Oracle 19c in a way that minimizes disruption. The role also supports continuity for applications and services built on or interfacing with COBOL-based systems. The DBA operates under the day-to-day technical direction of the International Senior Technical Advisor and the substantive technical supervision of the CBY Sandbox Unit. All technical decisions, security parameters, and migration approvals remain with CBY.

#### Scope of work

All technical activities under this assignment are undertaken in support of the Central Bank of Yemen (CBY) and under its direct technical authority. Day-to-day technical direction is provided by the International Senior Technical Advisor (Fintech Sandbox). The consultant does not exercise decision-making authority over regulatory, supervisory, or financial sector matters. All technical outputs, testing activities, onboarding decisions, and pilot parameters are subject to validation, approval, and oversight by the CBY Sandbox Unit and relevant CBY departments.

Within this framework, the DBA carries out the following activities:

## 1. Database administration, availability, and performance

- Support CBY in administering Oracle database environments, including legacy Oracle 7 and the target Oracle 19c platform, covering installation, configuration, patching, monitoring, and routine maintenance, in line with CBY IT policies.
- Support the maintenance of high availability and performance through proactive monitoring, capacity planning, performance tuning (SQL, indexing, storage, memory), and incident resolution, under CBY supervision.
- Support CBY in defining, implementing, and testing backup and recovery routines (online and offline backups, archive logs where applicable), and conducting periodic restore drills to validate recoverability.
- Support the establishment of database environment readiness by documenting baseline performance metrics, confirming access roles, and ensuring that backup and restore procedures are documented and tested.

## 2. Security, access control, and audit

- Support CBY in implementing role-based access control, least-privilege principles, secure authentication, and auditing for database access, in line with CBY security standards.
- Apply security hardening and secure connectivity between applications (including portal components and pilot solutions) and databases, including encryption practices where feasible, in accordance with CBY policies.
- Support investigation and remediation of database-related security or data integrity incidents and maintain evidence logs as required by CBY policies.
- Maintain security audit logs and support the implementation of database-related security improvements as part of continuous operational monitoring.

## 3. Oracle 7 to Oracle 19c modernization and integration

- Phased approach: support stabilization of Oracle 7 (health checks, backups, performance and security baselines, interface mapping) in the initial weeks; then support CBY in planning and implementing a controlled transition to Oracle 19c (pilot migration, parallel run where needed, cutover and validation), as approved by CBY and the project.
- Support the assessment of the current Oracle 7 database landscape, schemas, dependencies, and operational constraints, and produce an upgrade or migration plan for CBY review and approval.
- Support CBY in designing and executing migration and integration steps to Oracle 19c (export/import, replication, ETL, schema conversion, validation), subject to CBY validation, with the objective of minimizing disruption.
- Support post-migration data reconciliation and integrity validation (row counts, checksums where feasible, referential integrity, business rule sampling) and document results for CBY review.
- Prepare an Oracle 7 assessment and Oracle 19c modernization plan covering scope, approach, risks, cutover arrangements, validation steps, and testing requirements for CBY review and approval.
- Support the preparation of a migration and integration sign-off package, including reconciliation evidence, integrity checks, testing results, and validation documentation for CBY review.

## 4. COBOL system interfaces and data continuity

- Support CBY in mapping and maintaining database interfaces used by COBOL-based applications, including batch jobs, reports, and upstream or downstream dependencies.
- Coordinate with CBY technical counterparts on interface adjustments required for Oracle 19c compatibility, supporting the continued functioning of COBOL applications during and after migration.
- Support CBY in establishing controlled test datasets and environments to validate COBOL application behavior against Oracle 19c prior to cutover.
- Document COBOL interfaces, system dependencies, and validation results to support data continuity and reduce operational disruption during the transition.

## 5. Coordination with the technical team

- Coordinate with the Infrastructure, Security and DevOps Analyst on hosting, backup integration, and access provisioning for database environments.
- Coordinate with the Software Developer on data model design, API access to databases, and pilot integration requirements, under the technical direction of the International Senior Technical Advisor.
- Coordinate with the wider technical team to ensure that database readiness, migration planning, integration requirements, and operational risks are reflected in the overall technical workplan.

## 6. Documentation, reporting, and capacity support

- Maintain database runbooks, architecture diagrams, data dictionaries, access matrices, and operating procedures for Oracle 7 and Oracle 19c environments, for CBY retention.
- Submit monthly progress reports covering activities performed, system status, performance and security observations, key risks, and the workplan for the following month.
- Provide knowledge transfer to designated CBY Sandbox Unit staff on day-to-day database operations, backup and recovery, and performance monitoring.

All pilot activities, onboarding decisions, testing protocols, and validation processes remain under the authority of CBY. The consultant's role is limited to technical assistance, coordination, and facilitation.

- Maintain monitoring and tuning logs, monthly health checks, incident records, resolution tracking, and operational maintenance documentation throughout the assignment period.
- Update and submit handover materials, including runbooks, architecture diagrams, access matrices, backup and recovery guides, data dictionaries, and handover notes for designated CBY Sandbox Unit focal points.

## Payment modality and schedule (monthly)

The assignment is remunerated on a monthly basis at a fixed monthly fee, payable in arrears, subject to satisfactory performance during the month.

Monthly payment is processed upon:

- submission of a monthly invoice or payment request by the consultant;
- submission of a monthly progress report summarizing activities performed, results achieved, key issues and risks, and the workplan for the following month;
- submission of a monthly timesheet or attendance record, if required under the applicable contract modality;
- written certification of satisfactory performance by the UNDP supervisor in coordination with the CBY focal point.

Payments may be withheld or deferred if the required monthly documentation is not submitted or if performance is assessed as unsatisfactory, until corrective actions are completed and accepted. The monthly fee is prorated for any partial month worked.

## Institutional arrangement

The consultant works under the administrative supervision of the UNDP Fintech Sandbox Project Manager. Day-to-day technical direction is provided by the International Senior Technical Advisor (Fintech Sandbox). Substantive technical supervision and validation of work products are exercised by the designated CBY Sandbox Unit focal point, in line with CBY institutional standards and supervisory requirements. The consultant applies and promotes results-based management and a client-oriented approach consistent with UNDP rules and regulations.

## Competencies

### Core competencies

- Achieve results: delivers quality outputs, plans resources efficiently, and ensures accountability.
- Think innovatively: proposes practical, secure technical solutions while respecting CBY institutional standards.
- Learn continuously: seeks learning proactively and shares knowledge.
- Engage and partner: practices teamwork and builds collaborative networks.

### Technical competencies

- Oracle Database Administration: legacy Oracle 7 and Oracle 19c environments, including installation, configuration, patching, user management, and troubleshooting.
- Database security and audit: secure configuration, access controls, auditing, and encryption practices for regulated environments.
- Backup, recovery, and business continuity.
- Performance tuning: SQL tuning, indexing, storage optimization, capacity planning.
- Migration and integration: Oracle 7 to Oracle 19c modernization, validation, and reconciliation.
- COBOL interfaces continuity: database dependencies for COBOL applications and coordination of interface testing during modernization.

## Required qualifications

### Education

- University degree (Bachelor's or Master's) in Computer Science, Information Systems, Data Engineering, or a closely related field.

### Experience

- Minimum 2 years of professional experience as a Database Administrator or in database engineering.
- Hands-on experience with Oracle databases, including legacy Oracle 7 and Oracle administration fundamentals (backup and recovery, tuning, security).
- Experience supporting database migration or upgrade projects, preferably Oracle upgrades to Oracle 19c.
- Experience supporting legacy environments and coordinating with application teams, including COBOL-based systems and batch processing.
- Experience working in high-security or regulated environments is an advantage.
- Preferred: experience managing and optimizing databases in a banking or financial services environment, with understanding of Core Banking Systems (CBS) architecture and high-volume transaction processing.

### Skills

- Strong command of SQL and Oracle administration utilities; ability to diagnose and resolve performance issues.
- Ability to produce clear technical documentation (runbooks, access matrices, backup and recovery procedures).
- Fluent in Arabic and English (written and spoken), with strong technical reporting skills.
- Ability to work full-time embedded at CBY premises in Aden and coordinate closely with UNDP, the International Senior Technical Advisor, and CBY counterparts.

Mahir Chekkoury

Project Manager

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