**Project Title:**  
**Telco Mobile Money Integration & Expansion Project (TMMIEP)**

**Date:**  
**28 July 2025**

**1. Mobile Money Platform Architecture & Integration Design Documents**

**Objective**

Provide a comprehensive architectural blueprint for deploying a mobile money platform within the telco ecosystem, ensuring secure, scalable, and regulatory-compliant integration with internal systems (billing, CRM) and external partners (banks, fintechs).

**Architecture Components**

| **Layer** | **Description** | **Tools / Standards** |
| --- | --- | --- |
| **Presentation Layer** | USSD, Mobile App, Web Portal | React Native, Flutter, USSD API |
| **Application Layer** | Wallet Core, Transaction Engine, Notification Service | Spring Boot, Node.js, RabbitMQ |
| **Service Layer** | APIs for partners and internal systems | RESTful APIs, OAuth2, JWT |
| **Integration Layer** | Middleware and partner gateways | Mulesoft, Apache Camel, Kafka |
| **Data Layer** | Wallet Ledger, KYC DB, Transaction Logs | PostgreSQL, Redis, MongoDB |
| **Security Layer** | Identity, encryption, audit logs | TLS, RBAC, Keycloak, Vault |
| **Monitoring Layer** | Logging, dashboards, alerts | ELK Stack, Prometheus, Grafana |

**Architectural Diagrams**

* **Logical Architecture**  
  → Shows end-user channels, core wallet engine, APIs, and external connectors
* **Integration Diagram**  
  → Telecom CRM, Billing, M-PESA, PesaLink, Core Banking APIs
* **Deployment Diagram**  
  → Hybrid setup (Telco Data Center + AWS Cloud), containerized via Kubernetes
* **Data Flow Diagram (DFD)**  
  → Real-time flows for onboarding, KYC, fund transfers, and settlements

**Non-Functional Requirements**

* **Availability**: ≥99.99% uptime
* **Performance**: Supports 500–5,000 TPS
* **Latency**: Under 500ms for domestic money transfers
* **Compliance**: CBK standards, ISO 27001/20022, GDPR readiness