

REQUIREMENTS TRACEABILITY MATRIX (RTM)

Project: Core Digital Transformation for Retail Banking

Date: February 18, 2026 | Version: 1.0

Req ID	Requirement Type	Requirement Description	Mapped to BRD Objective	Acceptance Criteria	Verification Method	Test Case ID	Test Status	Priority	Notes
FR-01	Functional	Customers can securely register and onboard via web and mobile apps with identity verification and KYC checks completed in real time	OBJ-02: Improve customer onboarding time by 40%	KYC verification completes in <5 min; Account activated immediately upon approval; Identity docs OCR accuracy	UAT + Integration Testing	TC-ON-001	Passed	Critical	Integrated with Credit Bureau API
FR-02	Functional	Customers can manage account settings, view statements, and update personal information through a self-service portal	OBJ-02: Improve customer onboarding time by 40%	Account updates reflect in <30 sec; Statement download available in PDF/CSV; Profile changes logged in audit trail	UAT + Security Testing	TC-AC-002	Passed	High	GDPR-compliant data access controls
FR-03	Functional	The system must send automated notifications (email/SMS) for account actions, transaction alerts, and compliance events	OBJ-02: Improve onboarding time by 40%	Notifications delivered within 60 sec; Multi-channel delivery (email + SMS); Opt-out preferences honored	Integration Testing	TC-NT-003	Passed	Medium	Using third-party notification gateway
FR-04	Functional	Customer onboarding must be completed within 5 minutes end-to-end under normal operating conditions	OBJ-02: Improve customer onboarding time by 40%	95th percentile onboarding time <5 min; <2% rejection rate; Dashboard shows real-time onboarding metrics	Performance Testing	TC-ON-004	Passed	High	Baseline: 12 min → Target: 5 min achieved
FR-05	Functional	Compliance staff can access real-time audit logs and KYC/AML reports via a dedicated compliance dashboard	OBJ-03: Achieve 100% compliance with KYC, AML, PCI-DSS, GDPR	Audit logs available with <1 sec latency; Reports exportable in CSV/Excel; Role-based access enforced	UAT + Compliance Audit	TC-CM-005	Passed	Critical	External auditor validated controls
FR-06	Functional	The system must automatically flag transactions that trigger AML rules and route them to compliance review queues	OBJ-03: Achieve 100% compliance	Flagging occurs in <30 sec; False positive rate <5%; Escalation workflow tracks review status	Integration Testing + Audit	TC-AML-006	Passed	Critical	Integrated with sanctions screening DB
FR-07	Functional	All data processing activities must be logged with a full audit trail including user, timestamp, action, and data modified	OBJ-03: Achieve 100% compliance	100% of data changes captured; Immutable audit log storage; Retention policy: 7 years	Security Testing + Audit	TC-AT-007	Passed	Critical	Blockchain-based audit log for immutability
FR-08	Functional	The system must support automated GDPR data subject access and deletion requests within mandated response timeframes	OBJ-03: Achieve 100% compliance	Access requests fulfilled in <30 days; Deletion requests executed in <7 days; Confirmation sent to data subject	Compliance Testing	TC-GD-008	Passed	High	GDPR officer approval required for deletions
FR-09	Functional	PCI-DSS compliant cardholder data environment must be isolated from non-payment systems with strict access controls	OBJ-03: Achieve 100% compliance	Network segmentation validated; Encryption at rest and in transit; Annual PCI audit certification	Security Audit + Pen Test	TC-PCI-009	Passed	Critical	PCI-DSS v4.0 certified environment
FR-10	Functional	Product owners can configure loan approval workflows, eligibility rules, and interest rate parameters without code changes	OBJ-02: Improve loan processing time by 40%	Rule changes deployable without downtime; UI-driven configuration; Version control for rule changes	UAT + Regression Testing	TC-LN-010	Passed	High	Business rules engine (Drools) implemented
FR-11	Functional	The system must process payment transactions in real time with confirmation delivered within 500ms at the 95th percentile	OBJ-04: Maintain 99.99% uptime with scalable infrastructure	95th percentile latency <500ms; Transaction success rate >99.9%; Real-time balance updates	Performance Testing	TC-TX-011	Passed	Critical	Load tested to 50K concurrent transactions
FR-12	Functional	Loan applications must be processed end-to-end — from submission through decision and disbursement — within 24 hours	OBJ-02: Improve loan processing time by 40%	Automated credit scoring completes in <10 min; Decision notification sent within 24 hr; Disbursement within 48 hr of approval	UAT + Integration Testing	TC-LN-012	Passed	High	Integrated with credit bureau and core banking
FR-13	Functional	The system must support automated credit scoring integration with third-party bureau APIs	OBJ-02: Improve loan processing time by 40%	API response time <2 sec; Error handling with retry logic; Fallback to manual review if API unavailable	Integration Testing	TC-CB-013	Passed	Medium	Multi-bureau support (Experian, Equifax, TransUnion)
FR-14	Functional	The fraud detection engine must generate alerts within 30 seconds of identifying suspicious transaction patterns	OBJ-05: Reduce fraud losses through real-time detection	Alert generation <30 sec; Detection accuracy >95%; Alerts routed to case mgmt dashboard	Integration Testing + UAT	TC-FD-014	Passed	Critical	ML model retrained monthly on fraud patterns
FR-15	Functional	Fraud detection rules must be configurable by authorized staff without system downtime or code deployments	OBJ-05: Reduce fraud losses	Rule updates deploy instantly; A/B testing for rule effectiveness; Rollback capability for failed rules	UAT + Regression Testing	TC-FD-015	Passed	High	Rules engine with hot-reload capability
FR-16	Functional	The system must provide a fraud case management dashboard with investigation workflow, evidence capture, and resolution	OBJ-05: Reduce fraud losses	Case lifecycle tracked from detection to resolution; Evidence attachments supported; SLA tracking for resolution time	UAT + Security Testing	TC-FC-016	Passed	High	Integrated with ticketing system for escalations

FR-17	Functional	DevOps engineers can automate builds, tests, and deployment pipelines using a CI/CD platform integrated with the version control system	OBJ-01: Migrate to secure, cloud-native infrastructure	Automated pipeline triggers on code commit; Build/test/deploy automated; Pipeline metrics dashboard available	Integration Testing	TC-CI-017	Passed	High	Jenkins + GitLab CI/CD integrated
FR-18	Functional	Every deployment must include automated rollback capability triggered by failed health checks within 2 minutes of detection	OBJ-04: Maintain 99.99% uptime	Rollback triggers in <2 min; Health checks validate deployment; Zero-downtime rollback verified	Integration Testing + UAT	TC-RB-018	Passed	Critical	Kubernetes automated rollback tested
FR-19	Functional	The system must support blue-green and canary deployment strategies to enable zero-downtime releases	OBJ-04: Maintain 99.99% uptime	Blue-green swap completes in <5 min; Canary gradual rollout (10%-50%-100%); Traffic routing validated	Integration Testing	TC-DL-019	Passed	High	Istio service mesh for traffic management
FR-20	Functional	Infrastructure as Code (IaC) must be used for all environment provisioning to ensure consistency and auditability	OBJ-01: Migrate to cloud-native infrastructure	100% of infra defined in Terraform/CloudFormation; Version control for IaC; Drift detection automated	Security Testing + Audit	TC-IAC-020	Passed	Medium	Terraform Cloud for state management
NFR-01	Non-Functional	Less than 2 seconds average API response time for all public-facing APIs under normal load conditions	OBJ-04: Maintain 99.99% uptime with scalable infrastructure	Average API latency <2 sec; 95th percentile <3 sec; API monitoring dashboard real-time	Performance Testing	TC-PF-001	Passed	Critical	Load tested with 100K req/sec sustained
NFR-02	Non-Functional	Transaction processing latency must not exceed 500ms at the 95th percentile for all payment operations	OBJ-04: Maintain 99.99% uptime	95th percentile <500ms; 99th percentile <1 sec; Transaction throughput >10K/sec	Performance Testing	TC-PF-002	Passed	Critical	Optimized database queries and caching
NFR-03	Non-Functional	The system must support a minimum of 10,000 concurrent users without performance degradation	OBJ-04: Maintain 99.99% uptime	Load test confirms 10K users; Response time stable under load; Auto-scaling triggers validated	Performance Testing	TC-PF-003	Passed	High	Horizontal pod autoscaling configured
NFR-04	Non-Functional	Database query response times must not exceed 200ms for 99% of queries under peak load	OBJ-04: Maintain 99.99% uptime	99% queries <200ms; Slow query alerts configured; Query optimization ongoing	Performance Testing	TC-DB-004	Passed	High	Database indexed and query plan optimized
NFR-05	Non-Functional	System must achieve 99.99% uptime across all core services, measured on a rolling 30-day basis	OBJ-04: Maintain 99.99% uptime	Uptime SLA tracked; Multi-region deployment; Automated failover tested	Reliability Testing + Monitoring	TC-UP-005	In Progress	Critical	Current uptime: 99.97% (pre-production)
NFR-06	Non-Functional	Mean Time To Recovery (MTTR) from any production incident must be under 15 minutes	OBJ-04: Maintain 99.99% uptime	MTTR tracked per incident; Runbooks documented; Incident response drills conducted	Chaos Engineering + Drills	TC-MT-006	In Progress	High	Incident response team trained
NFR-07	Non-Functional	All critical services must be deployed across multiple geographic availability zones to prevent single points of failure	OBJ-04: Maintain 99.99% uptime	Multi-AZ deployment validated; Zone failure drills passed; Data replication lag <1 sec	Disaster Recovery Testing	TC-AZ-007	Passed	Critical	Deployed across 3 AWS availability zones
NFR-08	Non-Functional	Automated failover must activate within 60 seconds of any primary service failure without manual intervention	OBJ-04: Maintain 99.99% uptime	Failover triggers in <60 sec; Zero data loss verified; Health check monitoring real-time	Chaos Engineering	TC-FO-008	Passed	High	Chaos monkey testing confirms resilience
NFR-09	Non-Functional	All data at rest and in transit must comply with bank-grade AES-256 encryption policies	OBJ-03: Achieve 100% compliance	Encryption validated by security audit; Key rotation automated; Certificate mgmt in place	Security Audit + Pen Test	TC-EN-009	Passed	Critical	AWS KMS for key management
NFR-10	Non-Functional	Role-based access control (RBAC) must be implemented across all systems with least-privilege principles enforced	OBJ-03: Achieve 100% compliance	RBAC policies enforced; Access reviews quarterly; Privilege escalation blocked	Security Testing + Audit	TC-RB-010	Passed	Critical	IAM policies audited and tightened
NFR-11	Non-Functional	Multi-factor authentication (MFA) must be enforced for all administrative and privileged user accounts	OBJ-03: Achieve 100% compliance	MFA enforced for admin access; OTP or biometric auth supported; MFA bypass disabled	Security Testing	TC-MFA-011	Passed	Critical	Okta SSO with MFA enforced
NFR-12	Non-Functional	Annual penetration testing and quarterly vulnerability assessments must be conducted by a qualified third party	OBJ-03: Achieve 100% compliance	Pen test reports reviewed; Vulnerabilities remediated within SLA; Quarterly scans scheduled	External Security Audit	TC-PT-012	Scheduled	High	Q1 2027 pen test scheduled with vendor
NFR-13	Non-Functional	All access to sensitive data must be logged and monitored with anomaly detection alerts sent within 5 minutes	OBJ-03: Achieve 100% compliance	Access logs real-time; Anomaly detection ML model trained; Alerts routed to SOC within 5 min	Security Testing + Monitoring	TC-AL-013	Passed	Critical	SIEM integrated (Splunk)
NFR-14	Non-Functional	The architecture must support horizontal auto-scaling to handle 3x peak traffic without manual intervention	OBJ-04: Maintain 99.99% uptime	Auto-scaling triggers validated; Scale-up completes in <2 min; Cost optimization enabled	Performance Testing	TC-AS-014	Passed	High	Kubernetes HPA configured

NFR-15	Non-Functional	All microservices must be independently deployable and versioned to enable rolling updates without system-wide downtime	OBJ-01: Migrate to cloud-native infrastructure	Independent deployment verified; Rolling updates tested; Version compatibility matrix maintained	Integration Testing	TC-MS-015	Passed	High	Service mesh (Istio) for traffic routing
NFR-16	Non-Functional	The system must support configuration management without code changes for non-technical business rule updates	OBJ-02: Improve onboarding time by 40%	Config changes deployed instantly; UI for business users; Audit trail for config changes	UAT	TC-CF-016	Passed	Medium	Config server (Spring Cloud Config) deployed
NFR-17	Non-Functional	All customer-facing interfaces must comply with WCAG 2.1 AA accessibility standards	OBJ-06: Enable data-driven decision-making	Accessibility audit passed; Screen reader compatible; Keyboard navigation supported	Accessibility Testing	TC-WC-017	Passed	High	Third-party accessibility audit completed
NFR-18	Non-Functional	Customer satisfaction improvement of 20% or more must be achieved based on post-deployment NPS survey	OBJ-02: Improve onboarding time by 40%	Baseline NPS: 42 → Target NPS: >50; Survey response rate >30%; Post-launch survey scheduled	User Survey + Analytics	TC-NPS-018	Pending	Medium	Baseline NPS survey completed (42)
NFR-19	Non-Functional	Staff must be able to complete training on new systems and pass competency assessment within 4 hours	OBJ-02: Improve onboarding time by 40%	Training completion rate >95%; Competency test pass rate >90%; Training materials reviewed	Training Assessment	TC-TR-019	Passed	Medium	Training rollout completed to 200+ staff

SUMMARY & COVERAGE ANALYSIS

Total Requirements	39
Functional Requirements	20
Non-Functional Requirements	19

Test Status Distribution:

Passed:	35 (89.7%)
In Progress:	2 (5.1%)
Scheduled/Future:	2 (5.1%)

Priority Breakdown:

Critical:	17 (43.6%)
High:	16 (41.0%)
Medium:	6 (15.4%)