



BAHRAIN DEVELOPMENT BANK BSC(c)

LOAN ORIGINATION SYSTEM  
BUSINESS REQUIREMENTS DOCUMENT  
VERSION 1.0

# BUSINESS REQUIREMENT DOCUMENT

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## Glossary

This following table highlights and explains all key terms and abbreviations used in the document.

Term	Definition
MOIC	Ministry of Industry and Commerce
WATHIQ	The System of Benefit Company that holds the individual's information
KYC	Know Your Customer
SLA	Service Level Agreement
Sijilat	The system of MOIC that holds the information of Commercial entities
SME	Micro, small and medium enterprises as defined by the MOIC
AI	Artificial Intelligence
ID&V	Identification & Verification
CRM	Customer Relationship Management
AML	Anti Money Laundry
ETB	Existing To Bank
NTB	New To Bank
LOS	Loan Origination System
CBS	Core Banking System
CIF	Customer Information File (Customer Reference on CBS)
BCRB	Bahrain Credit Reference Bureau
CR	Commercial Registration (Business Identifier)
OCR	Optical Character Recognition
ECL	Expected Credit Loss
DPD	Day Pass Due Process
TAT	Turnaround Time

# BUSINESS REQUIREMENT DOCUMENT

## 1. INTRODUCTION

### 1.1 Purpose

This document defines the business requirements for a Loan Origination System (LOS) for BDB. The system will automate the credit origination process, from application to approval, ensuring faster processing, improved customer experience, and enhanced risk management.

### 1.2 Scope

This system will cover the end-to-end credit\* account lifecycle, including:

- Credit Application Initiation
- Credit scoring and risk assessment
- Credit approval workflows
- Document generation and management
- Account Creation & Disbursement
- Account Maintenance

\*Credit should cover the different credit products offered by BDB, including the Finance Schemes, Overdraft, Letter of Guarantee, Letter of Credit, Supply Chain Finance Schemes, etc.

### 1.3 Business Objectives

The implementation of the Loan Origination System aims to:

- Streamline the credit application process: Automate data capture, document verification, and approval workflows to reduce manual intervention and processing time.
- Improve customer experience: By reducing their applications until disbursement processing time and allowing them to track their application status.
- Boost revenue generation: By offering faster credit approvals, BDB can increase the number of finance disbursements, thereby improving revenue.
- Enhance credit risk management: Use automated credit scoring and AI-powered assessments to evaluate clients' risk accurately.
- Ensure compliance: Automatically comply with KYC (Know Your Customer), AML (Anti-Money Laundering), and other regulatory requirements.
- Increase operational efficiency: Reduce paper-based processes, minimize errors, and improve time-to-approval and disbursement.

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## 2. PROCESS OVERVIEW



- Above process to allow both ETB and NTB, retail & corporate clients to apply for credit. System to recognize the ETB clients and skip certain steps automatically to allow clients to apply for credit.
- There are differences in the flow and requirements between retail and corporate clients' application also.

## 3. FUNCTIONAL REQUIREMENTS

### 3.1 Credit Application

#### 3.1.1 Initiate Application

- Platform to verify if client is NTB or ETB, notify the user and retrieve ETB client information.
- Platform to allow capturing NTB client information and consents, creating prospect for them, and pushing the prospect record to Branches Client onboarding system.
- Platform to allow users to save and resume applications.
- System to retrieve client applications and allow users either to create new application or resume an existing incomplete one.

#### 3.1.2 Business Validation

- Ability to integrate with MOIC Sijilat APIs to pull the CR information
- Business Eligibility Check: System to perform eligibility check based on rules as defined by the bank.
- Ability to group entities and reporting related/connected parties' exposures

#### 3.1.3 Individual Validation

- Ability to integrate with WATHIQ eKYC APIs to pull the individuals (Retail & Business Owners) KYC information.
- For individuals' verification, system to allow two options:
  - Option to verify identity manually and upload the individuals IDs and consents manually for eKYC pull.
  - Option to trigger the online ID&V and consent capturing through the integration with BDB's digital onboarding platform. Capture the ID&V results from the digital onboarding platform and update the application accordingly.
- Individual Eligibility Check: System to perform eligibility check based on rules as defined by the bank.

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### 3.1.4 Application Requirements & Flow

- Dynamic Forms: Ability to configure application forms and checklist requirements based on application parameters such as client type, credit product type, credit amount, etc.
- Dynamic Flows: Ability to configure different flows/process for applications based on application parameters such as client type, credit product type, credit amount, etc.
- Site Visit to be triggered as per the flow setup provided by the bank per scheme, finance type, amount, etc.

### 3.1.5 KYC/AML Compliance

- Automate Know Your Customer (KYC) capture and online integration with eKYC Wathiq system are expected.
- Instant AML screening is required through integration with the bank's AML system to ensure compliance with regulatory requirements.
- Ability to embed Compliance rules within the platform, where additional approvals are required for certain cases as per the rules. Platform to assign and capture the additional approvals according to the defined rules.

### 3.1.6 Documents Upload & Management

- Platform should allow bank users to upload required documents (e.g., financial statements, Certificates, Project financial Study, etc) via secure portal.
- Implement encryption for document uploads to ensure data security during transmission.
- Support accessing the documents from the platform and saving additional copies within the bank through integration with the document management system of the bank.
- Screening against viruses is required while uploading the documents into the platform.
- Advanced OCR with machine learning capabilities to read the documents scans and extract the information, to reduce the manual input by users. Provide users with a preview of the extracted data to confirm accuracy.
- Supported document formats and file size limitations, options for delete and edit should also be taken into account.
- Mandatory documents should be configured according to the checklist for each scheme.
- Implement an audit trail feature to track who uploaded, accessed, or modified documents.
- Automated notifications to alert users when additional or updated documents are required.
- Include functionality to flag documents about to expire and send automated reminders for renewals.
- Restrict document access based on user roles.

### 3.1.7 Credit Scoring & Risk Assessment

- Configure Credit Scoring: Ability to configure credit scoring rules to calculate credit score for the application.
- Obligor rating to be fetched from bank existing credit rating system. also rating at origination to be stored at finance level so it can be used in MIS and for IFRS9 calculation
- Automated Credit Scoring: Ability to integrate with the BCRB for obtaining credit scores and histories to support credit risk assessments.
- Read Uploaded Documents: Utilize OCR to read the data from the uploaded documents.
- AI-Powered Risk Assessment: Utilize AI to assess client risk based on their financial profile, credit score, and other behavioral patterns.
- Use advanced analytics & machine learning models for risk assessment.

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- Risk Profile Generation: Automatically generate a risk profile for each client based on the data points.
- Credit Eligibility Check: Provide automated credit eligibility checks based on pre-defined lending criteria per application parameters such as client type, credit product type, credit amount, etc.
- Allow the bank team to easily configure credit scoring and risk assessment rules, with the flexibility to make edits at any time.

### 3.1.8 Trigger from 3rd Party

- Platform to support triggering the process of lending application from 3<sup>rd</sup> party platforms (e.g. from online channel).
- Vendor to provide the APIs and integration requirements to enable this.
- Applications triggered from 3<sup>rd</sup> party platforms to be tracked through the dashboard and allow taking the enabled actions on them.
- Platform to show the source of applications, if triggered from the platform itself or 3<sup>rd</sup> party platforms.
- Sync the status and updates on these 3<sup>rd</sup> party platforms.
- Platform to allow updates on applications from 3rd party platforms. Updates including updating and adding documents to the application.
- Users also to be notified if an existing application already exists for the same customer under a different channel.

### 3.1.9 Notifications

- Real-time notifications to relevant client/user/team with the assigned tasks and updates on applications.
- Notifications & escalations for SLAs to be sent to the relevant user, team, team leader, and management.
- All types of notifications related to applications should be configured, including initiated, pending assessment, returned, rejected, cancelled, approved and completed/Disbursed.
- The status of the loan after booking should trigger notifications, e.g. for closed, early settlement, charge-off/write-off, etc.

### 3.1.10 Application Approval

- Automated Approval/Decline: Platform to automatically approve or decline the lending application based on pre-defined eligibility rules and credit scoring. This will be enabled on certain conditions and schemes; else application should go to the defined approval process.
- Approval Hierarchy: Platform to route applications to the credit review and approval teams for as per the pre-defined routes based on applicant type, credit product, credit amount etc.
- Approval Configuration: Platform to allow bank administrators to configure the approval route per applicant type, credit product, credit amount etc.
- A dropdown list with rejection/return reasons should be provided for users to select, along with the option to add supporting comments. Approval/Rejection Notifications: Notify relevant users & customers upon approval or rejection with clear reasons and next steps. Platform to support customizing the notifications content.
- Platform to automatically trigger additional approvals as per the setup approved by the bank, e.g. Tamkeen approval for schemes under Tamkeen.
- Report on automatically declined applications, processed without user intervention, should also be available.

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### 3.1.11 Documents Generation

- Automatically generate T&Cs, credit agreements, and other necessary documents for signoff and approval.
- Ability to capture the conditions for conditional approvals and automatically incorporate them in the generated documents.
- Allow authorized users to review the generated T&Cs and documents and do amendments as required. All amendments to be tracked and saved by the system for audit purposes.
- Document templates to be managed and configured by the bank administrators.
- Ability to configure different set of document templates, per application parameters such as client type, credit product, credit amount, etc.

### 3.1.12 Credit Calculator & Repayment Simulator

- Provide users with a comprehensive credit calculator (for finance, limits, etc.) to enable them to find different scenarios output and allow them to extract & print the output.
- Credit Calculator should support bank users to provide instant approval to applicants based on the input parameters and configured conditions, e.g. bank can configure rules for instant approval for credit amounts equal and below XXK BHD. It should assess the client capacity and ability of repayment based on specific amount and certain ratios extracted from client financials.
- Provide users with a repayment schedule simulator based on the finance parameters, and ability to extract & print the output.

### 3.1.13 Real-Time Decisioning

- AI-based Risk Assessment based on the credit scoring and rules setup for the credit facilities applications.
- Ability to configure decision rules to decline or accept applications instantly based on application parameters, credit scoring, and risk assessment results
- Ability to route the applications for further approvals based on the configured approval authority matrix per scheme, amount, etc.

### 3.1.14 Application Follow up

- Ability to integrate with BDB's digital lending platform to allow applicants to follow-up on their applications, regardless of the origination channel of these applications (online or through LOS platform itself)
- Ability to push updates & documents to the applications on BDB's digital lending platform.
- Ability to receive updates and documents from BDB's digital lending platform.
- Ability to push notifications (email & SMS) to applicants for the updates on their applications.
- Platform to sync the application status with BDB's digital lending platform and other integrated 3<sup>rd</sup> party platforms.



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## 3.2 Account Maintenance

### 3.2.1 Credit Account Maintenance

- Options to postpone, deferral, reschedule, early settlement, and charge-off should be supported by the system and to be pushed for approvals & execution through the platform itself.
- Platform to allow configuring the flows for each option of account maintenance, from request initiation to approvals and execution.
- Platform to support Limit maintenance options, update limit amount, update expiry date, etc./
- Platform to support limit types (revolving, non-revolving), expiry date, next review date, user to be able to suspend the limit or cancel, to able to increase/decrease the limit.
- In case of modification/restructuring, platform to support selecting modification reasons options and remarks.
- Also to allow uploading the related approval document for maintenance action for easy reference.
- In case of modification related to restructuring, platform to allow user to select from existing finances which were closed due to restructuring in order to link the restructured facility with closed facility.
- System to sync the accounts staging and status with CBS.

### 3.2.2 Annual Review

- Automated reminders to the assigned team to run the annual review and for the overdue reviews
- Ability to define the review frequency as annual, semi annual etc.
- Platform to allow the team to run the annual review on the credit facility and input the revision feedback and documents (if any) on the revision record.
- Platform to provide dashboard of Annual review execution and status against the configured SLA.
- Platform to allow the team to add request to client/RM for documents required for annual review.
- Automated notifications/reminders to client and RM to submit required documents for pending and overdue reviews.

## 3.3 Bank Administration Requirements

### 3.3.1 Configuration

- Bank administrators to be able to configure the different system parameters, rules, approvals, document templates, notifications templates, products etc.
- System should support maker and checker authority concept for all configuration and actions executed by the bank staff or administrators.
- Platform to allow bank administrators to configure the SLAs per function, step, client type, etc.
- Availability of Process Management tool is preferred, where bank administrators can update and configure process flows and forms without the need for vendor support.
- Support configuration of the color schemes, artwork and logos used on the platform interface.

### 3.3.2 Users Management

- Ability to configure roles and define access rights per role.
- Bank administrators to be able to create, update, enable, and disable the privileges and roles assigned to bank users.

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- Support assigning multiple roles per user.
- Authorized users should have the option to assign applications to different users in the workflow if the required user is on leave.
- It will be an advance to have the option to send periodic reminder to administrators to review the user roles and permissions

### 3.3.3 Dashboard & SLA management

- Live Applications Dashboard of applications created from the different channels (online, branch, other 3rd party platforms), with ability to apply different filters on the displayed records.
- Live SLA Performance Dashboard to provide real-time insights to allow us to monitor applications progress, TAT, the users, clients, and users performance against the pre-defined SLAs, with ability to apply different filters on the displayed records.
- Notifications & reminders to be pushed by the platform to the user, team, & team leader for the SLA breach.
- To support printing and extracting reports from the dashboards in different formats (Excel, PDF, etc.)
- Tasks Dashboard is required for bank users and team leaders, highlighting the assigned tasks, tasks that are about to breach, and the ones in breach to SLA.

### 3.3.4 Collateral Management

- configuring, updating, and valuing collaterals and other linked processes (including insurance policies management) via maker and checker.
- Ability to print & extract reports of collaterals and reports to monitor insurance policies validity.
- Integration with CBS to sync the collaterals records with CBS.
- Notification to the concerned team(s) for collaterals about to expire and assign tasks for collaterals renewal automatically to the RM/or concerned team.
- Collateral information records to be captured i.e. guarantor related information's, property related information's along with valuator, vehicle, insurance, and etc.
- Ability to upload the property valuation report, insurance report, etc.

## 3.4 Reporting Requirements

To establish a robust reporting framework that provides insights into the performance of the credit portfolio, and the related operations.

### 3.4.1 Balance Sheet Reporting

- Provide detailed reports on the composition of the credit portfolio.
- Regular updates on the financial position.

### 3.4.2 Income Statement

- Report revenues generated from interest on credit accounts and other income sources.
- Track expenses, including operational costs, loan loss provisions, and administrative expenses.
- Calculate net income and profitability.

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### 3.4.3 Cash Flow Statement

- Report cash inflows and outflows from operating, investing, and financing activities.
- Provide insights into the liquidity position and cash management.

### 3.4.4 Credit Portfolio Performance Reports

- Track KPIs such as Credit approval/disbursements, repayments, delinquency rates, and write-offs.
- Turnaround Time for each stage and overall workflow.
- Provide detailed analysis of loan performance by segment, sector, and other relevant criteria.
- Generate reports on the impact of credit decision-making & collection strategies
- Credit portfolio dashboard to be used for daily monitoring via various segments such as but not limited to: daily past due per buckets, sectoral exposures, related parties exposures, top clients list, top defaulters clients, overall average yielding, top clients provisioning/ECL, clients by credit rating.

### 3.4.5 Users Performance Reports

- Users Performance report against the configured SLAs per team and individual users to be available for team leaders and management team.

### 3.4.6 Compliance Reports:

- Daily/Monthly Compliance Rules Report: Details of compliance rules triggered during the applications and actions taken against them.

### 3.4.7 Applications Reports

- All applications submitted through various channels (branch, digital) with their status. Failed applications to detail the failure reasons.
- All applications automatically approved or declined by the platform, including reasons.

### 3.4.8 Ad-Hoc Reports/Dashboard

- It will be a plus if the platform provides Reporting tools for bank users where we can create, customize, and schedule our own reports from generic data universes/schemes.
- To support at least integration with Power BI for better visualization and analysis.

### 4. NON-FUNCTIONAL REQUIREMENTS

#### 4.1 Architecture

- The solution design should be cloud native
- The overall solution should be modular in structure, allowing the bank to easily activate / launch or even scale specific modules based on need
- The solution (including sub-components) should be based on a micro-services architecture
- The solution should be build using latest technology, leading industry standards and protocols
- The solution should be data base agnostic
- The solution architecture should allow secured extension of certain application capabilities to 3rd parties (outside of network) portal for 3rd party agents and affiliates to process information, customer self-service portal, providing restricted access to customer information to outsourced functions (such as contact center)
- The overall solution set should provide omnichannel platform capability to ensure e-channels are aligned (from a content, product, service, authentication and service flow perspective, allowing users to initiate a transaction from one channel and completing them on another)
- Mobile apps should be present on both Google Play and Appstore, supporting Android and iOS
- The system should have the capability to configure and generate ad-hoc operational reports leveraging real time data, statements and advises
- The source codes and compiler must be available in escrow and must be maintained under version control software

#### 4.2 Performance & Availability

- **System Availability:** The platform should guarantee 99.9% uptime. The system should be available 24/7, with scheduled maintenance windows announced in advance.
  - **Response Time:** User actions should receive a response time of less than 3 seconds for most functionalities.
  - support for automated backups and easy failover mechanisms.
  - The solution must be configured and implemented with high availability and load balanced architecture
  - Archived data must be available within a maximum of 5 minutes
  - The system is expected to have the following performance characteristics for transactions per day:
    - 90% of all user transactions should be completed in 2 seconds
    - The remaining 10% of user transactions (inquiry and batches) should be completed in 5 seconds
    - The system should not degrade less than 95% during peak times
  - Support SLA requirement from solution vendors (Please refer Appendix-1 for the priority definitions)
    - For Priority 1 issues, the response time should be within 10 Minutes and the resolution time should be less than 2 hours
    - For Priority 2 issues, the response time should be within 10 Minutes and the resolution time should be less than 4 hours

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- For Priority 3 issues, the response time should be within 10 Minutes and the resolution time should be less than 8 hours
- For Priority 4 issues, the response time should be within 10 Minutes and the resolution time should be less than 16 hours
- For Priority 5 issues, the response time should be within 10 Minutes and the resolution time should be less than 24 hours

### 4.3 Scalability

- The system must support increasing numbers of retail and corporate users, with seamless scalability for transaction volume growth.

### 4.4 Compliance

- Real-time Screening: applications created through the platform should go through real-time screening with various systems (internal or external) such as Black-list, World-check, diseased list, AML lists etc.
- Compliance rules: System should allow embedding compliance rules within the processes. System to assign to BDB teams, cases that were triggered by the compliance rules according to the approval authority matrix, and allow BDB team to take actions on them.

### 4.5 Usability

- The platform should have a user-friendly interface, with clear navigation and minimal steps for completing key tasks
- An experienced UI/UX designer to be allocated by the vendor for the project implementation for all interfaces within the scope of the project.
- UI/UX design to be approved by the bank and customization to be allowed as per the bank branding, requirements, and team revision output.
- Supports multi-lingual screens (at least English and Arabic) for all customer-facing interfaces and capture customer's language preference.
- Mobile Access: Ensure mobile-friendly interfaces for ease of access and convenience.
- The system must be able to provide comprehensive on-screen help facilities
- Report formats must allow for dynamic formatting of columns
- The system must be intuitive and easy to use by users with limited training
- Comprehensive system documentation should be made available in both English and potentially also in Arabic
- System should allow data entry must in English and Arabic
- The solution must support export of on-screen data to MS Office applications
- The solution must use descriptive error messages to inform users where errors have occurred and how to correct these.
- Works well with office productivity suites such as MS Office, PDF reader and others.
- The system must have the minimal number of screens the user needs to navigate through to complete an action (screen navigation should be configurable and easy to define and modify). Screens must allow the user

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to complete the work without excessive scrolling down. The system must be able to define read only fields at runtime.

- The system must provide the option to copy from excel and paste in UI screen. This would be useful when creating objects with many line items.
- The system must ensure that all reports be printable in pdf and MS excel
- The system user interface must be easily customizable
- Prevent users from entering data in the wrong format and perform data validation such as:
  - Presence check (i.e. all of the mandatory information has been provided)
  - Allowed character check (e.g. a numerical field contains only one decimal point)
  - Data type check (e.g. a numerical field does not contain alpha characters)
  - Format check (e.g. checks that dates are entered in the correct format)
  - Logic check (e.g. checks that a date entered is within certain parameters)
  - Duplication check (i.e. checks that an identical Registration application has not been previously submitted).
- Compatible with all web browsers such as Chrome, IE, Edge, Safari, Firefox etc.

### 4.6 Infrastructure

- The solution should be compliant to AWS cloud
- The solution (all components) should be deployable on IaaS or SaaS on AWS cloud
- The proposed solution set must have a minimum of 4 environments - 1 Production (With Failover), 1 Production Replica, UAT and Dev environments. Please note that these are the minimum set of environments that would need to be in place. The bank should have the flexibility to create / set-up additional environments based on need (such as additional environment for testing or development or pre-production), which can be used for specific timeframes. The cloud native model should allow pricing for the additional environment only for timeframes utilized.
- All environments must be hosted on AWS cloud, locally in Bahrain (or in rare scenarios any other location approved by and CBB)
- The solution should support automatic scalability on cloud based on need
- The system should support real time replication between the two production environments (or prod and DR installations)
- The system must provide automatic failover between the two production installations

### 4.7 Integration Capabilities

- All solution components should expose standard functionalities as APIs that can be readily detected / made available and consumed by other (internal) application components as well as external / 3rd party applications
- The enabled APIs should be based on leading practices (e.g. REST APIs) and leverage standard communication / extension protocols
- The system should have the provision to define and maintain all APIs and robust API management capabilities

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- The solution should be able to define authentication, authorization permissions for APIs in a configurable manner
- The solution should have the flexibility to define orchestration and routing rules for APIs
- The solution should support standard API gateway capabilities across - Routing, Mediation (e.g. transformation, validation, caching) and Throttling (e.g. supporting throttling policies based on certain timeframes, transaction volumes etc.)
- The solution should support API analytics (examples)
  - Monitoring usage limits
  - SLA Monitoring
  - debugging / error reports etc.
  - API performance and KPIs
  - monitoring operational aspects of API
  - Trend analysis / simulation
- The solution must use industry standards to authenticate and authorize web service requests

### 4.8 Audit Trails

- Each application and major data entity (e.g. Task, Action, User, application, etc.) should have an audit trail feature.
- Platform to keep track of which user made changes (including automated actions by the system) to which entity and at what time, in case bank administrators need to review changes that have been made through the platform.

## 5. INTEGRATION REQUIREMENTS

- CBS Core Banking Systems: Integration with the bank's CBS for data retrieval and transaction execution (e.g. create credit accounts, update account balances, retrieve existing client record, etc.)
- CRM System: Support integration with CRM system to trigger PDPDPD for overdue payments.
- CRE System: Support integration with CRE system for credit risk scoring
- Ecosystem Data Integration:
  - WATHIQ: to retrieve individuals KYC
  - MOIC Sijlat: to retrieve business information
  - SharePoint: to integrate with BDB SharePoint for document management
  - BCRB for Credit Scoring: to retrieve credit scores and histories to support credit risk assessments.
- Compliance Screening: Support integration with various systems (internal or external) such as Black-list, World-check, Diseased list, AML lists etc. to run real time screening.
- 3rd party platforms: To allow triggering the processes/applications from 3rd party platforms and tracking their status/updates through these platforms.
- BDB Digital Lending: To allow submission for new applications and allow clients to track and update their applications.
- Document Verification Tools: Integration with document verification services (e.g., OCR, e-signature platforms).

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- Commodity Booking System: to place the commodity transactions for the Sharia compliant products
- BDB Digital Banking: to display the facilities/applications details to the clients on digital banking.
- Integration with Active Directory for bank users for easy user management and accesses.

### 6. PRODUCT ROADMAP REQUIREMENTS

The system should be flexible and support adding new services, products and features in later phases, including but not limited to:

- Add more schemes/products for lending
- Apply for retail/corporate credit cards
- Integration with Open Banking for statements/data retrieval
- AI analytics to predict customer needs & offer personalized products
- Blockchain for secure documents and contracts

### 7. DATA PRIVACY & SECURITY REQUIREMENTS

The platform and products should support the below listed technical requirements:

- Solution should be designed for Data Privacy (Data privacy by design)
- Adherence to NIST Cyber Security Framework as required by Central Bank of Bahrain (CBB), and Secure standards, development lifecycle and coding practises (e.g. OWASP).
- Should adopt secure code analysis during development (i.e., static, dynamic or hybrid).
- Should have ISO 270001, ISO 22301, SOC2(for SAAS offerings) to demonstrate strong IT and Cyber Security processes.
- Should have strong identity, authentication, authorization, access control and auditing mechanisms.
- Should have comprehensive logging, monitoring and alerting/trigger features such as of user and systems activities, object calls, requests, responses etc. as well as security events with support for log forwarding.
- Should support Role Based Accessed Control and delegated/segregated/granular administration to support strict access controls and to restrict access to authorized individuals and parties.
- Implement rate limiting and throttling to protect against abuse and Denial of Service Attacks.
- Adheres to privacy by design principles (e.g. PDPL) with support for data masking/obfuscation and tokenization to protect/restrict sensitive data. Also, should support data anonymization for analytics or testing purposes.
- Easy, trackable and customizable explicit user consent management for data collection and processing.
- Should provide independent penetration testing certification semi-annually covering the CBB requirements.
- Support for encryption of all sensitive and confidential data at rest and in motion with industry recognized secure algorithms.
- Supports mobile device security such as tamper detection and detection of jailbroken/rooted devices restricting app functionality.
- Supports application code obfuscation to prevent reverse engineering and provides regular updates to address vulnerabilities in application and integrated third-party components/libraries/frameworks.
- Secure OTP delivery support for sensitive actions.



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- Supports data retention requirements such as those defined by the Central Bank of Bahrain.
- Easy to understand error messages without revealing sensitive information.
- User access, roles, privileges and activity details extractable/viewable as a report is recommended.
- Strong security integration in the case of APIs through strong authentication and audit logging.
- Clear and comprehensive API documentation for security testing.
- There should be an option to default all sensitive and confidential documents with password protection for different customers.
- The system shall implement a secure CAPTCHA mechanism to prevent automated attacks on the online user onboarding/registration and login functionalities.

## 8. DELIVERABLES

- Detailed delivery plan with timeline
- Experienced & Dedicated Project Management Services
- Supply and installation of System Software(s)
- Implementation of Software covering:
  - Deployment and hosting of overall solution
  - Configuration and customization, in accordance with the Bank Requirements
  - Integration development, in accordance with the Bank Requirements
  - UI/UX design customization, as approved by the Bank
  - Aligning the solution security and network design as per security policies of the Bank
  - Perform QA testing on the Software
  - Support for all functional and non-functional testing by the Bank
  - Development of operational, analytical and MIS reports
  - Providing Solution design and architecture documentation
  - Providing training sessions and materials to bank staff
  - Providing detailed documentation and user manuals
  - Providing Tutorial videos
- Go live, rollout
- Data migration from existing CLOS
- Post-Implementation Support

## 9. TRAINING

Training sessions to cover the below\*:

- Training to System testing teams
- Training to System Administrators
- Training to Back-office teams
- Training to Customer facing teams
- Training to Support teams

Comprehensive User Manuals for bank users and administrators to be prepared and provided by the vendor and recorded demo videos are expected to guide the users on how to use the platform.

*\*More training sessions might be defined as required post conducting the testing.*

## 10. STAKEHOLDERS

- **Project Management:** Strategy and Transformation Department from the PMO perspective and IT from the project management perspective.
- **Product Owner:** Banking & Risk Management
- **Product Sponsor:** Chief Banking Officer (CBO)
- **Requirements Review & Approval:** Banking, Compliance, Legal, Risk, Information Technology, Information Security, Finance, Sharia, Operations, Credit Admin, Middle Office
- **Risk Assessment:** Risk Management Team
- **Regulators Approval:** Compliance Team
- **Shaira Compliance Approval:** Sharia Team
- **Solutions/Vendors Evaluation:** Information Technology, Strategy, Banking, Compliance, Risk, Information Security.
- **Documentation, T&Cs review:** Legal Team, Credit Admin
- **Solution Testing & Signoff:** Banking, Compliance, Risk, Information Technology, Information Security, Operations, Legal, Credit Admin, Middle Office.
- **Solution UI/UX design review:** Banking, Risk, Marcom, Information Technology

## BUSINESS REQUIREMENT DOCUMENT

### APPENDIX-1: INCIDENT PRIORITY DEFINITIONS

Urgency>> Impact	Critical	High	Medium	Low
Critical	P1	P1	P2	P3
High	P1	P2	P3	P4
Medium	P2	P3	P4	P5
Low	P3	P4	P5	P5

Urgenc	Description	Impact	Description
Critical	<ul style="list-style-type: none"> <li>- Instantaneous action required.</li> <li>- Catastrophic damage to essential business functions. Organization may be unable to function.</li> <li>- Severe financial losses for the organization.</li> <li>- Severe and widespread reputational damage.</li> </ul>	Critical	<ul style="list-style-type: none"> <li>- Catastrophic disruption of critical business functions, rendering the organization unable to operate effectively. The impact of non-availability of the process will impact:</li> <li>- Any Reputation Impact.</li> <li>- Any Financial impact</li> <li>- Any Legal or Regulatory Impact</li> <li>- Service Quality / Customer Service: No service channel is available, and all customer segments are affected.</li> <li>- Any Critical Security Breach</li> </ul>
High	<ul style="list-style-type: none"> <li>- Immediate action required.</li> <li>- Affects essential systems or services, resulting in significant disruption or loss of functionality.</li> <li>- High risk of financial or operational impact.</li> <li>- Potential for severe reputational damage.</li> </ul>	High	<ul style="list-style-type: none"> <li>- Severe disruption affecting essential business operations, multiple departments, or critical business processes. The impact of non-availability of the process will impact:</li> <li>- Widespread outage of critical systems or services, impacting all users or a significant portion of the organization.</li> <li>- Service Quality / Customer Service: A single channel of service is not available, and a single segment of customers is affected (this might VIP customers).</li> <li>- Any non-critical security breach</li> </ul>
Mediu	<ul style="list-style-type: none"> <li>- Action required within a defined timeframe.</li> <li>- Affects specific departments or groups within the organization.</li> <li>- Moderate risk to business operations or service delivery.</li> <li>- Limited potential for reputational damage.</li> </ul>	Mediu	<ul style="list-style-type: none"> <li>- Moderate disruption affecting specific departments or groups within the organization. The impact of non-availability of the process will impact:</li> <li>- Partial service outage or performance degradation, impacting specific business processes or user groups.</li> </ul>
Low	<ul style="list-style-type: none"> <li>- Action required based on available resources and priorities.</li> <li>- Affects individual users or non-critical systems.</li> <li>- Minimal risk to business operations or service delivery.</li> <li>- Negligible reputational impact.</li> </ul>		

## BUSINESS REQUIREMENT DOCUMENT

		<ul style="list-style-type: none"><li>- Service Quality / Customer Service: A single channel of service is not available, and a single segment of customers is affected (this might VIP customers).</li></ul>
	Low	<ul style="list-style-type: none"><li>- Minimal disruption affecting individual users or non-critical systems. The impact of non-availability of the process will impact:</li><li>- Intermittent issues or minor glitches that do not significantly impact business operations.</li><li>- Service Quality / Customer Service: A single channel of service is not available, and a single segment of customers are affected (this does not include VIP customers) or, customers are unlikely to be affected, but could be aware of interruption.</li></ul>