**GEA SOLUTION SPECIFICATION DOCUMENT- SSD**

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**Approvals**

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| Version | Issue date | Name | Position | Approval date |
| --- | --- | --- | --- | --- |
| 1.0 | 23-6-2024 | Irene Omondi | Product owner | 24-6-2024 |
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# Purpose

The purpose of this document is to define the key areas which the SSD documents must address and against which they can be validated. This is a reference documents generated from GEA for reference by Business, IT Security, Risk, QA, Change and any other Stakeholder of interest.

# Problem / Challenge / Gap / Opportunity Overview and Background

## 2.1 Background

Prepaid cards offer customers a payment tool and ensures financial inclusion for the unbanked. Most notably, they propagate discipline which enable cardholders to limit spending and encourage budgeting. The prepaid card segment is expected to grow exponentially globally by 2022 with the US market reaching $3.1 trillion fueled by the financial needs of unbanked and under-banked customers, innovative card features, online transactions and the need to go cashless worldwide. The Multi-currency prepaid card is aimed at providing consumers greater access to online transactions, digital wallets and an efficient way to manage and monitor expenditure. Currently the bank has only a Kenya shilling prepaid card and does not have a multicurrency prepaid card.

## 2.2 To be solution:

There is need to introduce a multicurrency prepaid card product into the market and tap into the huge market by offering a multicurrency prepaid card that shall give flexibility while doing online transactions. The multicurrency prepaid card is in line with KCB’s strategic objective that is fully focused on giving our customers a level of convenience and flexibility on top of easy-to-use financial products and services both locally and globally.

The prepaid card supports up to eleven currency wallets. It has the capability of holding funds in four virtual wallets with the Kenya shilling acting as the default wallet. The eleven virtual wallets can hold up to KES 1,000,000 at any point in time. Cardholders can activate and deactivate currency wallets as they desire and move funds between different wallets at foreign currency exchange rates determined by the bank.

## 2.3 User stories:

|  |  |
| --- | --- |
| 1 | As a bank customer, I want to get a multicurrency prepaid card at KCB. |
| 2 | As a non-KCB bank customer, I want to get a multicurrency prepaid card at KCB. |
| 3 | As a prepaid card holder, I want to have a self-service portal where I can make inquiries on my card, place service requests and initiate funds transfers. |
| 4 | As KCB bank, I want to offer a multicurrency prepaid card that shall allow customers to conveniently shop online and do transactions with the preferred currency type. |

# Justification/Driver for this Change

The bank’s strategic objectives are customer centric. The multicurrency prepaid card is in line with KCB’s strategic objective that is fully focused on giving our customers a level of convenience and flexibility on top of easy-to-use financial products and services. The product offering provides the following advantages: -

* **Fee income - The prepaid cards offer a constant fee income stream to the bank.**
* **Convenience** - Customers can purchase items in stores, online and access funds anywhere, anytime globally.
* Secure - EMV Chip provides greater security to customers for all Online POS and ATM transactions

# Impact Analysis.

## If implemented

* It will empower customers to get multicurrency prepaid cards that shall offer convenience and improve customer experience. The cards are Pay pass enabled and shall allow customers use them at contactless terminals globally.
* A great customer experience shall serve to attract non-KCB customers to the business and open new opportunities for income for the bank.

## If Not Implemented

* The bank will miss out on the revenue from non-customers using the service.
* The bank will also limit its ability to access online transaction revenue.
* If not implemented KCB, we be at a disadvantage among competitor who are already issuing multicurrency prepaid cards.

# **Solution overview**

The solution entails

The following changes shall be done to include the multicurrency prepaid card product:

Implement multicurrency prepaid as a drop down on BPM.

Add multicurrency prepaid card to card application forms.

Multicurrency Prepaid card functionality to be implemented on TWO and TWCMS. The set up shall include setting up multicurrency special authorization scheme in TWO and Dynamic currency conversion on TWO.

Tranzware to incorporate multicurrency prepaid card issuance system

TWCMS to implement an API to fetch daily exchange rates from T24 for

transactions.

A wallet system will be maintained on the TWCMS. Each wallet shall be virtual accounts held on the TWCMS.

Upon application, a customer will deposit the required funds in each of the wallet currencies.

The FOREX rates, uploaded daily on the TWCMS, shall apply during currency conversion and transactions.

The solution will require the customer to provide their Bio-Data for KYC. A KYC check will be done at IPRS.

If the customer passes the KYC check, he shall be requested to deposit the card application fee (Cash deposit) and the request shall be sent to BPM for processing by card operations team. The customers information will be passed to Tranzware for customer creation and creation of a card.

T24-accounts set up, card loading

Card schemes Master card for BIN specifications

The following are the modules required on TWCMS for multicurrency card issuance

* Processing applications for cards
* Initiation and printing of PINs
* Maintaining customer and card records
* Managing replacement of damaged, lost and stolen cards
* API to get daily exchange rates from T24 for Transactions
* Managing the card renewal cycle
* Managing the card life cycle
* Processing of interchange files with MC
* Standard and Ad-hoc Reports

Implement the correct card limits that covers the following

* Card Transaction limits (Limit per transaction)
* Daily card limits
* E-commerce limits
* Card load limits
* Contactless limits
* Anti-Money Laundering Limits

Implement the following card transaction types shall be supported:

* Pin change
* Withdrawal
* POS purchase
* Cash Advance
* Quasi Cash
* E-commerce (Online transactions)

Implement the following are fees configurations

* ATM withdrawal fees (Both KCB and Non-KCB ATMs)
* Card application fee
* Card replacement fee

Tranzware will create the card and generate a file with the following details of the created card:

* The card number or its alias
* Name of card holder
* The card expiry date
* The cards CVV2 code
* Card currency

The card data file shall be sent to bureau for printing.

The customer shall collect the card within the agreed SLAs.

Upon collection of the card, the card shall be activated on TWCMS and an SMS sent to the customer indicating the card pin which the customer is supposed to change within 24 hours.

**Basic card features**

The Travel Mate card is a dual interface card and supports Magnetic Stripe, Chip and NFC (Quick Pass)

TBP by the business for the proposed card schemes

The proposed multicurrency prepaid card is a modern open loop card with a service code 221.

The card will have a validity period of 5 years

The bank shall allow customers to get refunds for the money held in their account for the cardholders wishing to stop using the cards. A Refund fee configurable on TWCMS shall apply. For such a request, the current manual refund shall apply.

# Solution Domain and Scope

## In-scope items

The following are the currencies shall be supported:

* KES
* USD
* EUR
* GBP
* **Swiss francs-CHF,**
* **Australian dollars-AUD**
* **Canadian dollars-CAD**
* **Chinese Yuan**
* **South African Rands.**
* **Indian Rupee**
* **Japanese Yen**

The following card schemes are in scope:

* Mastercard

Channels for loading card

* + Mpesa
  + Bank Teller at the Branch
  + KCB App-Mvp2

Other Channels and systems affected by this change:

* TWCMS
* TWO
* Branch Teller (T24)
* BPM
* Multicurrency Portal
* T24
* Treasury Exchange Rates

## Out of scope items

[Items that are part of change, but implementation will not occur on them]

* IPRS

## Inclusion

[Users and systems not in scope but are affected by the change]

## Exclusion

[Users and systems that will be not affected but are within the scope].

All other KCB Systems

# Assumptions, Dependencies and Constraints

That in a scenario where the selected transaction account /wallet has no funds, but other accounts have additional funds sufficient for authorization the transaction will be authorized.

That the cardholders shall be able to load funds to the cards from the selected channels and the respective forex rates shall apply.

# Functional Requirements

### Use Case Summary

|  |  |  |
| --- | --- | --- |
| # | USE CASE NAME | USE CASE DESCRIPTION |
| UC01 | Multicurrency card application process | This use case describes Multicurrency card application process |
| UC02 | Multicurrency Card loading Via T24 Teller | This use case describes Multicurrency Card loading Via T24 Teller |
| UC03 | Multicurrency card loading via Mpesa | This use case describes Multicurrency card loading via Mpesa |
| UC04 | POS purchase | This use case describes Multicurrency POS purchase |
| UC05 | Online purchase | This use case describes multicurrency online purchase |
| UC06 | Request for Multicurrency Card | This use case describes how the customer will request for a multicurrency prepaid card from the multicurrency portal |
| UC07 | Registration for Online Self-Serve Portal | This use case describes how the customer will register for the self-serve portal |
| UC08 | Login to Self-Serve Portal | This use case describes how the customer will login to the self-serve portal |
| UC09 | Wallet Transfer (Other currencies to KS) | This use case describes how the customer will transfer cash from other currency wallet to the KS wallet. |
| UC10 | Wallet transfer (KS to Other currencies) | This use case describes how the customer will transfer cash from KS wallet to other Currencies wallet. |
| UC11 | Display of Exchange Rates Currencies | This use case describes how the bank will display exchange currencies to the customer |
| UC12 | Check Balance | This use case describes how the customer will view their account balances. |
| UC13 | Card Statements | This use case describes how the customer will request for a statement. |
| UC14 | Card management (blocking card) | This use case describes how the customer will manage their card(block) |

### Detailed Use Cases

1. **Multicurrency card application process**

This use case describes Multicurrency card application process

|  |  |
| --- | --- |
| User Story: | As a KCB Customer, I want to apply for multicurrency prepaid card |
| Flow Description: | For phase one of this project, both bank and non-bank customers shall apply for a multicurrency prepaid card at bank branches. There shall be a card application fee which the customer shall be required to pay at branch to get the card.  Below is the proposed multicurrency prepaid card application process at a branch:   1. The customer shall visit a KCB Bank branch and request for a multicurrency prepaid card. 2. The customer shall fill in a prepaid card application form and select multicurrency card. 3. The bank user shall validate the KYC details on IPRS. 4. If the KYC details are okay, the customer shall be requested to deposit the card application fee, for KCB customers who would wish to transact from account the bank teller shall perform a funds transfer to the respective account. 5. The customer application form, KYC details and the payment receipt are loaded on BPM system. Upon approval, the request shall be sent to card ops team. 6. Card ops team shall check the request on BPM from branch and initiate the request on TWCMS. 7. The appropriate Prepaid card type shall be selected (Multicurrency prepaid card). 8. The customer type shall be selected 9. The card scheme shall be selected (MC) 10. The request shall be submitted for processing 11. Tranzware will create the card and a file shall be generated and sent to the bureau for printing. 12. The customer shall upon collecting the card have it activated on TWCMS. Afterwards an SMS notification shall be generated and sent to the customer’s mobile number. The customer shall be required to change the pin within 24 hours to their preferred card pins. |
| Preconditions: |  |
| Primary Actor: | Customer, BPM, IPRS. |
| Secondary Actors: | Tranzware, TWCMS, |
| Outputs: | Customer successfully apply for a multicurrency prepaid card at the branch |



(b) **Loading of multicurrency prepaid card at the Teller.**

This use case describes Multicurrency Card loading Via T24 Teller

|  |  |
| --- | --- |
| User Story: | As a KCB Customer, I want load my multicurrency card via Branch Teller |
| Flow Description: | 1. Teller Logs into the T24 application 2. Select deposit to card 3. The card number shall be entered 4. The transaction amount shall be keyed in 5. The preferred wallet based on transaction Currency shall be selected (e.g. USD, EUR, GBP, KES) 6. The request shall be submitted for processing 7. The respective GL shall be debited, and the customer account credited. |
| Preconditions: | Customer is already logged in. |
| Primary Actor: | Customer, Portal. |
| Secondary Actors: | OCP, UCM |
| Outputs: | Customer receiving OTP  Card Balances being displayed |



**(c) Multicurrency card loading via Mpesa**

This use case describes Multicurrency card loading via Mpesa

|  |  |
| --- | --- |
| User Story: | As a KCB Customer, I want to load my card via Mpesa |
| Flow Description: | 1. Customer logs in to Mpesa 2. Customer captures card number and playbill that is 522522 3. The request is forwarded to C2B engine 4. C2B forwards the request to Interswitch 5. Interswitch forwards the request to TWO for processing 6. TWO process the request and forwards a response downstream |
| Preconditions: | Customer is already logged in. |
| Primary Actor: | Customer, Mpesa |
| Secondary Actors: |  |
| Outputs: | Successful card loading via Mpesa |



(d)**POS purchase**

This use case describes Multicurrency POS purchase

|  |  |
| --- | --- |
| User Story: | As a KCB Customer, I want to do POS purchase using my card |
| Flow Description: | 1. A customer approaches an Agent for pos purchase 2. The customer taps or insets the card on the POS machine 3. The txn is forwarded to TWO 4. TWO process the txn and sends a response back |
| Preconditions: |  |
| Primary Actor: | Customer, Merchant |
| Secondary Actors: | Merchant POS, TWO |
| Outputs: | Successful POS purchase |



(e)**Online purchase**

This use case describes multicurrency online purchase

|  |  |
| --- | --- |
| User Story: | As a KCB Customer, I want to check my card balance |
| Flow Description: | 1. A customer logs into e-commerce site 2. The customer captures card details 3. An OTP is sent to the customers phone 4. The customer captures the OTP and the txn is forwarded to TWO for processing. |
| Preconditions: |  |
| Primary Actor: | Customer, E-commerce merchant |
| Secondary Actors: |  |
| Outputs: | Successful online purchase |

## 

(f) **Request for Multicurrency Card Via Multicurrency portal**

This use case describes how the customer will request for a multicurrency prepaid card from the multicurrency portal

|  |  |
| --- | --- |
| User Story: | As a KCB Customer, I want to request for Multicurrency Prepaid card via portal |
| Flow Description: | 1. Customer navigates to Prepaid card portal, and selects on the option to get Card. 2. The customer is presented with a form. The form requires the following details;  * Names – First Name, Middle Name, Last Name * Identification Type- ID/Passport Number * ID/Passport Number * KRA PIN * Nearest Branch * Phone Number * Email * DOB * Identification Document attachment * KRA PIN attachment  1. A customer is presented with a success message and an email acknowledging receipt. 2. An email notification will be sent to the card issuing team informing them of a new request. 3. If the customer visits the bank they will perform KYC on the customer and if successful, create the card on CMS. |
| Preconditions: | N/A |
| Primary Actor: | Customer, Portal. |
| Secondary Actors: | IPRS, OCP. |
| Outputs: | Customer receives an email informing them their application is being worked on. |



(g)**Registration for Online Self-Serve Portal**

This use case describes how the customer will register for the self-serve portal

|  |  |
| --- | --- |
| User Story: | As a KCB Customer, I want to register on the Prepaid self-serve portal |
| Flow Description: | 1. Customer navigates to Prepaid card portal and selects on the option to get Register. 2. Customer enters the following details: 3. Names 4. Email address 5. National ID 6. Phone Number 7. Customer details are validated on TranzWare before they are allowed to create their password. 8. If the customer does not have a card, they are redirected to Card Request page & informed to contact customer care if they are experiences challenges. |
| Preconditions: | Customer has a multicurrency prepaid card |
| Primary Actor: | Customer, Portal, |
| Secondary Actors: | OCP, Tranzware, Portal, Customer |
| Outputs: | Customer is successfully registered on self-serve portal. |



(h) **Login to Self-Serve Portal**

This use case describes how the customer will login to the self-serve portal

|  |  |
| --- | --- |
| User Story: | As a KCB Customer, I want to login to the Prepaid self-serve portal |
| Flow Description: | 1. Customer navigates to Prepaid card portal, and selects on the option to login 2. Customer is required to enter their;    * 1. Email address & password 3. An OTP is sent to the customer’s phone number and is required for them to complete login. 4. On successful login, they are redirected to dashboard. This should contain cards displaying the several wallets the card has, but no balances. |
| Preconditions: | Customer is already registered on the self-serve portal |
| Primary Actor: | Customer, Portal |
| Secondary Actors: | OCP |



(i)**Wallet Transfer (Other currencies to KS)**

This use case describes how the customer will transfer cash from other currency wallet to the KS wallet.

|  |  |
| --- | --- |
| User Story: | As a KCB Customer, I want to transfer cash from other currencies wallet to KS wallet |
| Flow Description: | 1. Customer logs into multicurrency portal 2. The customer selects the transfer currencies and amount. 3. A validation request is forwarded through OCP to TWO that’s check the balance 4. TWO performs card validations including (balance of the amount he wants to exchange) 5. TWO sends a response to OCP. 6. OCP sends an exchange rate request to T24 7. T24 process the request and responds back with the exchange rate to OCP. 8. OCP forwards the rates to the portal where the customer can view. 9. Customer submits the transfer req 10. The request is forwarded to OCP 11. OCP forwards the transfer req TWO to debit the customers wallet 12. T24 process the txn and sends a response to OCP 13. OCP forwards the txn req to T24 to process the txn (in exchange) 14. T24 process the transfer and sends back a response to OCP 15. OCP sends a notification to TWO to process the final leg of the txn by crediting the customer wallet. 16. TWO sends a response to OCP 17. OCP then forwards the response to the portal 18. The customer also receives a notification |
| Preconditions: | Customer is already logged in. |
| Primary Actor: | Customer, Portal. |
| Secondary Actors: |  |
| Outputs: | Successful transfer from one currency to another |

## 

**TW**

Example Convert 1000 USD to KES

Dr Customers USD Wallet in TW

Dr USD product control in T24(Mirrow account)

Cr KES Control alc in T24 (Using T24 Rates)

Cr Customers KES Wallet

N/Bin T24 postings are done after close of Business day

(j)**Wallet transfer (KS to Other currencies)**

This use case describes how the customer will transfer cash from KS wallet to other Currencies wallet.

|  |  |
| --- | --- |
| User Story: | As a KCB Customer, I want to transfer cash from KS wallet to other currencies wallet |
| Flow Description: | 1. Customer logs into multicurrency portal 2. The customer selects the transfer currencies and amount. 3. A validation request is forwarded through OCP to TWO that’s check the balance 4. TWO performs card validations including (balance of the amount he wants to exchange) 5. TWO sends a response to OCP. 6. OCP sends an exchange rate request to T24 7. T24 process the request and responds back with the exchange rate to OCP. 8. OCP forwards the rates to the portal where the customer can view. 9. Customer submits the transfer req 10. The request is forwarded to OCP 11. OCP forwards the transfer req TWO to debit the customers wallet 12. T24 process the txn and sends a response to OCP 13. OCP forwards the txn req to T24 to process the txn (in exchange) 14. T24 process the transfer and sends back a response to OCP 15. OCP sends a notification to TWO to process the final leg of the txn by crediting the customer wallet. 16. TWO sends a response to OCP 17. OCP then forwards the response to the portal 18. The customer also receives a notification |
| Preconditions: | Customer is already logged in. |
| Primary Actor: | Customer, Portal. |
| Secondary Actors: |  |
| Outputs: | Successful transfer from one currency to another |

## 

**TW**

Example Convert 1000 KES to USD

Dr Customers KES Wallet in TW

Dr KS product control in T24(Mirrow account)

Cr USD Control alc in T24 (Using T24 Rates)

Cr Customers USD Wallet

N/Bin T24 postings are done after close of Business day

**(k)Display of Exchange Rates Currencies**

This use case describes how the bank will display exchange currencies to the customer

|  |  |
| --- | --- |
| User Story: | As a KCB Customer, I want exchange rates displayed when I initiate the request. |
| Flow Description: | 1. Customer logs into multicurrency portal 2. The customer selects two wallet (intending to exchange) and initiate Exchange Rate request 3. The request is forwarded through OCP 4. OCP forwards the request to T24 5. T24 process the exchange rate 6. A response is sent downstream through OCP up to the portal 7. The customer views the exchange rate on the portal. |
| Preconditions: |  |
| Primary Actor: | Customer, Portal, T24, OCP |
| Secondary Actors: |  |
| Outputs: | Successful access to Exchange Rate |

## 

**(l)Check Balance**

This use case describes how the customer will view their account balances.

|  |  |
| --- | --- |
| User Story: | As a KCB Customer, I want to check my card balance |
| Flow Description: | 1. Customer logs into multicurrency portal 2. The customer selects check balance. 3. The request is forwarded through OCP 4. OCP forwards the request to TWO 5. TWO process the balance inquiry. 6. A response is sent downstream through OCP up to the portal 7. The customer views the balance on the portal by clicking on eacg |
| Preconditions: |  |
| Primary Actor: | Customer, Portal, TWO, OCP |
| Secondary Actors: |  |
| Outputs: | Successful balance inquiry request |

## 

## 

## **(m)** **Card Statements**

This use case describes how the customer will request for a statement.

|  |  |
| --- | --- |
| User Story: | As a KCB Customer, I want to check my card statement |
| Flow Description: | 1. Customer logs into multicurrency portal 2. The customer selects the wallet he is intending to check statement. 3. The request is forwarded through OCP 4. OCP forwards the request to TWO 5. TWO process the statement inquiry. 6. A response is sent downstream through OCP up to the portal 7. The customer views the statement on the portal. |
| Preconditions: |  |
| Primary Actor: | Customer, Portal, TWO, OCP |
| Secondary Actors: |  |
| Outputs: | Successful card statement inquiry |



**(n)Card management (blocking card)**

This use case describes how the customer will manage their card (block

|  |  |
| --- | --- |
| User Story: | As a KCB Customer, I want to block my card from the Merchant portal |
| Flow Description: | 1. Customer logs into multicurrency portal 2. The customer selects on block card. 3. The request is forwarded through OCP 4. OCP forwards the request to TWO 5. TWO process the card blocking. 6. A response is sent downstream through OCP up to the portal 7. The customer receives a response on the portal |
| Preconditions: | Customer is already logged in. |
| Primary Actor: | Customer, Portal.OCP, TWO |
| Secondary Actors: |  |
| Outputs: | Successful card blocking |

## 

## Implementation of a Card limits management module:

The prepaid card shall have a maximum transaction limit of Ksh. 999,999 and a minimum amount of Ksh. 500.

Below are the proposed limits for the card that shall be configured:

|  |  |  |
| --- | --- | --- |
| **Per Transaction Limit** | **Domestic** | **International** |
| Cash Withdrawal | 40,000/= | 40,000/= |
| Purchases | 250,000/= | 250,000/= |
| Travel and Entertainment | 250,000/= | 250,000/= |
| **Daily Limit** |  |  |
| Cash Withdrawal | 50,000/= | 50,000/= |
| Purchases | 250,000 | 250,000 |
| Travel and Entertainment | 250,000 | 250,000 |
| **E-Commerce Limit** |  |  |
| Per Transaction Limit | 100,000/= | 100,000/= |
| Daily Limit | 100,000/= | 100,000/= |
| **Load Limit** |  |  |
| Minimum Amount | 500/= |  |
| Per transaction loading limit | 500,000/= |  |
| Daily Limit loading limit | 500,000/= |  |
| Yearly | 3,000,000 |  |
| **Contactless Limits** |  |  |
| Without PIN | 2,000/= | 2,000/= |
| Anything above needs a PIN |  |  |

Below are the daily limits per day per channel

|  |  |  |
| --- | --- | --- |
| **CHANNEL** | **COUNT PER DAY** | **VALUE PER DAY (KES)** |
| POS | 99 | 500,000 |
| ATM | 10 | 100,000 |
| ONLINE | 10 | 50,000 |

AntiMoney Laundering Limits

|  |  |
| --- | --- |
| **Limit** | **AMOUNT (KES)** |
| Initial Load | 100,000 |
| Daily Load | 100,000 |

## Implementation of multicurrency selection on TWCMS:

TWCMS shall implement a functionality to allow a user select on multicurrency prepaid card. The users shall be able to upload applications in bulk or singly where they shall manually make single applications on TWCMs.

## Implementation of multicurrency selection on T24:

Changes shall be done on T24 to allow a user select preferred currency while initiating a card load transaction.

## Accounts set up on T24:

On T24, accounts for each currency shall be set up to allow to support the multicurrency prepaid card transaction.

## BINS Set up:

The required BINs for each prepaid card type shall be set up MC

## Accounting schema for multicurrency prepaid card:

Below are the detailed accounting rules to be used for the postings for this project.



## **Non-functional Requirements** (to be guided by the KCB Architecture Principles)

### System and Security - [Encryption and Access - conform to the standards and policies of the bank]

Use Existing

### System availability- (HA and BCP/Failover)

Use Existing

### Licensing Implications (Sizing)

Use Existing

### System Performance/ Service Response Time

Use Existing

### Exception & Error Handling- standards and references

-Exception handling between the systems to be integrated to be implemented.

### Logging & Audit

Below are the Audit and logging specifications:

The services should support the following logging and audit trail features:

* A detailed documentation of the logging mechanisms, formats, and specifications of the system should be provided
* Ability to record audit trails that meet standard financial threshold
* Ability to generate tamper proof logs and store files, database, publish to a logging service, rotating logs
* Ability to generate audit trail reports
* Ability to manage log levels
* Safeguard access to security logs to prevent any possible misuse or compromise.
* The services should be configurable to automatically send defined audit and security events to a SIEM server using Common Log File System (CLFS) or Common Event Format (CEF) over syslog, or other supported mechanisms
* The system should provide audit trails across all layers: operating system, database, application and network. Furthermore, the data captured within the security logs should address the 5 W's: Who, What, When, Where and hoW.

### Monitoring& Alerts

-OCP cluster Level Monitoring for the services should be enabled for namespace by infra team.

-Service level monitoring to use existing ELK stack

-Dynatrace setup to ensure alerts can be forwarded to required stakeholders

### Initialization and reset

Use Existing

### Memory management

Use Existing

### Fault management & recovery mechanism

Use Existing

### Scalability

-The proposed solution shall be dynamic such that if the business requires to add another card currency or card scheme, there will be no development required but a configuration of the new currency /card product.

### Adaptability and Re-use

The solution shall be generic such that if the business would want to incorporate another currency, it will be a configuration and no further developments shall be required.

### Queue management

Use Existing

### Backup and Recovery

Use Existing

# Reporting requirements for Multicurrency prepaid card

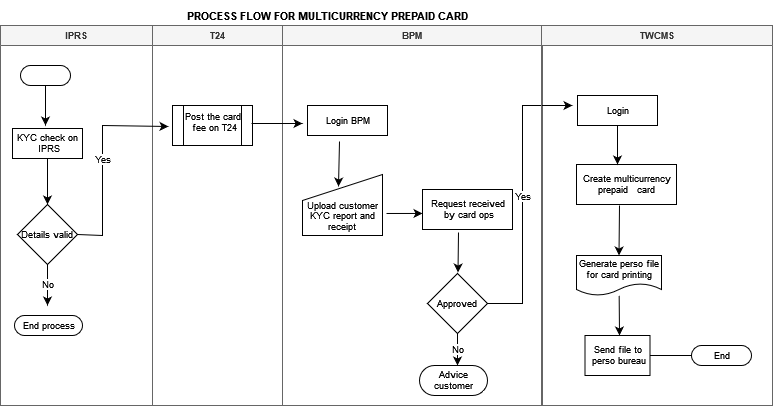
The following are the reports required:

1. Report of the number of customer multicurrency prepaid card applications- Details of successful and failed Card applications
2. Volume and value of multicurrency prepaid card transactions per BIN in a specified period
3. Multicurrency prepaid cards closed, blocked/ suspended by customer and business respectively
4. Report of limit adjustments initiated/ done by the customer and by the bank.
5. Report of customer details using prepaid multicurrency card: Name, ID number, phone number, email address.
6. Transaction logs report
7. Report of balances on the various wallets
8. Report of active and dormant multicurrency prepaid cards that can be extracted within a specified period.
9. Report of multicurrency prepaid card limits and their respective balances

# Risks – [Any known Risks Associated with this Change upon implementation or otherwise]

# Diagrams- Models and Data Flows

## Process Flow/Activity Diagram (Optional)



## Data Flow Diagram (this can be logical or physical)

This has no bearing on this change

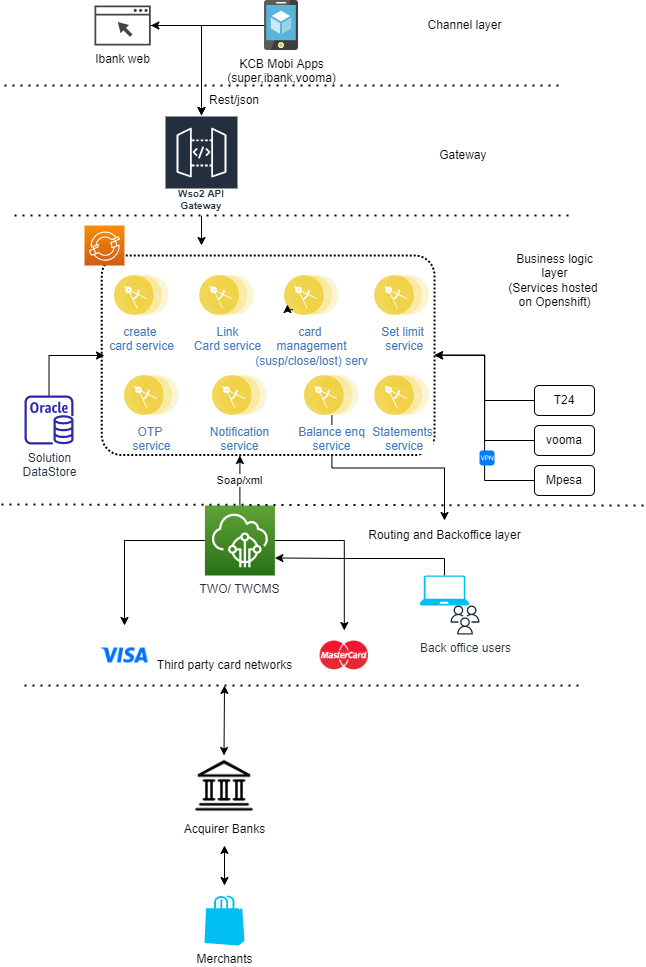
# System Design

* 1. System Architecture

[Mandatory for new integrations with communication protocols; requests and responses]

The solution architecture remains As IS.

A multicurrency prepaid card functionality shall be introduced on TWCMS.



Services To be implemented:

1. Daily forex Rate Service- to fetch daily FX rate from T24 and load to Tranzware. The loaded rate is to be used to display and FX conversion when FX currency is chosen

## 12.1 Solution Components

### Layer 1

**APPS**

* KCB App – Existing
* Card Services (Re usable module)
* Vooma App- Existing
* IBank App- Existing
* Internet Banking- Existing

**Third Parties**

* SDK – Mobile
* Iframe – Web

### Layer 2

* API Manager – WSO2
* API Authorization and Routing

### Layer 3

* OpenShift
* Solution Service APIs to be developed

### Layer 4

* Tranzware
* T24

| **Acronym or Term** | **Definition** |
| --- | --- |
| T24 | KCB Core Banking system |
| TWCMS | Tranzware Card Management System |
| POS | Point of Sale |
| MC | Master card |
| KYC | Know Your Customer |
| SLA | Service Level Agreement |

**Reference Documents**

| **Acronym or Term** | **Definition** |
| --- | --- |
| Product description document |  |
| Business Requirements document |  |
| Prepaid card accounting schema |  |