Discovery Report

Volume 9 - Migration

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# Introduction

This document contains the Business Requirement defined for Issuing based on the Discovery Session which took place from the 10th to 20th of January, 2018 at ORIENT COMMERCIAL BANK. It contains the Enhancement Details agreed between ORIENT COMMERCIAL BANK and OpenWay which are needed for the current project.

These cases are Business Requirements which cannot be solved by a simple system configuration of the WAY4 system and are resolved as an Enhancement to the System in order to satisfy them for ORIENT COMMERCIAL BANK.

This Document covers the different sections of the WAY4 system and the development and additional changes needed to be done.

## Discovery Review Acceptance

On completion of the first draft, this report will be submitted to **ORIENT COMMERCIAL BANK** for review. Comments and corrections provided will be incorporated in agreement with OpenWay, following this review.

Acceptance of this document by **ORIENT COMMERCIAL BANK** does not constitute the implementation of the system based on the information described below.

## Disclaimer

This report does not represent a commitment by ORIENT COMMERCIAL BANK or by OpenWay to develop or implement the described system. The purpose of this report is to present an accurate description of the requirements. All development and configuration work to be undertaken on the project will be defined in accordance with the agreement signed between the parties. The contractual documents will take precedence over this document.

## Notations used

| Ref | Description |
| --- | --- |
| N | Numeric digits 0 through 9 |
| AN | Alphabetic and Special Characters |
| DT | Date + Format in field description |
| B | Binary representation of data |
| NVAR | Variable length data up to nn characters. There will be two or three character length (depending upon whether maximum data length is 99 or 999) at the beginning of the element to identify the number of positions following to the end of the data element |
| DECIMAL 18\*\* | Each amount is formatted with a length of 18 characters. The first 17 positions represent the amount right justified and left completed with zeroes on the left. The 18th position represents the sign of amount (+ or -). The character “,” represents the decimal separator and the number of decimals is determined by the currency exponent.  -34.56 EUR corresponds to 00000000000034,56-  0 corresponds to 00000000000000,00+ |
| DEC | DECIMAL: Number with decimal value. |
| DATETIME | Oracle’s Date data |
| M | Mandatory |
| O | Optional |
| C | Conditional |
| MR | Copy from request |
| CR | Copy if present in request |

### Data Elements

The final component of a message consists of a number of 'data elements'. Data elements may be of fixed or variable length. No delimiters are used between data elements. Their order and presence is indexed by the associated bit map(s). Variable length data starts with length specified, indicating the length of that particular data element. Each data element is characterized by:

* No is a running number
* Data Element Name is name of field
* Position is starting position of the field.
* Size is the length of the field. For example: Position = 6 and length = 3 mean the field content starts at 6 spaces/ characters/ digits from the left and occupies 3 spaces/ characters/ digits.
* M/C/O is a value represents mandatory or conditional or optional. The following flags specify if the entry of data in the field is mandatory:
  + **M** - the data entry is mandatory,
  + **O** - the data entry is optional,
  + **C** - the data entry depends on other field values,
  + **N/A** – Not Applicable
* Description is additional explanation of the field. It should clarify
  + whether the field is expecting a fixed value
  + the field is running number
  + the field existence depends on other field/ fields
  + termination symbol
  + delimiter; for example 0x0D, 0x0A (CRLF)

The amounts of money are stored in the least units (cents, pennies …).

If no data is stored in the field, it should be filled with space characters (spaces).

### Requirements Notation

The following notation is used for identifying the requirements:

* REQI000X –Interface
* REQC000X – Configuration
* REQE000X – Enhancement
* REQR000X – Report
* REQHS000X – Hardware/Software
* REQWS000X – Web Service

### Items Marked as ‘To Be Determined’ (TBD)

Note that all items in the report marked as TBD will be defined during the implementation of the project.

# Migration Strategy

## Migration Data

The following functionality should be taken into consideration during migration.

|  |  |  |
| --- | --- | --- |
| **Product Type** | **Data** | **Client Hierarchy** |
| Credit Card/Corporate Card | Static data  Dynamic data | Private/Corporate |
| Prepaid Card | Static data  Dynamic data | Private |
| Debit Card/Corporate Card | Static data | Private/Corporate |
| ATM/POS | Static data | Corporate |

**Table 1 – OCB Functionality to be migrated**

All necessary data should be loaded to WAY4 in order to provide correct life cycle for the cards with these products and services.

The following objects are to be migrated from CardWork to WAY4:

1. Static data:
   1. Client demographic data (client information like Name, Surname, addresses information, etc.)
   2. Contract details (Consumer/Corporate) including contract statuses
   3. Plastic Information (Track, PIN)
2. Dynamic data:
   1. Pending authorisations/ Posted transactions
   2. Instalment Plans
   3. Bucket Balances
3. We use XML file format to migrate data from legacy system to WAY4. In XML file, we have some key data which need pre-define and map to legacy system. Below is the list of data mapping.

### Client Information

|  |  |  |  |
| --- | --- | --- | --- |
| **Data fields** | **Legacy** | **Data type** | **WAY4** |
| Bank code | BANK\_CODE (PK) | CHAR (6) | <Institution> |
| Client code | CLIENT\_CODE (PK) | VARCHAR2 (24) | <ClientNumber> |
| Social status  (*khách hàng cá nhân hay doanh nghiệp*) | SOCIAL\_STATUS | NUMBER (1) | <ClientType> |
| Client family name | FAMILY\_NAME | VARCHAR2 (20) | <LastName> |
| Client first name | FIRST\_NAME | VARCHAR2 (26) | <FirstName> |
|  | FAMILY\_NAME + FIRST\_NAME |  | <ShortName> |
| Client birth date | BIRTH\_DATE | DATE | <BirthDate>  YYYY-MM-DD |
| Client birth city | BIRTH\_CITY | VARCHAR2 (15) | <BirthPlace> |
| Client birth country | BIRTH\_COUNTRY | VARCHAR2 (15) |
| Family status  *(Not applicable for company)* | FAMILY\_STATUS | CHAR (1) | <MaritalStatus> |
| Sex code  *(Not applicable for company)* | SEX | CHAR (1) | <Gender> |
| Title | TITLE | VARCHAR2 (4) | <Title> |
| Client legal id number | LEGAL\_ID | VARCHAR2 (15) | <RegNumber> |
| Nationality code. | NATIONALITY\_CODE | CHAR (3) | <Country> |
|  |  |  | <AddressType> |
| 1st line of the address | ADDRESS1 | VARCHAR2 (45) | <AddressLine1> |
| 2nd line of the address | ADDRESS2 | VARCHAR2 (45) | <AddressLine2> |
| 3rd line of the address | ADDRESS3 | VARCHAR2 (45) | <AddressLine3> |
| 4th line of the address | ADDRESS4 | VARCHAR2 (45) | <AddressLine4> |
| Client’s address Zip code. | ZIP\_CODE | VARCHAR2 (10) | <PostalCode> |
| Client’s address city code. | CITY\_CODE | CHAR (5) | <City> |
| Client’s address country code. | COUNTRY\_CODE | CHAR (3) | <Country> |
|  |  |  | <AddressType> |
| 1st line of the mailing address. | MAILING\_ADDRESS1 | VARCHAR2 (45) | <AddressLine1> |
| 2nd line of the mailing address. | MAILING\_ADDRESS2 | VARCHAR2 (45) | <AddressLine2> |
| 3rd line of the mailing address. | MAILING\_ADDRESS3 | VARCHAR2 (45) | <AddressLine3> |
| 4th line of the mailing address. | MAILING\_ADDRESS4 | VARCHAR2 (45) | <AddressLine4> |
| Client’s mailing address Zip code. | MAILING\_ZIP\_CODE | VARCHAR2 (10) | <PostalCode> |
| Client’s mailing address city code. | MAILING\_CITY\_CODE | CHAR (5) | <City> |
| Client’s mailing address country code. | MAILING\_COUNTRY\_CODE | CHAR (3) | <Country> |
|  |  | Home | <PhoneType> |
| Home telephone number. | PHONE\_HOME | VARCHAR2 (15) | <PhoneNumber> |
| Branch code | BRANCH\_CODE | CHAR (6) | <OrderDprt> |
|  |  | Work | <PhoneType> |
| Office telephone number | PHONE\_OFFICE | VARCHAR2 (15) | <PhoneNumber> |
| Net annual income for individual client or annual turnover for company | NET\_YEARLY\_INCOME | NUMBER (12) | <Profession> |
| Banking account opening date | BANK\_ACCOUNT\_OPENING\_DATE | DATE | <DateOpen> |
| Client status code  (*thể hiện kh đang hoạt động hay đã đóng*) | STATUS\_CODE | NUMBER (2) | <ADDINFO01> |
|  |  | Mobile | <PhoneType> |
| Mobile Number | PHONE\_MOBILE | VARCHAR2 (15) | <PhoneNumber> |
| Email Address | EMAIL\_ID | VARCHAR2 (50) | <EMail> |
| Organization (*phan biet client staff*) |  | VARCHAR2 (6) | <ADDINFO02> |

### Contract information

Liability contract

|  |  |  |  |
| --- | --- | --- | --- |
| **Data fields** | **Legacy** |  | **WAY4** |
|  |  |  | <FinanceLimit> |
| Client credit limit | CREDIT\_LIMIT | NUMBER (12) | <Amount> |
| Client credit limit currency code | CURRENCY\_CODE | CHAR (3) | <Currency> |

Issuing/Card contract

|  |  |  |
| --- | --- | --- |
| **Data fields** | **Legacy** | **WAY4** |
| Card number. Must match with the ISO 7812 norm. | CARD\_NUMBER (PK) | <ContractNumber> |
| Issuer branch code | BRANCH\_CODE | <OrderDprt> |
| VIP flag (normal or vip client) *liên quan đến usage, kh vip* | VIP\_FLAG | *Link to Client classifier* |
| Cardholder title | TITLE | <Title> |
| Cardholder family name | FAMILY\_NAME | <ContractName>  *(need to merge in one field in way4)* |
| Cardholder first name | FIRST\_NAME |
| Card embossed name | EMBOSSED\_NAME | <FirstName>  <LastName> |
|  |  | <Address> |
| Email address |  | <EMail> |
| 1st line of the cardholder address | ADDRESS1 | <AddressLine1> |
| 2nd line of the cardholder address | ADDRESS2 | <AddressLine2> |
| 3rd line of the cardholder address | ADDRESS3 | <AddressLine3> |
| 4th line of the cardholder address | ADDRESS4 | <AddressLine4> |
| Zip code of the cardholder address | ZIP\_CODE | <PostalCode> |
| City code | CITY\_CODE | <City> |
| Country code | COUNTRY\_CODE | <Country> |
| Agreement opening date | OPENING\_DATE | <DateOpen> |
| Agreement cancellation date  *(Ngày đóng thẻ)* | CLOSING\_DATE | <DateExpiry> |
| Card expiry date | EXPIRY\_DATE | <CardExpiry> |
| Product code | PRODUCT\_CODE | <ProductCode1> |
| Credit account number  (*issuing contract number*) | CR\_ACCOUNT\_NBR | <ContractNumber> |
|  | ACCOUNT | <RBSNumber> |
|  |  | <Relation> |
| Card status code | STATUS\_CODE | <StatusCode> |
|  |  | <Address> |
| 1st line of the cardholder mailing address | MAILING\_ADDRESS1 | <AddressLine1> |
| 2nd line of the cardholder mailing address | MAILING\_ADDRESS2 | <AddressLine2> |
| 3rd line of the cardholder mailing address | MAILING\_ADDRESS3 | <AddressLine3> |
| 4th line of the cardholder mailing address | MAILING\_ADDRESS4 | <AddressLine4> |
| Mailing zip code | MAILING\_ZIP\_CODE | <PostalCode> |
| City code | MAILING\_CITY\_CODE | <City> |
| Country code | MAILING\_COUNTRY\_CODE | <Country> |
|  |  | <Address> |
|  |  | <AddressType> |
|  | Home | <PhoneType> |
| Contact number of cardholder | PHONE\_HOME | <PhoneNumber> |
|  | Mobile | <PhoneType> |
| Mobile number of cardholder | PHONE\_MOBILE | <PhoneNumber> |
| Identity of the employee who brings the agreement (*mã số nhân viên chạy chỉ tiêu thẻ*) | STAFF\_ID | <FirstName> |
| Card delivery mode (*cách thức giao thẻ*) | DELIVERY\_MODE | <LastName> |
| Credit policy code | MACHINHSACHTD | <BirthName> |
| Contract type (*tin chat hoac the chap*) | LOAI\_HOP\_DONG | <Language> |
| Contract number | SO\_HOPDONG | <Email> |
| Mortgage type | LOAI\_HINH\_THE\_CHAP | <URL> |
| Collateral Code | MA\_TS\_THECHAP | <State> |
| Collateral Code1 | MA\_TS\_THECHAP1 | <City> |
| Collateral Code2 | MA\_TS\_THECHAP2 | <PostalCode> |
| Collateral Code3 | MA\_TS\_THECHAP3 | <MunicipalityCode > |
| Mortgage duration | THOI\_HAN\_THE\_CHAP | <AddressLocation> |
| Mortgage id | LINE\_ID | <AddressLine1> |
| TARGET\_TIME (MM/YY) | TARGET\_TIME | <AddressLine1> |
| DEPARMENT\_ID (quan ly den muc phong ban cua chi nhanh/branch) | DEPARTMENT\_ID | <AddressLine2> |
| Credit department user (mã nv tín dụng) | OFFICER | <AddressLine3> |
| Branch for receiving card (*kh đăng ký nhận thẻ ở chi nhánh khác*) | BRANCH\_RECEIVE\_CARD | <AddInfo> |
|  |  | </Address> |
| Type of Auto\_payment: None, Mindue, Full, % | AUTO\_PAYMENT\_FLAG | <ADDINFO01> |
| Auto payment Account | AUTO\_PAYMENT\_ACCOUNT | < RBSNumber > |
| SMS\_FLAG (*đăng ký nhận sms*) | SMS\_FLAG | <ADDINFO02> |

### Contract Status

2.1.3.1 Card Status

|  |  |  |
| --- | --- | --- |
| **Contract Status** | **Legacy** | **WAY4** |
| Normal (bình thường) | 0 | Card OK |
| Cancelled (thẻ đóng) | 3 | Card Close |
| Replaced (thẻ bị thay thế) | 4 | Card Replaced |
| Lost (thất lạc) | 5 | Pick Up L41 |
| Stolen (mất cắp) | 6 | Pick Up S43 |
| Counterfeit (thẻ giao xuống chi nhánh nhưng không kích hoạt) | 7 | Card Branch |
| Returned (tạm khóa) | 8 | Do not honor |
| Upgrade (chuyển thẻ từ lên thẻ chip) | 9 | Card Upgrade |
| Returned Card Renewal (áp thẻ chính ko có nhu cầu sử dụng) | 10 | Card Returned |
| Expired (thẻ hết hạn) | 12 | Card Expired |

2.1.3.2 Account Status

|  |  |  |
| --- | --- | --- |
| **Contract Status** | **Legacy** | **WAY4** |
| NORMAL (bình thường) | 0 | Account OK |
| Transferred (đóng thẻ có tài sản bảo đảm nhưng giải chấp ngay) | 2 | Account Transfer |
| CLOSED | 3 | Account Close |
| RESERVE (chậm thanh toán T60) | 5 | Account T60 |
| LEGAL (đóng thẻ ko thế chấp) | 6 | Account Legal |
| NON PERFORMING (ngân hàng chủ động khóa) | 8 | Account Non-Perform |

### Product Code

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Product Group** | **Product** | **Type** | **Legacy** | **WAY4** |
| ATM Card | Admin |  | 333 |  |
|  |  | Magnetic |  |  |
|  |  | Magnetic |  |  |
|  |  | Magnetic |  |  |
|  |  | Magnetic |  |  |
|  |  | EMV |  |  |
|  |  | EMV |  |  |
|  |  | EMV |  |  |
|  |  | Magnetic |  |  |
|  |  | Magnetic |  |  |
|  |  | EMV |  |  |
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|  |  | Magnetic |  |  |
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|  |  | Magnetic |  |  |
|  |  | EMV |  |  |
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|  |  | Magnetic |  |  |
|  |  | Magnetic |  |  |
|  |  | Magnetic |  |  |
|  |  | EMV |  |  |
|  |  | EMV |  |  |
|  |  | EMV |  |  |

In WAY4, we will add pre-fix to product code and some post-fix based on level of product of client hierarchy:

P: Pre-fix

L: Liability contract

I: Issuing contract

M: Main card contract/S: Sub card contract

For Example, MC CREDIT GOLD includes 4 levels (Client, Liability, Issuing and card contract) then product code should be:

Liability contract: P004L 🡪 change to P666L (Only one value for Liability)

Issuing contract: P004LI

Main card contract: P004LIM Related card--> P004LIMXY

Sub card contract: P004LIS

### Account Code

We need this for balance

2.1.5.1 Account Code for Credit Card

|  |  |  |
| --- | --- | --- |
| **Account Code** | **Legacy** | **WAY4** |
| Cl Deposit |  | P |
| Open Sale |  | POC\_OS |
| Open Cash |  | POC\_OC |
| Open Sale Fee |  | POC\_OSF |
| Open Cash Fee |  | POC\_OCF |
| Grace Sale |  | POC\_GS |
| Grace Cash |  | POC\_GC |
| Grace Sale Fee |  | POC\_GSF |
| Grace Cash Fee |  | POC\_GCF |
| Grace Sale Interest |  | POC\_GSI |
| Grace Cash Interest |  | POC\_GCI |
| Close Sale |  | POC\_CS |
| Close Cash |  | POC\_CC |
| Close Sale Fee |  | POC\_CSF |
| Close Cash Fee |  | POC\_CCF |
| Close Sale Interest |  | POC\_CSI |
| Close Cash Interest |  | POC\_CCI |
| Close Overlimit |  | POC\_OVL |
| Dispute |  |  |
| Loyalty |  |  |
| OVD Sale |  | OVD00S |
| OVD Cash |  | OVD00C |
| OVD Sale Fee |  | OVD00SF |
| OVD Cash Fee |  | OVD00CF |
| OVD Sale Interest |  | OVD00SI |
| OVD Cash Interest |  | OVD00CI |
| OVD Overlimit |  | OVD\_OVL |
| *Shadow payment due* |  | S\_P\_D |
| *Shadow overdue 00b* |  | S\_OVDb |
| *Shadow overdue 30b* |  | S\_OVD30b |
| *Shadow overdue 60b* |  | S\_OVD60b |
| *Shadow overdue 90b* |  | S\_OVD90b |
| *Shadow overdue 120b* |  | S\_OVD120b |

**2.1.5.2 Account Code for Prepaid Card**

|  |  |  |
| --- | --- | --- |
| **Account Code** | **Legacy** | **WAY4** |
| Cl Deposit |  |  |
| Dispute |  |  |

### Transaction Type

We need this for pending authorization transaction

|  |  |  |
| --- | --- | --- |
| **Transaction Type (**<MsgCode></MsgCode>**)** | **Legacy** | **WAY4** |
| Retail Request (\*) |  | 01000R |
| Cash Request (\*) |  | 01000C |
| Unique Request (\*) |  | 01000U |
| ATM (\*) |  | 01000A |
| Credit (\*) |  | 01000+ |

(\*) when exporting date from legacy system to WAY4, we need sort file by source channel of transaction (Our POS, Napas or Master Acquiring) and then branch code

|  |  |  |
| --- | --- | --- |
| **Channel** | **Code** | **Descriptions** |
| MasterCard (IPM) | E | Authorization from MasterCard |
| JCB | J | Authorization from JCB |
| Napas | b | Authorization from Napas |
| Our POS | P | Authorizations from WAY4 POS |
| Our ATM | A | Authorizations from WAY4 ATM |

We need transaction code for balance migration

|  |  |  |
| --- | --- | --- |
| **Transaction Type (**<MsgCode></MsgCode>**)** | **Legacy** | **WAY4** |
| Balance Migration - Credit |  | MIGRCREDIT |
| Balance Migration - Debit |  | MIGRDEBIT |

## Migration Environment

WAY4 production system will not be used for any testing. A staging system should be used for pre-production testing.

During UAT, all changes made on the test system will be done manually on the production system once the test has passed successfully on the UAT system. This will ensure a stable parameter configuration in the production system.

The following requirements are defined for hardware environments usage:

* Test environment:
  + Active from DD/MM/YYYY
  + Will be used for migration testing by OCB and user acceptance testing by OCB
* Production environment - used as a staging environment for interim purposes. The configuration and management of this system i.e. decision on whether it can be used as a test system in the interim will be the responsibility of OCB.

## Migration Model



|  |  |
| --- | --- |
| **No** | **Steps** |
| 1 | **Performing preliminary actions** |
| 1.1 | Configuring Product in WAY4 system |
| 1.2 | Export PIN data including PAN, PIN OFFSET to table (PIN\_LIST) |
| 1.3 | Run PIN Convert software to convert PIN offset to PIN Block of Way4 |
| 1.4 | Legacy data extraction and XML files creation – static data |
| 1.5 | Import XML file to WAY4 including steps of Advance Application module:  + copy XML file to folder OWS\_WORK\data\rbs\in\  + menu: OpenWay\Advanced Applications\Application Processing\Cardholder XML Application Import  + menu: OpenWay\Advanced Applications\Application Processing\Cardholder Applications - Accept |
| 1.6 | Legacy data extraction and XML files creation – dynamic data |
| 1.7 | Check and approve results – dynamic data |
| 1.8 | **Starting online operations in WAY4** |

File Format scheme



## Migration PIN

### PIN\_LIST table

Below is structure of PIN table for WAY4 and CardWork. Table name is PIN\_LIST

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Column name** | **Data type/length** | **Description** |
| 1 | CARD\_NUMBER | Varchar(100) |  |
| 2 | PIN\_OFFSET | Varchar(100) |  |
| 3 | PIN\_BLOCK | Varchar(100) |  |
| 4 | PIN\_BUFFER | Varchar(100) |  |
| 5 | PIN\_ENCRYPTED | Varchar(100) |  |
| 6 | DOC\_ID | Number(22) |  |
| 7 | OPW\_FLAG | Number(1) | 1/5= new  4/8= done  3/7= error |
| 8 | EBS\_FLAG | Number(1) | 1= new  2= done  3= error |
| 9 | OPW\_DATE | DATE |  |
| 10 | EBS\_DATE | DATE |  |

Rules:

When Bank inserts PIN Offset to this table, it requires inserting data to the fields as CARD\_NUMBER, PIN\_OFFSET and OPW\_FLAG. OPW\_FLAG = 1 if it is for PIN convert only, OPW\_FLAG = 5 if it is for PIN convert and update to Way4’s CARD\_INFO table.

### PIN Translation Algorithm

Algorithm to convert PIN is as below:

* Option 1: Assume that CardWork’s HSM local master key (LMK) is different with WAY4’s LMK
  + Export card number and IBM\_OFFSET pin value to PIN\_LIST(CARD\_NUMBER, PIN\_OFFSET, OPW\_FLAG=1)
  + Connect software to connect to CardWork’s HSM
    - Using EE command (HSM host command) to convert from IBM\_OFFSET to ENCRYPTED\_PIN under EBS’s LMK
    - Using NG command to convert from ENCRYPTED\_PIN to Clear PIN.
    - Clear PIN is updated into PIN\_LIST(PIN\_BUFFER)
  + Switch software to connect WAY4’s HSM
    - Using BA command to convert from Clear PIN to ENCRYPTED\_PIN under WAY4’s LMK.
    - ENCRYPTED\_PIN is updated into PIN\_LIST(PIN\_ENCRYPTED) and OPW\_FLAG=4 as successful.
* Option 2: Assume that CardWork’s HSM local master key (LMK) is as same as WAY4’s LMK is.
  + Export card number and IBM\_OFFSET pin value to PIN\_LIST(CARD\_NUMBER, PIN\_OFFSET, OPW\_FLAG=1)
  + Connect software to connect to CardWork’s HSM
  + Using EE command (HSM host command) to convert from IBM\_OFFSET to ENCRYPTED\_PIN under EBS’s LMK (WAY4’s LMK too)
  + ENCRYPTED\_PIN is updated into PIN\_LIST(PIN\_ENCRYPTED) and OPW\_FLAG=4 as successful.

## Migration Sequence

### Acquiring/Issuing production freeze (CardWork)

Not applicable as this will not be production migration.

### Test migration

While test migration is carried out following steps are to be taken:

1. Exporting migration data from CardWork
2. Importing data exported to WAY4
3. Migrated data is checked with WAY4 procedures
4. Verifying business process (authorizations, financial documents, customer service etc.)

### Migration data export (CardWork)

Migration data is exported from CardWork as per agreed format and schedule. Control data for check procedures is gathered.

### Migration data import (WAY4)

Migration data from previous step is imported to WAY4. Control data for check procedures is gathered. Output of check procedures from CardWork, Integration layer and WAY4 are used by OCB to validate the correctness of the migrated data.

* During the first two days, only static information is migrated:
  + Clients
  + Acquiring contracts
  + Device contracts
* On the next two days, updates on information will take place and creation of new clients is allowed in the legacy system
* On day before Big Bang, no new card issuing is executed
* On BigBang day:
  + Migrate new information creating during the 2/3 days
  + Migrate the rest of information (dynamic data)

### Fallback Procedure

In case there is any discrepancy in the migrated data which is identified during the run of control procedures then the migration will be discarded and a fresh migration should be done. In addition OCB and OpenWay should also analyze the impact of this delay on the overall migration plan.

### Post-conditions

* All functionality of WAY4 is tested
* WAY4 processing of data mirrors the output produced by CardWork
* Files produced are loaded and processed correctly by WAY4
* Integration Layer functionality is tested and approved
* WAY4 configuration on production is current and updated with all changes performed during this phase

# REQE0001 – Debit Card Migration

## Business Requirement

For Debit Card, balance is stored and managed in Core Banking System. Therefore, Bank just need to migrate static data only

## Technical Details

Below is list of XML file to support the migration of static data.

File Mask = XADVAPL001000\_?????.xxx

[XADVAPL = prefix; 001000=branch code (e.g. NMA HO); ?????=sequence number per day; xxx=day-th of year]

|  |  |
| --- | --- |
| **File Number** | **Description** |
| 00001 | Add Client  Add Issuing Contract  Migrated Card Contract  Migrated Card Plastic |
| 00002 | Add Client  Add Issuing Contract  Migrated Main Card Contract/Main card plastic  Migrated Sub Card Contract/Sub card plastic |
| 00003 | Existing Client  Existing Issuing Contract  Migrated Card Contract/Card Plastic |
| 00004 | Existing Client  Add Issuing Contract  Migrated Main Card Contract/Main card plastic  Migrated Sub Card Contract/Sub card plastic |
| 00005 | Existing Client  Existing Issuing Contract  Existing Card - Add Related Card (*link RBS number to existing card*) |

Below is list of XML file to support the basic operations (add/update) of static data after migration period.

File Mask = XADVAPL001000\_?????.xxx

[XADVAPL = prefix; 001000=branch code (e.g. NMA HO); ?????=sequence number per day; xxx=day-th of year]

|  |  |
| --- | --- |
| **File Number** | **Description** |
| 00006 | Add Client  Add Issuing Contract  Add Card Contract  Add Card Plastic |
| 00007 | Add Client  Add Issuing Contract  Add Main Card Contract/Main card plastic  Add Sub Card Contract/Sub card plastic |
| 00008 | Existing Client  Existing Issuing Contract  Add Card Contract/Card Plastic |
| 00009 | Existing Client  Add Issuing Contract  Add Main Card Contract/Main card plastic  Add Sub Card Contract/Sub card plastic |
| 00010 | Existing Client  Existing Issuing Contract  Existing Card - Add Related Card (*link RBS number to existing card*) |
| 00011 | Update Client |
| 00012 | Update information of Issuing Contract/Card Contract |
| 00013 | Change status of Card Contract |
| 00014 | Change status of card by Calling Event |
| 00015 | Move card from client to New/existing client |
| 00017 | Update Temporary Usage |

Below is list of XML file to support the migration of static data. XML balance file is following UFX standard.

File Mask = IIC\_Documents\_0105\_YYYYMMDD\_XXXXX.xml

[IIC\_Documents = prefix; 0105=branch code (e.g. NMA HO); XXXXX sequence number per day]

|  |  |
| --- | --- |
| **File Number** | **Description** |
| 00001 | Authorization Request |

## Sample file

and and 

## Impact Areas

Apply standard Advance Application and Workflow Modules

# REQE0002: Prepaid Card Migration

## Business Requirements

For Debit Card, balance is stored and managed in legacy system. Therefore, Bank just need to migrate static data and dynamic data.

## Technical Details

**Static Data**:

Below is list of XML file to support the migration of static data.

File Mask = XADVAPL001000\_?????.xxx

[XADVAPL = prefix; 001000=branch code (e.g. NMA HO); ?????=sequence number per day; xxx=day-th of year]

|  |  |
| --- | --- |
| **File Number** | **Description** |
| 00001 | Add Client  Migrated Card Contract  Migrated Card Plastic |
| 00002 | Existing Client  Migrated Card Contract/Card Plastic |

Below is list of XML file to support the basic operations (add/update) of static data after migration period.

File Mask = XADVAPL001000\_?????.xxx

[XADVAPL = prefix; 001000=branch code (e.g. NMA HO); ?????=sequence number per day; xxx=day-th of year]

|  |  |
| --- | --- |
| **File Number** | **Description** |
| 00003 | Add Client |
| 00004 | Add Client  Add Card Contract/Card plastic |
| 00005 | Existing Client  Add Card Contract/Card Plastic |
| 00006 | Update Client |
| 00007 | Update information of Card Contract |
| 00008 | Change status of Card Contract |
| 00009 | Change status of card by Calling Event |
| 00010 | Move card from client to New/existing client |

**Dynamic Data**:

Below is list of XML file to support the migration of static data. XML balance file is following UFX standard.

File Mask = IIC\_Documents\_0105\_YYYYMMDD\_XXXXX.xml

[IIC\_Documents = prefix; 0105=branch code (e.g. NMA HO); XXXXX sequence number per day]

|  |  |
| --- | --- |
| **File Number** | **Description** |
| 00001 | Authorization Request |
| 00002 | Payment from Contract |
| 00003 | Payment to Contract (Prepaid balance) |
| 00004 |  |
| 00005 |  |

## Sample file

and 

## Impact Areas

Apply standard Advance Application and Workflow Modules; and IC Document import

# REQE0003: Credit Card Migration

## Business Requirement

For Debit Card, balance is stored and managed in legacy system. Therefore, Bank just need to migrate static data and dynamic data.

## Technical Details

**Static Data**:

Below is list of XML file to support the migration of static data.

File Mask = XADVAPL001000\_?????.xxx

[XADVAPL = prefix; 001000=branch code (e.g. NMA HO); ?????=sequence number per day; xxx=day-th of year]

|  |  |
| --- | --- |
| **File Number** | **Description** |
| 00001 | Add Client  Add Liability Contract  Add Issuing Contract  Migrated Card Contract  Migrated Card Plastic |
| 00002 | Add Client  Add Liability Contract  Add Issuing Contract  Migrated Main Card Contract/Main card plastic  Migrated Sub Card Contract/Sub card plastic |
| 00003 | Existing Client  Existing Liability Contract  Existing Issuing Contract  Migrated Card Contract/Card Plastic |
| 00004 | Existing Client  Add Liability Contract  Add Issuing Contract  Migrated Main Card Contract/Main card plastic  Migrated Sub Card Contract/Sub card plastic |
| 00005 | Existing Client  Existing Liability Contract  Add Issuing Contract  Migrated Main Card Contract/Main card plastic  Migrated Sub Card Contract/Sub card plastic |

Below is list of XML file to support the basic operations (add/update) of static data after migration.

File Mask = XADVAPL001000\_?????.xxx

[XADVAPL = prefix; 001000=branch code (e.g. NMA HO); ?????=sequence number per day; xxx=day-th of year]

|  |  |
| --- | --- |
| **File Number** | **Description** |
| 00006 | Add Client  Add Liability Contract  Add Issuing Contract  Add Card Contract  Add Card Plastic |
| 00007 | Add Client  Add Liability Contract  Add Issuing Contract  Add Main Card Contract/Main card plastic  Add Sub Card Contract/Sub card plastic |
| 00008 | Existing Client  Existing Liability Contract  Existing Issuing Contract  Add Card Contract/Card Plastic |
| 00009 | Existing Client  Add Liability Contract  Add Issuing Contract  Add Main Card Contract/Main card plastic  Add Sub Card Contract/Sub card plastic |
| 00010 | Existing Client  Existing Liability Contract  Add Main Card Contract/Main card plastic  Add Sub Card Contract/Sub card plastic |
| 00011 | Update Client |
| 00012 | Update information of Issuing Contract/Card Contract |
| 00013 | Change status of Card Contract |
| 00014 | Change status of card by Calling Event |
| 00017 | Update Temporary Usage |
|  |  |

**Dynamic Data**:

Below is list of XML file to support the migration of static data. XML balance file is following UFX standard.

File mask = IIC\_Documents\_0105\_YYYYMMDD\_XXXXX.xml

[IIC\_Documents = prefix; 0105=branch code (e.g. NMA HO); XXXXX sequence number per day]

|  |  |
| --- | --- |
| **File Number** | **Description** |
| 00001 | Authorization Request |
| 00002 | Payment from Contract (debit balance) |
| 00003 | Payment to Contract (credit balance) |
| 00004 | Payment from Contract (Minimum Due Amount) |
| 00005 |  |

## Sample file

 and and 

## Impact Areas

Apply standard Advance Application and Workflow Modules ; and IC Document import

# REQE0004: ATM Migration

## Business Requirement

Bank need to migrate static data of ATM contract including:

ATM contract static data

ATM service card static data

## Technical Details

**Static Data:**

Below is list of XML file to support the migration of static data.

File Mask = XADVAPL001000\_?????.xxx

[XADVAPL = prefix; 001000=branch code (e.g. NMA HO); ?????=sequence number per day; xxx=day-th of year]

|  |  |
| --- | --- |
| **File Number** | **Description** |
| 00001 | Add Client  Add Acquiring Contract  Add ATM Contract  Migrated Admin Card Plastic |

## Sample file



## Impact Areas

Apply standard Advance Application and Workflow Modules

# REQE0005: POS Migration

## Business Requirement

Therefore, Bank just need to migrate static data of merchant.

## Technical Details

**Static Data**:

Below is list of XML file to support the migration of static data.

File Mask = XADVAPL001000\_?????.xxx

[XADVAPL = prefix; 001000=branch code (e.g. NMA HO); ?????=sequence number per day; xxx=day-th of year

|  |  |
| --- | --- |
| **File Number** | **Description** |
| 00001 | Add Client  Add Main Acquiring Contract  Add Acquiring Contract  Migrate POS Contract |
|  |  |

## Sample file



## Impact Areas

Apply standard Advance Application and Workflow Modules

# REQE0006: ACS Migration

## Business Requirement

Phase 2 will discuss in detail.

## Technical Details

## Impact Areas

Apply standard Advance Application and Workflow Modules

# REQE0007: Keys Migration

## Business Requirement

Nam A will key-in manually for issuing and acquiring into WAY4 system.

Issuing Key:

CVK, PVK, TC Master Key, MAC Master Key, Encrypted Master key, Zone PIN key.

Acquiring Key:

TMK, TPK, TAK

Connection Keys on switch:

CHANNEL\_ZPK, CHANNEL\_AWK, CHANNEL\_IWK.

## Technical Details

GUI based functions allows end-user to key-in the keys

# REQE0008 Instalment Migration

## Business Requirement

Migration will be done for all the portions of an instalment plan and consider all the billed portions as paid.

**Notes:**

* No calculations will be done by WAY4 for existing loans/instalments
* To avoid rounding problems, the capital needs to be migrated
* Need an identifier for Instalment Scheme (to define the type of Instalment Product)

## Technical Details

**Interface for migrating from Legacy System to WAY4:** Custom interface

A custom interface will be used for migration of instalments. The structure of this interface is given below. The file will contain only details records i.e. there will be no header and trailer record in the file.

Full Instalment Plan will be migrated to WAY4.

Each migrated instalment plan should be presented by the following consecutive row types:

* Row Type “IP” corresponds to general information about instalment plan.
* Row Type “IS” corresponds to particular portion from the schedule (both that were already posted and not). Number of “IS” rows should be the same as number of months in schedule.

In WAY4 each instalment portion record contains information about current status (PAID, OVD, OPEN, WAITING, etc.). It was agreed to use the following algorithm of loading instalment portions:

* Portions that have been already paid in CardWork should be loaded with ‘PAID’ status
* Portions that will be posted in WAY4 after migration should be loaded with ‘WAITING’ status
* We will not load portions with any other status
* Balance that is loaded to the bucket ‘Total Principal Instalment’ should be equal to the total principal amount of the portions with ‘WAITING’ status

### Instalment Plan - Record Type = “IP”

The message fields are as follows.

| Field No | Field Name | Format/ Size | M/O/C | Description |
| --- | --- | --- | --- | --- |
|  | Row Code | AN(2) | M | Fixed value – “IP” |
|  | Row Number | N(7) | M | Row number of record in the file |
|  | Product Level IC Number | AN(20) | M | Product Level Issuing Contract Number |
|  | Instalment Scheme | AN(14) | M | Instalment Scheme Code (from product catalogue) |
|  | Currency | AN(3) | M | Fixed Value – “704” |
|  | Creation Date | DT(8) | M | Date of loan creation. Format YYYYMMDD |
|  | Effective Date | DT(8) | M | First day when instalment portion was posted |
|  | Due Date | DT(8) | M | Due Date of the last portion |
|  | Transaction Details | AN(20) | M | Details of original transaction that will be displayed in statement when instalment portion is posted |
|  | Total invoice amount | N(18) | M | Total Amount that customer will finally pay (includes principal, interest, interest stamp duty, ISUC, Initial fee) |
|  | Additional Info | AN(50) | M | MIGRATION\_MODE=Y; |
|  | Paid Principal Amount | N(18) | M | Paid loan amount |
|  | Interest Amount | N(18) | M | Total Interest amount that customer will pay finally |
|  | Paid Interest Amount | N(18) | M | Paid Amount if interest |
|  | Interest Stamp Duty | N(18) | M | Total Interest Stamp Duty will pay finally |
|  | Paid Interest Stamp Duty | N(18) | M | Paid Amount of Interest Stamp Duty |
|  | ISUC | N(18) | M | ISUC amount |
|  | Paid ISUC | N(18) | M | Paid amount of ISUC |
|  | Initial Fee | N(18) | M | Initial Fee amount |
|  | Paid initial fee | N(18) | M | Paid amount of initial fee |
|  | Initial Fee Stamp Duty | N(18) | M | Initial Fee Stamp Duty amount |
|  | Paid Initial Fee Stamp Duty | N(18) | M | Paid amount of Initial Fee Stamp Duty |

### Instalment Plan - Record Type = “IS”

The message fields are as follows.

| Field No | Field Name | Format/ Size | M/O/C | Description |
| --- | --- | --- | --- | --- |
|  | Row Code | AN(2) | M | Fixed value – “IS” |
|  | Row Number | N(7) | M | Row number of record in the file |
|  | Instalment Scheme | AN(14) | M | Instalment Scheme Code |
|  | Currency | AN(3) | M | Fixed Value – “704” |
|  | Sequential Number | AN(3) | M | Portion number |
|  | Number of months | AN(3) | M | Total number of portions. This should always be fixed value for all IS records of a IP record |
|  | Creation Date | DT(8) | M | Date of loan creation in format YYYYMMDD |
|  | Effective Date | DT(8) | M | Date when portion is posted to issuing contract in format YYYYMMDD |
|  | Due Date | DT(8) | M | Same as due date of revolving credit card + 1 day in format YYYMMDD |
|  | Principal Amount | N(18) | M | Portion Principal Amount |
|  | Interest Amount | N(18) | M | Portion Interest amount |
|  | Interest Stamp Duty | N(18) | M | Portion Interest Stamp Duty |
|  | ISUC | N(18) | M | Portion ISUC  (applicable to 1st portion only) |
|  | Initial Fee | N(18) | M | Portion Initial Fee  (applicable to the 1st portion only) |
|  | Initial Fee Stamp Duty | N(18) | M | Initial Fee Stamp Duty amount  (applicable to the 1st portion only) |
|  | Status | AN(8) | M | Status of portion. All future instalment – “WAITING”, all instalments that were already posted “PAID” |
|  | Additional Info | AN(50) | M | MIGRATION\_MODE=Y; |

## Impact Areas

For migrated instalments it not is possible to perform the following actions:

* It will not be possible to do technical reversal for migrated instalments since we do not migrate transactions that created the instalment plan

# Migration Testing

## Test Process

Before running the live migration the same actions (as per plan below) should be done on test systems with measuring the time required for each task and correcting the migration schedule accordingly.

Test migration is done on test system which contains the fresh copy of production system (with all objects, not only setup).

Test migration will also be used to develop methodology and scripts for migrated data reconciliation. Normally there should be set of select queries to be run in two systems and then automatic comparing of the resulting files.

The following testing process is defined. This will need to take place before the 1st stage of the migration:

* Extraction process validation – Testing of extraction of data from legacy system. This will identify any issues related to the data extracted, and correct them before the actual migration of the data to WAY4.
  + Responsible Teams:
    - OCB: Responsible party for production of report identifying issues related to data extraction
    - OCB: Responsible party for correction of errors identified in the report
* Data Transformation validation – Testing of data transformations from legacy system to WAY4 structures and tables. The process will validate the correct mapping of the legacy system fields to the corresponding WAY4 database table fields. A comparative report will be produced identifying issues related to data mapping.
  + Responsible Teams:
    - OCB: Responsible party for production of report identifying issues related to data mapping
    - OCB: Responsible party for correction of errors identified in the report
* File Production validation – Testing of files produced for data import to WAY4. The process will validate the files generated and produce a report identifying any errors in the files.
  + Responsible Teams:
    - OCB: Responsible party for generation of files as per agreed format in OW standard formats and reports for the result. Files will be provided to OCB and OCB will load the file into WAY4 with OW support in case of issues
    - OCB: Responsible party for uploading the files into WAY4 and validation of the data imported
    - OpenWay: Responsible party for support related to issues observed during this testing
* Performance Testing – Testing integrated system performance. The process will validate the time it takes for the migration process to execute and produce a report identifying issues related to performance.
  + Responsible Teams:
    - OCB: Responsible party for generation of files and reports and validate if the time allocated for migration is enough
    - OCB: Responsible party for uploading the files into WAY4 and validation of the data imported
    - OpenWay: Responsible party for support related to issues observed during this testing and validate if the time allocated for migration is enough
* Final validation – Testing of the migration process defined.
  + Responsible Teams:
    - OCB: Responsible party for migration execution up to the xml file creation and respective control process creation (database and scripts)
    - OCB: Responsible party for validation of data imported into WAY4
    - OpenWay: Responsible party for support related to issues observed during this testing

In case the validation revealed that test migration failed to transfer all data correctly, changes should be made to migration scripts, the test systems should be setup again as a copy of production and new test migration should be run.

Production migration should only be planned when test migration was considered successful.

## Control Procedures

OCB will provide the SQLs which need to be run on the legacy CardWork system (IL ETL extract). OW will provide SQL queries for corresponding to all output requirements defined from WAY4 in order to help in comparison of input Vs output. Validation should be done by OCB based on SQL output given by OpenWay and OCB. The following validations (based on SQL queries) will be performed:

1. List of clients including NIF and name [table: client]
2. Total number of contracts per product/status [table: acnt\_contract]
   * Super-holding
   * Holding
   * Sub-holding
   * Company
   * Store
   * Terminal (i.e. ATM, POS etc)
   * Device
   * Banks
   * Branch
3. Open balance per contract , per account, including contract product and IBAN (sum of all migrated transactions) [table: acnt\_contract, account]
4. Total of cards/BINs in stop list [table: card\_stop\_list and unres\_bin]
5. Total of cards/BIN in paper stop list [table: card\_stop\_list and unres\_bin]
6. Total of cards/BIN in low value stop list [table: card\_stop\_list and unres\_bin]
7. Total of authorizations [table: doc]
8. Tariffs by contract [table: tariff\_domain] [table: tariff\_data] [table: tariff]

# Risk and Mitigation Actions

The following risk items are identified:

|  |  |  |  |
| --- | --- | --- | --- |
| **Category** | **RISK** | **Mitigation Action** | **Plan Phase** |
| Medium Risk | Incompatibility between information or data types in the two systems. The incompatibility can be in both ways, since in the acquiring / issuing phase WAY4 will generate information to be loaded in the legacy system. | An exhaustive analysis of both systems and an early phased mapping to detect as soon as possible eventual incompatibilities. | Vision |
| Medium Risk | The inexistence of interfaces to migrate the information from legacy system to WAY4. | In case of this scenario the creation of interfaces or the manual input of information into WAY4, should be considered. | Plan & Design |
| Medium Risk | The absence of information in the legacy system to build a concept in WAY4. | Soon identify those absences by thoroughly analysing both systems. | Plan & Design |
| Low Risk | The need to change the WAY4 system due to instability in the interfaces developed to load information and since some are custom interfaces for this project, there is a bigger effort on testing. | If these changes will affect the transformation or generation of the XML they can propagate the delay and should be communicated as soon as possible. | Build & Deliver |
| Low Risk | Delay in WAY4 implementation and, consequently, delay in WAY4 availability to production environment. | OCB will build the XML files according to OpenWay specifications. The impact of this delay should not have impact in migration initiative. | Build & Deliver |