Discovery Report

OCB

Samsung Pay NAPAS Implementation

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# Introduction

## Purpose/Scope

**OCBank** has a stated intention to begin implementation of HCE (Host Card Emulation) solution to their banking customers, to supplement their market offering.

The solution would consist in implementing NAPAS TOKENIZATION SERVICE using 3rd party wallet Samsung Pay).

A Discovery is conducted to define the configuration, enhancement, customization, processes and testing that are required in order to implement the solution.

OpenWay has prepared this report to consolidate the current understanding of the business and operational environment and system functionality required by OCBank. The costing and project development schedule is outside the scope of this document and will be delivered separately as part of the Discovery process.

## Review/Concurrence information/Discovery Review Acceptance

This Discovery Report will be reviewed by both **OCBank** and **OpenWay** specialists involved in the Project.

## Structure and use

### Discovery Report Contents

This Discovery Report sets out the details of the project which must be agreed by the parties in order for the system to be prepared, including:

Introduction

System Configuration

Enhancements

Customizations

Processes

Appendices

List of deliverables

Please note that this report concentrates upon the configuration and enhancement of OpenWay standard software, in accordance with **OCBank** requirements. The standard functionality of OpenWay systems are provided in the relevant Manuals.

The OpenWay Solution sections from each requirement do not represent a commitment from OpenWay that it will be implemented as such. These are present for informational use only, providing preliminary information about the expected implementation.

## Disclaimer

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

## Abbreviations and terms

The table below provides descriptions of all abbreviations and terms used further in this document:

|  |  |
| --- | --- |
| Abbreviation | Description |
| FI | Financial Institution |
| H2H | Host-to-Host |
| NAPAS | Nation Payment Network |
| NS | NetServer |
| OW | OpenWay |
| OCB | OCBank |
| TS | Transaction Switch |
| WS | Web Service(s) |
| TnC | Term and Condition |
| TSP | NAPAS Tokenization Service Provider |

# Project Overview

## Introduction

Within the proposed WAY4 Digitization Solution, OpenWay will support passive virtualization using NAPAS Tokenization Service through the existing WAY4 platform.

The scope is limited to support NAPAS TSP for OCB Domestic issued cards (managed on the WAY4 platform). Other cards not present on the WAY4 platform are considered as out of scope.

Additional requirements not directly implementing NAPAS TSP like reporting and risk analysis/velocity checks are also considered as out of scope except when explicitly mentioned in a requirement.

Changes to interfaces interacting between WAY4 and any other application besides Domestic Cards NAPAS TSP are currently considered as out of scope except when explicitly mentioned in a requirement.

This project only covers for Back End NAPAS TSP support in the scope of Samsung Pay. All other 3rd-Party wallets and any Issuer Branded wallets are currently considered as out of scope except when explicitly mentioned in a requirement.

Any requirement related to other FI, not described in the current Discovery Report, is currently considered as out of scope except when explicitly mentioned in a requirement.

High level scope description:

Online NAPAS TSP digitization

Authorizing NAPAS TSP digital payments

Reconciliation NAPAS TSP digital payments

NAPAS TSP Card Lifecycle Management through WS outcome request

Integration with 3rd Party wallet “Samsung Pay”

# Architecture

From a WAY4 point of view, two main components play a role in NAPAS processing:

1. WAY4Cards
2. WAY4 Transaction Switch

General scheme of interaction between VTS and WAY4



## WAY4Cards

The current WAY4Cards version installed at **OCBank** is ***03.??.30.??***

## WAY4 Transaction Switch

WAY4 Transaction Switch is considered as the next generation NetServer; an online switch component to process and route authorizations (API/ISO)

For interaction with NAPAS TSP ensure Transaction Switch must have NAPASAdapter TSP web services.

H2HNAPAS is host to host adapter responsible for processing ISO message

NAPASAdapter adapter responsible for processing the following NAPAS TSP Web services:

Card enrollment and verification:

* Verify Enrollment (header.operation: CHECK\_ELIGIBILITY) - POST ISSUING\_BANK\_URL/v1/enrollments
* Select Activation Method (header.operation: SELECT\_ACTIVATION\_METHOD) - POST ISSUING\_BANK\_URL/v1/tokens/<token.reference>
* Verify Authentication Code (header.operation: VERIFY\_AUTHENTICATION\_CODE) - PUT ISSUING\_BANK\_URL/v1/tokens/<token.reference>
* Token Status Change Notification - POST ISSUING\_BANK\_URL/v1/notification

Token lifecycle management:

* Update Token Status
* Token Disposal
* Token Replenishment

# Detailed requirements

## Testing

OCBank has requested the following testing procedures to be applied in scope of this project.

Testing approach described in this document relates to this project’s features, and does not relate to the testing of core functionalities performed by OpenWay R&D or Q&A departments.

### Components Testing

This testing procedure will consist in basic testing of the components that will be delivered during the project.

Test cases and test reports will be provided for each requirement.

Each requirement further in this document will get description of testing foreseen for that requirement.

This will be handled by OpenWay

### Regression Testing

This testing procedure is currently out of scope of the project, and will be handled by OCBank.

### Acceptance Testing

This testing procedure is currently out of scope of the project, and will be handled by OCBank.

### Performance Testing

This testing procedure is currently out of scope of the project, and will be handled by OCBank.

## NAPAS TSP

NAPAS TSP will be used for digital payments for the following BINs:

* BIN
* BIN

### NAPAS TSP Digitization

This section provides a technical description of the WAY4 solution concerning the creation of a digital, tokenized version of a physical card and delivering this to a mobile device.

The following steps in the process will be described.

* Issuer Enablement Service
* WAY4 Authentication Scheme (NAPAS\_CARD) and Contract Subtype
* Card Eligibility
* Step-Up Verification: CVM and OTP
* Request Change Notification
* Request “Get Token Summary” get details of Token activated at NAPAS

#### Issuer Enablement Service

As part of the “Issuer Enablement Service”; OCBank will have to fill-in to NAPAS’s Boarding Form SamsungPay.

After that submit TnC (Term and Condition) and CardArt to NAPAS for process enablement service.

#### Matching incoming request → messages to WAY4Card

The table below describes all the messages involved in [token generation and provisioning](https://wiki/pages/viewpage.action?pageId=93428931)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sender | Recipient | A Type | Type of Message | Additional field for analysis | Document Type Way4Card |
| NAPAS | BANK | WebService | Verify Enrollment | header.operation=CHECK\_ELIGIBILITY | TKN\_ELIGIBILITY |
| NAPAS | BANK | WebService | Select Activation method | header.operation=  SELECT\_ACTIVATION\_METHOD | TKN\_ACTIVATION\_CODE |
| NAPAS | BANK | WebService | Verify Authentication Code | header.operation= VERIFY\_AUTHENTICATION\_CODE | TKN\_COMPLETE |
| NAPAS | BANK | WebService | Token Status Change Notification | status.code must be one of: PENDING, ACTIVE, SUSPENDED, RETIRED |  |

#### WAY4 Authentication Scheme

Context

WAY4 Authentication Scheme is the main configurable object in the NAPAS Digitization process. It allows to create a template defining parameters which can be assigned to an object linked to a Contract (in this case a Token).

Business Requirement

WAY4 has to be configured in order to allow tokenization messages processing.

The parameterization should be performed on a Product Level, as different PAN within a same FI may require different tokenization setup (e.g. Maximum Tokens linked to PAN)

OpenWay Solution

To support NAPAS TSP a WAY4 Authentication must be created with code NAPAS\_CARD.

Newly created Tokens will use the WAY4 Authentication Scheme as a template.

Main parameters which should be configured on the NAPAS\_CARD Authentication Scheme are:

* VAN\_MIN & VAN\_MAX
* TAN\_MIN & TAN\_MAX
* MAX\_TOKENS
  + Allows to limit number of tokens linked to PAN during Digitization request
* F\_CLOSABLE
* AUTH\_FAM
* EXP
  + Keeps track of the Token Expiry Date
* APP\_TYPE
* F\_ENABLED
  + Keeps track of the Token Status (Ready/Not Ready)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Name** | **Code** | **Default Value** | **Is Global** | **Is Mandatory** | **Parm Type** | **Description** |
| Tokens Min | VAN\_MIN | 99999900000000000 | Yes | Yes | Decimal | Min token range border |
| Tokens Max | VAN\_MAX | 999999999999999999 | Yes | Yes | Decimal | Max token range border |
| Tokens Limit | MAX\_TOKENS | 10 | Yes | No | String | Max token number per card |
| Token Availability | F\_ENABLED | No | No | No | Boolean | Token availability for auth |
| Token Status | T\_STATUS | Inactive | No | No | String | Token status |
| Closable | F\_CLOSABLE | Yes | Yes | Yes | Boolean | Identification scheme status |
| Expiration Date (YYMM) | EXP |  | No | No | Decimal | Token EXP date (YYMM) |
| Authentication Family | AUTH\_FAM | MULTI | Yes | No | String | System parameter |
| Application Type | APP\_TYPE |  | No | No | String | Wallet provider code |
| PAN Reference ID | PAN\_REF\_ID |  | No | No | Decimal | PAN Reference ID |
| Token requestor ID | TOKEN\_REQ\_ID |  | No | No | Decimal | Token requestor ID |
| Token Reference ID | TOKEN\_REF\_ID |  | No | No | Decimal | Token Reference ID |
| Primary Account Number Source | PRIM\_ACC\_NUM |  | No | No | String | Primary Account Number Source |
| Device type | DEV\_TYPE |  | No | No | String | Device type |

#### Contract Subtype

Business Requirement

The Authentication Scheme has to be configured on a Product Level.

This allows different Tokens setup (e.g. maximum tokens per PAN) from within a same FI.

OpenWay Solution

The Authentication Scheme Code has to be linked to a Contract Subtype

#### Tokenization Eligibility Check

Context

A cardholder will initiate the Digitization request on their mobile device where he will enter:

* Physical card number
* Expiry date

The Wallet Provider (mobile application) will communicate to NAPAS TSP to perform further Eligibility checks.

NAPAS offers following methods:

* WebService/API – Check Eligibility Request/Response WS

The above are all supported by WAY4. It is mandatory to implement one of the above options

#### Account Verification Message (AVM)

Introduction

AVM will be implemented. It provides the Issuer with the opportunity to approve or decline the Digitization request.

OpenWay Solution

WAY4 only supports income web service request for AVM.

**Channel**

AVM web service request will be supported according to NAPAS TSP specifications. The income request will be supported within the NAPASAdapter Transaction Switch channel.

**RC**

WAY4 supports response codes;

* Approve (DE39 = 00)
* Decline (DE39 = 05)

Configuration of “Approve” or “Decline” can be performed on Product level.

**Database Entries**

DOC table with Source Code TKN\_ELIGIBILITY.

Information present in DOC.ADD\_INFO:

* Tag D\_TKN
  + Token Number

Information present in DOC.REASON\_CODE: N/A

AVM request will also create a token entry (based on WAY4 Authentication Scheme); token will be created in a “Not Ready” status.

**Authorization/Digitization checks**

Standard WAY4 Authorization checks are performed (e.g. PAN exists, PAN contract status check).

Missing mandatory Token specific information on AVM message would result in a WAY4 decline/error.

More advanced checks are currently not supported and can be considered as out of scope.

Custom checks or processes could be created on customer request but are currently considered out of scope.

More advanced Digitization Risk Analysis is currently not supported.

NOTES:

In case a functionality is not listed in this Technical Proposal document; it is considered as out of scope.

**Delivery**

OpenWay will deliver;

* Additional Online Service setup
* RC “Approve” or “Decline” product setup

#### Step-Up Verification and Issuer Authentication

Context

Step-Up Verification is mandatory for certain Wallet Providers (e.g. Apple Pay…) but is not available for Issuer-branded Wallets.

Step-Up Verification defines the means on how to further authenticate a cardholder in case a Third-Party Wallet Provider is used. NAPAS TSP proposes several options;

* process the token ID&V from their devices: One-Time Passcode (OTP via Web Service API)
* process the token ID&V through issuing bank branches or channels

WAY4 currently supports “One-Time Passcode (OTP via Web Service API)”; which is implemented through two Web Service API:

* Get Cardholder Verification Methods Request/Response WS
* Verify OTP Request/Response WS

#### Select Activation Methods Request/Response WS

**Introduction**

The Step-Up Verification message is required when Cardholder select activation method through a Third-party Wallet.

This message is processed through Web Service Select Activation method, processed by TS NAPASAdapter.

In such case, the Issuer must provide possible activation methods (OTP SMS, OTP Email)

**WAY4 Solution**

WAY4 allows configuration of the activation methods on a Global, FI, or Service Pack level (meaning, from a Product level).

Only the Product-level configuration (SIX requirement) will be described here below.

Whenever receiving this message, WAY4 performs the following verification:

* Provided Token number is within the configured range in Authentication Scheme
* Provided Token number does not already exist
* Maximum number of authorized Tokens has not already been reached

If one of those verification fails, the system will return Error Code value as per NAPAS TSP specifications.

If the verification is successful, Action Code = 00 and one OTP will be sent to Samsung device of cardholder (by sms or email)

#### Verify Authentication Code Request/Response WS

**Introduction**

The Issuer Authentication message is required when Cardholder has to authenticate himself through a Third-Party Wallet.

This message is processed through Web Service Verify Authentication Code request, processed by TS NAPASAdapter.

**WAY4 Solution**

The following NAPAS Web Services are supported by Transaction Switch adapter NAPASAdapter:

* Verify Enrolment Request
* Select Activation Method Request
* Verify Authentication Code Request
* Token Status Change Notification Request

This adapter must be present in Transaction Switch installation on Application Server ( <APPSERVER>/applications/<TS\_APP\_NAME>/webapps/<TS\_APP\_NAME>/WEB-INF/conf/NAPASAdapter.s.xml and <APPSERVER>/applications/<TS\_APP\_NAME>/webapps/<TS\_APP\_NAME>/WEB-INF/conf/AsService.s.xml )

Once this adapter is configured and up & running, it is able to accept incoming requests from NAPAS TSP network.

When a request is received, it is converted in internal dialect and processed by WAY4 as any other Additional Online Service.

The Routing adapter of Transaction Switch must be configured so that messages coming from NAPASAdapter are processed through Transaction Switch.

**Delivery**

Configuration NAPASAdapter.s.xml and AsService.s.xml

Configuration routing service

In order for the Transaction Switch to process messages coming from NAPASdapter, the following line must be added in Routing.s.xml:

|  |
| --- |
| <rule sourceService="NAPASAdapter" protocol="iss\_fp" tags="\*" targetAddress="AuthServ"  name="test NAPAS" /> |

#### Token Status Change Notification

After verify Activation Code successful, NAPAS will sent to issuer Notification inform that token status had been change from PENDING to ACTIVATE

Status.code must be one of: PENDING, ACTIVE, SUSPENDED, RETIRED

#### ACITIVATE Issuer Token Notification Request

**Introduction**

NAPAS sent Token Status Change Notification after verify Activation Code request successful, status.code in request must be ACTIVE

WAY4 supports Token Status Change Notification request.

**WAY4 Solution**

Way4 support token status change notification request, following suggest from NAPAS once received this request Bank will perform “Get Token Summary” for get more information of Token from NAPAS.

**Channel**

The Request message will be supported within the NAPASAdapter Transaction Switch channel.

**RC**

This operation does not return any property in body payload.

**Database Entries**

**Authorization/Digitization checks**

**Delivery**

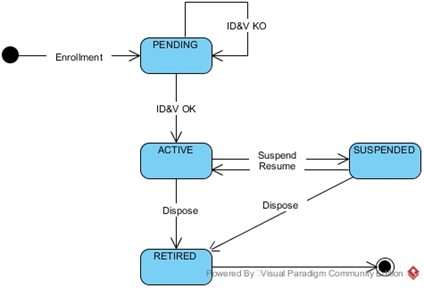
OpenWay will deliver;

Additional Online Service TKN\_EVENT setup

### NAPAS TSP Lifecycle Management

NAPAS token can stay in 4 state: PENDING, ACTIVATE, SUSPENDED, RETIRED

NAPAS TSP system provides the API for update status and dispose the token. Although all  
parties (Token Requestor and Card Issuing Bank) can request for token status update, the request  
from card issuing bank takes the highest priority. This rule means:  
- If token status in ACTIVE status, any parties can request for token status update (suspend  
or dispose)  
- If token status in other state than ACTIVE:  
o If the last request to make the token status being other than ACTIVE was sent  
from Card Issuing Bank, only requested Bank can make the token status update  
12  
(to ACTIVE or RETIRED). Any request from Token Requestor or another parties  
will be declined and TSP will return error code 401.03 – Invalid Access  
Token

Way4 support outcome request following NAPAS API specification for request update token status to NAPAS.

#### NAPAS TSP Token Management

NAPAS TSP provides Issuers API to manage NAPAS Tokens;

* NAPAS API/Web Service Integration

#### WAY4 CSS

Although NAPAS TSP manages the Token, WAY4 can provide limited information to assist OCBank with customer service.

Following data will be present in WAY4:

* DOC
  + Digitization Request
  + Lifecycle management Request
  + Transaction processing messages
* Token information
  + Token with status “Ready” or “Not Ready”

All DOC entries will be visible in already existing and used DOC screens; or present in the DOC overview sub-screens of the standard CSS screens.

Standard screens will be available showing Token information (not integrated with standard CSS screens).

No additional customizations or enhancements are foreseen to standard screens or existing CSS.

### NAPAS TSP Digital Payment

The following section on NAPAS TSP Digital Payments will provide a technical description of the WAY4 solution concerning Token transactions.

NAPAS TSP Digital Payment can occur in a contactless way either at a physical terminal (see section NAPAS TSP POS Processing Data).

The following items will be described:

* Acquiring and On-Us Transactions (Authorization and Clearing)
* Authorization: NAPAS TSP POS Processing Data

Clearing: Reconciliation NAPAS Digital Payments

#### Acquiring and On-Us Transactions (Authorization and Clearing)

Acquiring of NAPAS TSP transactions does not require any changes to WAY4.

An authorization message will be processed using a Token instead of a PAN.

Based on standard WAY4 NAPAS BIN Table routing; this Token will be identified as a “NAPAS” and as such routed towards NAPAS online channel.

NAPAS will replace Token with the PAN information and forward the authorization message towards the Issuer. For On-Us transactions; the message will now come in just like any other message coming from a different acquirer.

DOC.ADD\_INFO tags present on NAPAS Authorization will be present as well on the clearing document if authorization and clearing are correctly matched.

#### Authorization: NAPAS TSP POS Processing Data

NAPAS TSP POS Processing Data transactions are mobile payments made at a physical merchant terminal which is then processed through the NAPAS solution.

WAY4 supports NAPAS TSP POS-based Contactless Transactions.

Introduction

OCBank will process POS-based Contactless Transactions through NAPAS TSP.

Way4 Solution

**Channel**

NAPAS TSP POS-based transactions will be supported according to NAPAS specifications. The ISO message would be supported within the H2HNAPAS Transaction Switch channel.

**RC**

No special NAPAS logic has to be implemented

**Database Entries**

Every incoming NAPAS TSP POS-based transaction will result in an entry in DOC table similar to current Contactless transactions DE22=911 which are already being processed.

Information present in DOC.REASON\_CODE: N/A

**Authorization/Digitization checks**

NAPAS will perform the main security checks and will forward a modified message to WAY4.

WAY4 will additionally validate the transaction with basic authorization checks (similar to checks performed for a Key Entry transaction).

Delivery

WAY4 Transaction Switch updated H2HNAPAS channel (already delivered as part of another requirement) will cover all changes required for NAPAS Contactless Transaction processing.

No delivery will be provided for this requirement.

Consultancy will be provided through the Customer Support Mailbox.

#### Clearing: NAPAS Digital Payments

Introduction

OCBank will reuse exist reconciliation processing with NAPAS.

Way4 Solution

**NAPAS Reconciliation processing**

With ONUS transactions NAPAS will sent both record for message in and message out in clearing file sent to Bank.

With ACQ OFFUS transactions NAPAS sent only one record to Bank in clearing file.

## Wallet Providers

### Samsung Pay

Business Requirement

Samsung Pay Wallet will be used by OCBank customer.

OpenWay should support and provide all necessary configuration for managing this wallet.

OpenWay Solution

WAY4 supports NAPAS TSP messages from Samsung Pay wallet.

Necessary configuration instructions (Service Pack) will be provided

## Case and Dispute Management

Case and Dispute processes for Digital Payment transactions will follow the exact same process as for any non-Token transaction.

Therefore, there is no specific implementation to be performed in scope of the current project.

## Usage Limiters

It is important to understand that existing (non-Token-specific) Usage Limiters for e.g. authorization will in general keep on working for Token authorizations.

Token authorizations follow the exact same WAY4 authorization process (only with some additional Token-specific checks on top) and as such also run through the existing Usage Limiters.

There is however one exception; due to the “limited converted message” that is provided by NAPAS; certain Transaction Attributes might not be present on the DOC (due to no input in the incoming ISO message). As such; some Transaction Condition based Usage Limiters might not be checked for Token authorizations.

## Report

WAY4 standard reports for the tracking/monitoring of the Samsung Pay transactions, so that OCBank team can validate the same.





## Impacts on the Data Model

### DB Objects

Business Requirement

In order to be able to update their current interfaces, OCBank requests OpenWay to provide a description of the impact that tokenization messages will have on WAY4Cards data model.

OpenWay Solution

OpenWay will provide a list of tables/columns contents that are used in scope of this project.

Specific data, such as tags, event types, … will be provided as well.

### Transaction Switch installation

Transaction Switch binary is installed/upgraded through the WAY4 Application Server installer.

In case configuration files have to be updated during project’s implementation, the installation instructions will mention which modifications must be put in place.

## Training

Context

Tokenization processes within WAY4 system implies new components (such as TS), configuration, operations to be setup.

Accurate documentation is provided for each requirement.

Business Requirement

OW shall provide to OCBank experts a training on-site in order to explain the impacts of tokenization on WAY4 system for the following:

* Configuration and impacts
* TS Administration and Configuration
* Monitoring impact
* Data Model

OpenWay Solution

OpenWay will provide dedicated training based on the provided documentation to OCBank experts.

# Project Management

This section describes the project tasks that will be undertaken by OpenWay to ensure the smooth and efficient development and implementation of the project.

## OpenWay Project Team and Timetable

OpenWay will appoint an experienced Project Team, consisting of a Project Manager (and when required a Program Manager), a Project Leader, development resources and a Project Management Officer. The exact composition of the team will be determined at Discovery sign-off based on the requirements of the project.

A project plan will be developed based upon agreement of the requirements. The plan will identify key milestones in the project. The formal and final project plan will be forwarded once sign-off of the Discovery Report is agreed.

The Project Plan provides a project timeline, including the development, testing, test file exchange plan, delivery, training and acceptance testing. The Project Manager maintains the plan. Progress reporting against the project plan will be detailed through regular project meetings (either in person, teleconference or any other mutually acceptable means) during the course of the project.

## Contact Points

All communication with OpenWay during the implementation will be via the Project Management and Project Leader. OpenWay request that a single point of contact be appointed by OCBankto ensure consistency of information and communication.

## System Configuration and Development

All system configuration work and development of required enhancements will take place at OpenWay premises. The testing schedule and requirements will be included in the project timetable agreed between OpenWay and the bank.

## Variation Procedure

The basis of all development and configuration work carried out by the project team will be this report following its acceptance. In the event that the requirements change during the course of the project, or other issues arise which entail changes to the requirements defined in this report OpenWay’s standard variation procedure must be followed to ensure that the requirements are updated and that any impact on the project is assessed.

## System Acceptance

The system will be subjected to a rigorous internal acceptance testing procedure. Each aspect of the system functionality will be tested before the software is installed.

Following internal testing procedures, the software will be subject to OCBankacceptance testing, in accordance with an agreed test script. Only on signature of the appropriate acceptance certificate will the system be accepted for live operation.

OCBankis requested to forward to OpenWay their acceptance criteria and any test scripts as soon as possible and prior to delivery of the system. This will enable OpenWay to review the proposed testing procedure, make comments where necessary and run the proposed testing procedure as part of the internal tests prior to delivery. The schedule for receiving and reviewing the test criteria will be included in the project timetable.

## Certification

Certification will be required with NAPAS TSP.

OCBankshould liaise with the payment systems and provide the project plan provided by them indicating the test slots.

Note that as the payment system member; certification is the responsibility of the bank; however OpenWay will provide full support on site to ensure the certification of the system.

## Delivery List

List of deliverables will be shared between OpenWay and OCBank including, for each deliverable:

* Deployment plan
* Acceptance plan
* Test plan