



Business Requirement document

Digitalization of Admissibility

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Detailed Requirements

(for technology enabled projects)

Template Data

|  |  |  |  |
| --- | --- | --- | --- |
| Title | Digitalization of Admissibility | | |
| Description | The Digitalization of Admissibility project aims to transform the traditional, manual process of verifying travel documents into a streamlined, digital system. This initiative will enable passengers to use digital identity wallets to store and share verifiable credentials, such as e-passports and visas, with airlines and border control agencies. The project seeks to enhance the efficiency of the check-in and boarding processes, reduce airport congestion, and improve the overall travel experience. By leveraging technology such as blockchain and secure data sharing protocols, it ensures the authenticity and integrity of the digital documents, thereby enhancing security and compliance with international travel regulations. This digital shift not only supports faster processing times and reduced operational costs but also aligns with global trends towards contactless travel and enhanced passenger facilitation. | | |
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## Project Overview / Project Goals

The goal of the Digitalization of Admissibility project is to streamline and automate the check-in process for airlines by integrating a system that utilizes digital verifiable credentials, reducing queues and congestion at airports.

## Project Scope

* **Functional Scope:** Implement a digital system where passengers can use an app to derive and share verifiable credentials (VCs) like passports and visas with airlines.
* **Integration:** Integration with existing airline check-in systems, government document issuing systems, and digital identity wallets.

## Project Team Stakeholders

*The table below should be used to detail the roles of all the project team members and the department they belong to*

|  |  |  |
| --- | --- | --- |
| Stakeholder Role | Stakeholder Name | Department |
| T&I Business Analyst |  |  |
| Business Sponsor |  |  |
| Business Owner |  |  |
| T&I Project Manager |  |  |
| End User |  |  |
| Operational Support |  |  |
| Finance |  |  |
| Procurement |  |  |
| Supplier |  |  |
| Tester |  |  |

## Assumptions

|  |  |
| --- | --- |
| Technology Adoption | Passengers have access to and are willing to use digital technology, such as smartphones and digital identity wallets. |
| Document Digitization | Governments and authorities issue travel documents in a digital format that can be securely stored and shared from a digital identity wallet. |
| Network and Infrastructure | Airports and airlines have the necessary network infrastructure to support digital verification processes reliably. |
| Security and Privacy Compliance | The digital system for verifying travel documents meets international security and privacy standards to protect passenger data. |
| Stakeholder Buy-In | All stakeholders, including airlines, airport authorities, and government bodies, support the initiative and collaborate to integrate the digital verification system. |
| Regulatory Approval | The digitalization process complies with all relevant legal and regulatory requirements in the jurisdictions it operates. |

## Constraints

*The table below should be used to capture any constraints that are identified during the production of this deliverable. These may be project constraints or system constraints*

|  |  |  |  |
| --- | --- | --- | --- |
| # | Constraint | Reason | Impact of Constraint |
| **#** | **Constraint** | **Reason** | **Impact of Constraint** |
| C1 | Technology Availability and Access | Not all passengers may have access to the required technology to use digital identity wallets. | May limit the feasibility of complete automation and require continued manual processes for some passengers. |
| C2 | Regulatory Approval | The system must comply with international and national regulations governing digital identities and travel documents. | Compliance requirements may delay project implementation and require adjustments to the system design. |

## Business Process Model

**The table below describes each process very briefly, including current issues with the process, to help establish the needs of this project.**

|  |  |
| --- | --- |
| Process | Description and Needs |
| Manual Document Verification | Check-in agents manually inspect physical travel documents like passports and visas at the counter. |
| Digital Document Verification | Passengers use digital identity wallets to share verifiable credentials with airline systems. |
| Boarding Pass Issuance | After document verification, passengers receive boarding passes, either printed or electronically. |
| Security Screening | Passengers undergo security checks after document verification. |
| Baggage Check-in | Passengers check in their luggage, which can require additional document checks. |

**Process Map Overview:**

1. **Passenger Arrival at Check-in Counter:**
   * Passengers present their physical travel documents to the check-in agent.
2. **Document Verification by Check-in Agent:**
   * The agent manually checks the validity and compliance of the travel documents.
3. **Data Entry into Check-in System:**
   * Upon verification, the agent enters the document details into the airline’s check-in system.
4. **Boarding Pass Issuance:**
   * If the documents are valid, the system generates a boarding pass.
5. **Denied Boarding Process:**
   * If documents are invalid, the passenger is informed and denied boarding.

## Functional and Non-Functional Service Requirements

### Functional Requirements

1. **Digital Identity Verification**
   * Goal: To authenticate the passenger's identity using digital verifiable credentials.
   * Actors: Passenger, Airline Check-in System, Government Identity Provider.
   * Use Case: Passenger presents digital VC, and the system verifies it against the government database.
2. **Automatic Check-In Process**
   * Goal: To automate the check-in process once the digital identity is verified.
   * Actors: Passenger, Airline Check-in System.
   * Use Case: System automatically checks in the passenger and issues a boarding pass upon successful identity verification.
3. **Real-Time Document Validation**
   * Goal: To validate travel documents in real-time using digital credentials.
   * Actors: Airline Check-in System, Government Database.
   * Use Case: The system checks the validity of the travel documents against real-time government data.
4. **Integration with Existing Airline Systems**
   * Goal: Ensure seamless integration of the new digital identity verification system with existing airline check-in and boarding systems.
   * Actors: Airline IT Systems, Digital Identity Verification System.
   * Use Case: The digital identity system integrates with the airline's existing systems for a smooth transition and operation.
5. **Data Sync and Update**
   * Goal: To ensure passenger travel documents are up-to-date in the digital wallet.
   * Actors: Passenger, Government Document Issuing Authorities.
   * Use Case: Passenger's digital wallet automatically updates with the latest document credentials issued by the government.

### Non-Functional Requirements

1. **Security**
   * The system must adhere to stringent data protection regulations to safeguard sensitive personal information against unauthorized access and breaches.
2. **Scalability**
   * The system must be scalable to handle varying loads, especially during peak travel seasons, without degradation in performance.
3. **Reliability**
   * The system must operate reliably with minimal downtime, ensuring continuous availability for check-in processes.
4. **Usability**
   * The digital identity wallet and related applications should be user-friendly, facilitating easy usage and adoption by passengers.
5. **Interoperability**
   * The system must be compatible with various government and airline systems worldwide, ensuring a smooth operation across different jurisdictions.
6. **Compliance**
   * The solution must comply with all relevant international and national regulations concerning digital identities and travel documentation.
7. **Performance**
   * The system should perform real-time verification quickly to avoid delays in the check-in process and enhance passenger experience.

## Use Cases

|  |  |
| --- | --- |
| Use Case ID: | UC\_EY\_Admissibility\_001 |
| Digital Identity Verification for Airline Check-in | Digital Identity Verification for Airline Check-in |
| Description: | This use case describes the process where a passenger uses their digital identity wallet to share verifiable credentials with the airline during the check-in process. |
| Level: | **first** |
| Primary Actor: | Passenger |
| Supporting Actor: | Airline Check-in System |
| Stakeholders: | **Stakeholders:** Passengers, Airline staff, Security personnel |
| Preconditions: | **Preconditions:** Passenger has digital identity wallet with necessary verifiable credentials. |
| Trigger: | **Trigger:** Passenger initiates the check-in process. |
| Post Conditions: | **Use Case ID:** UC\_EY\_Admissibility\_002 |
| Priority: | **Use Case Name:** Real-time Verification of Verifiable Credentials at Airport Kiosks |
| Frequency of Use: | **:** This use case outlines the process where a passenger uses an airport kiosk to scan their verifiable credentials from a digital identity wallet, which are then verified in real-time to check their admissibility for travel. |
| Normal Course of Events: | **:** Passenger |
| Sub Flow of Events: | Airport Kiosk System |
| Alternative Courses: (Extensions) | Passengers, Airline staff, Airport security staff |
| Variations: | Passenger arrives at the airport with verifiable credentials stored in their digital identity wallet and the airport kiosk system is operational. |
| Exceptions: | Passenger scans their digital identity wallet at the kiosk. |
| Extends: |  |
| Special Requirements: | Passenger’s credentials are verified in real-time, leading to the issuance of a boarding pass and progression to security checkpoints. |
| Assumptions: | Verification fails due to invalid or expired credentials, and the passenger is directed to airline staff for manual document checking |
| Notes and Issues: | UC\_EY\_Admissibility\_002 |
| TO DO: | Real-time Verification of Verifiable Credentials at Airport Kiosks |

## Business Rules

*List out all the business rules applicable to the use case*

|  |  |
| --- | --- |
| Business Rules Identifier | Business Rules |
| BR-001 | Passengers must use a digital identity wallet to store and share verifiable credentials. |
| BR-002 | Verifiable credentials must include a government-issued ID and valid travel documents (e.g., visa, passport). |
| BR-003 | The airline’s check-in system must validate the verifiable credentials against a trusted authority database. |
| BR-004 | Check-in via digital identity wallet should be available up to 24 hours before the flight departure. |
| BR-005 | Any discrepancies in the verifiable credentials must be flagged and resolved manually by airline staff. |
| BR-006 | Passengers with flagged credentials should be directed to a manual check-in process for further verification. |
| BR-007 | The system must adhere to international data protection and privacy regulations when processing verifiable credentials. |
| BR-008 | The digital identity wallet must be compatible with the airline’s check-in system to ensure seamless data exchange. |

## USer Interface

## Expected Flow

## AS A passenger,

## I WANT TO use my digital identity wallet to complete the check-in process online,

## SO THAT I can bypass traditional check-in queues and streamline my travel experience.

## Preconditions

## The passenger has a registered account on the airline’s website or app.

## The passenger’s digital identity wallet contains up-to-date verifiable credentials (e.g., e-passport, visa).

## Flow

## Open Etihad's website on any browser.

## Log in to the account using valid credentials.

## Select the option for online check-in.

## Use the digital identity wallet to share verifiable credentials with the airline’s system.

## Receive confirmation of check-in and boarding pass electronically.

## Mock-up

## Insert mockup image of the digital identity wallet integration with the check-in process here.

## Supplementary Notes

## The integration should ensure that the user’s data is securely transmitted and that the passenger receives clear feedback on the verification status of their credentials.

## Acceptance Criteria

## GIVEN the passenger has valid travel documents stored in their digital identity wallet,

## WHEN they opt to check in online using these documents,

## THEN they should be able to complete the check-in process successfully and receive their boarding pass electronically.

## Translations required

## The check-in interface should support multiple languages to cater to international passengers, including but not limited to Arabic, English, French, and Mandarin

## Use Case Diagram

*On Draw.io*

## User Stories

## User Story 1: <<name of user story>>

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Story ID | Title / Requirement | User Story | Defect / Issue | Priority |
| US-001 | Digital Wallet Integration | AS A passenger<br>I WANT TO store and access my travel documents in a digital wallet<br>SO THAT I can streamline the check-in process and reduce the need for physical documents. | N/A | High |
| US-002 | Real-time Credential Verification | AS A passenger<br>I WANT TO have my credentials verified in real-time at the kiosk<br>SO THAT I can quickly pass through airport check-in and security. | Delay in verification process | Medium |
| US-003 | Seamless Check-in Experience | AS A passenger<br>I WANT TO complete the check-in process seamlessly using my digital credentials<br>SO THAT I can avoid long queues and save time at the airport. | Issues with app integration | High |
| US-004 | Boarding Pass Issuance | AS A passenger<br>I WANT TO receive my boarding pass immediately after digital verification<br>SO THAT I can proceed to the security check without delays. | Boarding pass printing errors | Hi |

## Requirements

*Expected Flow*

* ***AS A*** *passenger,*
* ***I WANT TO*** *use my digital identity wallet to complete the check-in process online,*
* ***SO THAT*** *I can bypass traditional check-in queues and streamline my travel experience.*

*Preconditions*

* *The passenger has a registered account on the airline’s website or app.*
* *The passenger’s digital identity wallet contains up-to-date verifiable credentials (e.g., e-passport, visa).*

*Flow*

1. *Open* [*Etihad's website*](http://www.etihad.com/en-ae/) *on any browser.*
2. *Log in to the account using valid credentials.*
3. *Select the option for online check-in.*
4. *Use the digital identity wallet to share verifiable credentials with the airline’s system.*
5. *Receive confirmation of check-in and boarding pass electronically.*

*Mock-up*

* *Insert mockup image of the digital identity wallet integration with the check-in process here.*

*Supplementary Notes*

* *The integration should ensure that the user’s data is securely transmitted and that the passenger receives clear feedback on the verification status of their credentials.*

*Acceptance Criteria*

* ***GIVEN*** *the passenger has valid travel documents stored in their digital identity wallet,*
* ***WHEN*** *they opt to check in online using these documents,*
* ***THEN*** *they should be able to complete the check-in process successfully and receive their boarding pass electronically.*

*Translations required*

* *The check-in interface should support multiple languages to cater to international passengers, including but not limited to Arabic, English, French, and Mandarin*

## Appendices

## Use Case Guidance

This section provides a description of each section in the use case template.

**Use Case Definition**

#### Use Case ID

Give each use case an alpha unique numeric identifier, in hierarchical form: X.Y. Related use cases can be grouped in the hierarchy. Functional requirements can be traced back to a labelled use case.

For e.g. <UC\_EY\_Dept\_project name/Code\_001>

#### Use Case Name

State a concise, results-oriented name for the use case. These reflect the tasks the user needs to be able to accomplish using the system. Include an action verb and a noun. Some examples:

1. View part number information.
2. Manually mark hypertext source and establish link to target.
3. Place an order for a CD with the updated software version.

#### Description

Provide a brief description of the reason for and outcome of this use case, or a high-level description of the sequence of actions and the outcome of executing the use case.

#### Level

Enter the goal level of this Use Case. Specify whether the Use Case level is - High Level Summary, Summary, User Goal, Sub-Function, Low Level

#### Actors

An actor is a person or other entity external to the software system being specified who interacts with the system and performs use cases to accomplish tasks. Different actors often correspond to different user classes, or roles, identified from the customer community that will use the product. Name the actor(s) that will be performing this use case.

1. Primary Actor - List the Actor whose goal is being satisfied by this Use Case and has the primary interest in the outcome of this Use Case. e.g. online customer
2. Supporting Actor - List the Actors who have a supporting role in helping the Primary Actor achieve his or her goal. e.g. EY.com, Contact Centre Agent

#### Stakeholders

List the various entities who may not directly interact with the system but they may have an interest in the outcome of the use case. Identifying stakeholders and interests often helps in discovering hidden requirements which are not readily apparent or mentioned directly by the users during discussions.

#### Pre-conditions

List any activities that must take place, or any conditions that must be true, before the use case can be started. Number each precondition. Examples:

1. User’s identity has been authenticated.
2. User’s computer has sufficient free memory available to launch task.

#### Trigger

An event that starts this Use Case

For e.g.

For Purchase flight Use Case - Customer adds itinerary to shopping basket and proceeds to checkout.

#### Post conditions

Describe the state of the system at the conclusion of the use case execution for the relevant sections that apply. Number each post condition.

Success end condition:

Enter the successful end condition of the Use Case where the Primary Actor’s goal is satisfied.

For e.g.

1. Customer card is debited.
2. Seat is sold.
3. Confirm is displayed payment confirmation page.
4. Seat inventory in Pros is updated.

Failure end condition:

Enter the failure end condition of the Use Case if the Primary Actor’s goal has not been achieved.

For e.g.

1. Customer card is declined.
2. Seat is not sold.
3. Card declined message is displayed to customer.
4. Customer is given the choice to use an alternative card for payment.
5. Seat inventory in Pros is not updated.

Minimal Guarantee

The guarantee or assurance that this Use Case provides to all Actors and Stakeholders to protect their interest regardless of whether the Use Case ends with success or failure.

For e.g.

1. Cardholder is authenticated for each transaction. This minimum guarantee ensures that the system will ensure that no unauthorized card payments can be made on EY.com, thus protecting the interest of the EY customers and Ecommerce stakeholders.

#### Priority

Indicate the relative priority of implementing the functionality required to allow this use case to be executed. The priority scheme used must be the same as that used in the software requirements specification.

#### Frequency of use

Estimate the number of times this use case will be performed by the actors per some appropriate unit of time.

#### Normal Course of Events

Provide a detailed description of the user actions and system responses that will take place during execution of the use case under normal, expected conditions. This dialog sequence will ultimately lead to accomplishing the goal stated in the use case name and description. This description may be written as an answer to the hypothetical question, “How do I <accomplish the task stated in the use case name>?” This is best done as a numbered list of actions performed by the actor, alternating with responses provided by the system.

#### Sub Flow of Events

Provide a detailed sub flow of user actions and system responses under each of the events. Each sub flow can be identified using a prefix “SUB” followed by a unique number. E.g. SUB001

#### Alternative Courses (Extensions)

Document other, legitimate usage scenarios that can take place within this use case separately in this section. State the alternative course, and describe any differences in the sequence of steps that take place. Number each alternative course using the Use Case ID as a prefix, followed by “ALT” to indicate “Alternative Course”. Example: X.Y.ALT.1.

#### Variations

Enter any data entry or technology variations such as – different methods of data input, screen/module invocation, etc. e.g. 3’. In step 3, instead of selecting O&D with a mouse, the user may select it directly using keyboard tabs.

#### Exceptions

Describe any anticipated error conditions that could occur during execution of the use case, and define how the system is to respond to those conditions. Also, describe how the system is to respond if the use case execution fails for some unanticipated reason. Number each exception using the Use Case ID as a prefix, followed by “EX” to indicate “Exception”. Example: X.Y.EX.1.

#### Extends (or Includes)

List any other use cases that are included (“called”) by this use case. Common functionality that appears in multiple use cases can be split out into a separate use case that is included by the ones that need that common functionality.

#### Special Requirements

Identify any additional requirements, such as non-functional requirements, for the use case that may need to be addressed during design or implementation. These may include performance requirements, security requirements, user interface requirements or other quality attributes.

#### Assumptions

List any assumptions that were made in the analysis that led to accepting this use case into the product description and writing the use case description.

#### Notes and Issues

List any additional comments about this use case or any remaining open issues or TBDs (To Be Determined) that must be resolved. Identify who will resolve each issue, the due date, and what the resolution ultimately is.

#### TO DO

Any work or follow-up actions that remain to be done on this use case has to be listed out.

**Business Rules**

#### Business Rules Identifier

A unique identifier that identifies a business rule. This identifier should be prefixed by the Use Case id, followed by “BR” and a unique number. For e.g. <Use case id\_BR001>

#### Business Rules

Describe all the business rules pertaining to this use case.

## User Story Guidance

* + - 1. **Story ID**

Provide a unique identified for the User Story

* + - 1. **Title / Requirement**

Provide a title or the originating requirement of the user story

* + - 1. **User Story**

Describe the user story from the perspective of the user following the following structure:

**AS A** (Role)

**I WANT** (Feature)

**SO THAT** (Benefit)

e.g. ***As a*** *Customer,* ***I want*** *to be able to search for flights between two cities* ***so that*** *I can see which ones have the best price and route*

* + - 1. **Defect / Issue**

Capture details of the defect or issue to be resolved

* + - 1. **Priority**

Capture the priority of the user story

* + - 1. **Preconditions**

Capture the preconditions that must be present for the User Story to be possible

* + - 1. **Flow**

Describe the system / business flow step by step

* + - 1. **Current / Defect Image**

Include an image which depicts the current state or the defect that is to be resolved

* + - 1. **Expected Flow**

Describe the expected system / business flow step by step

* + - 1. **Preconditions**

Capture the preconditions that must be present for the User Story to be possible in the future state

* + - 1. **Flow**

Describe the expected system / business flow step by step

* + - 1. **Mock-up**

Include an image which depicts the future state

* + - 1. **Supplementary Notes**

Document any additional information or requirements related to the user story

* + - 1. **Acceptance Criteria**

Describe the conditions that the solution must satisfy to be accepted by the user using the following format

**GIVEN:** (Context) **WHEN:** (Event) **THEN:** (Outcome)

e.g. **GIVEN** the card is disabled, **WHEN** the account holder requests $20 **THEN** the ATM should retain the card

* + - 1. **Translations required**

Capture any translations required for the feature or capability