



**AMS Replacement
Business Requirements Definition**

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1 Background

1.1 Introduction

The purpose of this document is to provide an accurate and unambiguous description of the business requirements associated with the Airport Management System (AMS) replacement project at Eindhoven Airport (EANV). The document will provide an agreement, appropriately signed-off, confirming that:

- Nominated business users have accepted that the business system requirements are correctly and appropriately specified; and
- EANV's Information Systems department resources have confirmed compliance with strategy and quality standards.

1.2 Executive Summary

Eindhoven Airport's ownership is made up of 51% of the shares held by Schiphol Nederland B.V., with the North Brabant Provincial Authority and the Eindhoven Municipal Authority each holding 24.5%. The airport is focused on the delivery of a vibrant, thriving economy by providing vital international connectivity for trade and tourism and an attractive location for businesses to develop and grow. We are conscious of the social impact an airport has, therefore corporate social responsibility is part of our DNA, and we remain at all times conscious of the balance between international connectivity and the quality of life in the area

EANV is the Netherlands' second largest airport, catering over 6.8 million passengers in 2023. The airport provides easy links between Brainport and Europe and beyond and strives to be in balance with the surroundings.

Airlines connect the south of the Netherlands with 84 tourist and business destinations. Together with its partner companies, the airport provides almost 2,000 jobs, making it one of the region's largest employers.

This document details the business requirements - functional and non-functional - for the replacement or refresh of the current AODB, RMS & Aero-billing systems used in EANV.

Business requirements have been generated to meet the airport business and IT needs in the short, medium and long term. They have been gathered with direct input and reviewed by representatives of EANV airport, IT architecture and third-party stakeholders. With each requirement being prioritised as critical, high, medium or low.

In summary, the broad categories of these requirements are based on key business processes for managing the aircraft, passenger and baggage journey through EANV:

- Aircraft process
- Arriving passenger process
- Arrival baggage process
- Departure passenger process
- Departure baggage process
- Support Services

- Non-Process Related

1.3 The Purpose of the Project

The purpose of this project is the replacement of our Airport Management System. The current system is custom made and build on older technology. In order to support its mission and ambition and maintain its competitive position, EANV intends to buy an off-the-shelve software.

The EANV IT strategy ensures the embedding of the corporate ambition and strategy into the IT-related activities. Important principles of this IT strategy within the scope of this project are:

- Standardise processes and systems;
- Run enabling technologies;
- Data-driven decision making;
- Maximise reusability of resources across airlines and handlers

1.3.1 Business Objectives

The project's objective is to replace the existing AODB, FRMS and Aero Billing in EANV meeting the following requirements:

- To identify the best value (most economically advantageous contract) AMS solution for EANV
- To implement a solution that supports the current and future needs of the airport to improve airport efficiency and effectiveness
- To deploy the selected solution within EANV by end of Q1 2026
- To minimise on-going investment costs
- To establish a supplier contract that delivers the business need and best value in terms of service, maintenance and development

1.3.2 Solution Objectives

The solution is to replace the AMS in EANV. The solution will support, automate, optimise and manage data and process flow for the:

- Strategic, pre-tactical and operational resource planning of relevant fixed and mobile resources
- Input and output of data, key steps and event management supporting the aircraft process - from airborne from origin to on-block and bags delivered
- Flight information display and associated check-in, flight departures, gate and arrivals reclaim way finding
- Input and output data, key steps and event management supporting the aircraft turnaround process from ground movement to pushback, through refuelling, catering etc., to boarding

- Input and output data, key steps and event management supporting the departures process from off-block, taxing and airborne time
- The provision of real time operational dashboard data within day, end of day performance reporting and historical trend and data reporting on the operational performance of airport operations
- Capture of charging related data (flight movements, weights, pax numbers etc) and the billing of such data

1.4 Constraints

Constraints are classified into business, technology, and resource constraints and provide the boundaries and parameters within which the proposed system will operate. These may impact the system design phase of the project.

ID	Type	Description
CON1	IT	The migration to any new AMS system must be complete by end of March 2026
CON2	Business	Business resource required to input and support the delivery of the project at EANV is limited and will need notice of any required commitments.
CON3	Business	The cutover cannot take place at the busiest times of the year e.g. mid-term breaks, Easter breaks, summer peak, Christmas break.

2 High Level Business Requirements

The approach to gathering the business requirements was driven by business process. Therefore, business functional requirements were aligned to a business process framework. This was not prescriptive categorisation but more of a best fit approach without duplication of requirements across processes. Noting that not all business processes are in scope for the system replacement.

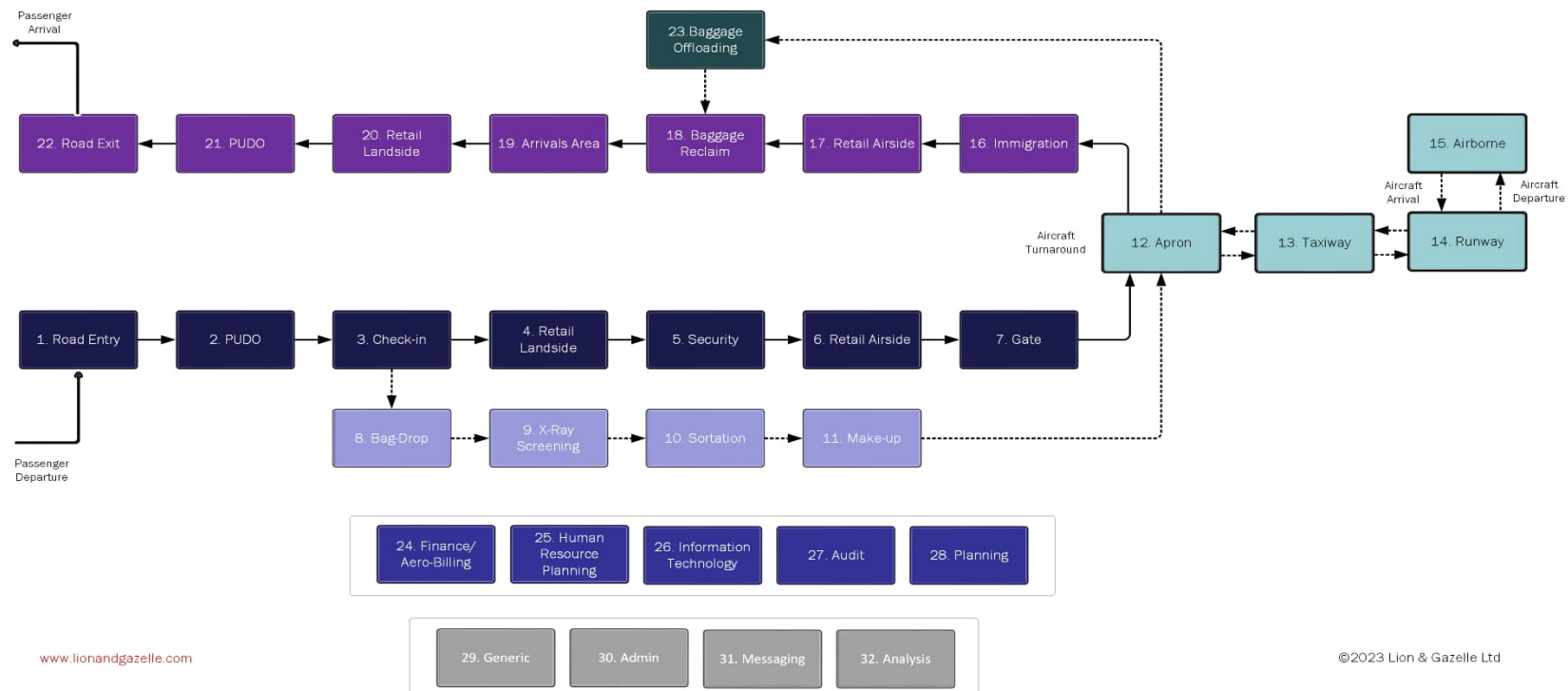
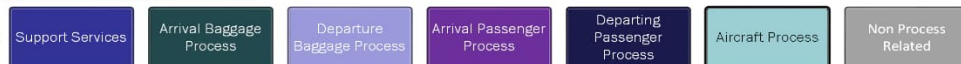
2.1 High Level Business Process

The approach to the business process is to focus on the aircraft, baggage and passenger journeys as one connected journey. This is then collated with the business functionality required from the proposed solutions for each business process area.

Airport Operational Processes (Passenger, Baggage and Aircraft Journey)



Key:



2.1.1 Aircraft Process

2.1.1.1 Aircraft Arrival

Business Process Area
15.Airborne
14.Runway
13.Taxiway

Overview

The Aircraft Arrivals process is a real time process that normally starts at the point an inbound flight information message is received into the AODB system and completes after the aircraft enters the apron area.

Focus areas for this project

Within this process, information will be received from various external data sources providing updates on the status of each flight e.g. aircraft type, aircraft registration, passenger numbers, freight & mail. This information needs to be recorded in the AODB and shared with involved stakeholders. Automation is a highly anticipated benefit in this area.

2.1.1.2 Apron

Business Process Area
12.Apron

Overview

The apron process is a real time process that normally starts at the point the aircraft enters the apron area and taxis to an allocated parking stand. At this point passengers disembark and baggage and/or freight is unloaded. The aircraft is then available for servicing and loading. The process completes once the aircraft pushes back and leaves the apron. This includes all ground handling components and towing between parking stands.

Focus areas for this project

It is important that management of fixed resources is optimal and any changes are recorded in the AODB and shared with all involved stakeholders. All aircraft ground movements also need to be recorded to ensure any related charges can be accurately calculated. On Time Performance is a Key Performance Indicator and is audited regularly by EANV. Automation is a highly anticipated benefit in this area.

2.1.1.3 Aircraft Departure

Business Process Area
13.Taxiway
14.Runway
15.Airborne

Overview

The Aircraft Departures process is a real time process that normally starts at the point the aircraft enters the taxiway to the runway head.

Focus areas for this project

It is important that any departure delays are recorded in the AODB with reasons. Automation is a highly anticipated benefit in this area.

2.1.2 Arriving Passenger Process

Business Process Area
16.Immigration
17.Retail Airside
18.Baggage Reclaim
19.Arrival Area
20.Retail Landside
21.PUDO
22.Road Exit

Overview

The Arriving Passenger process is a real time process that normally starts at the point the passenger disembarks from the aircraft, walks and/or is transported to the terminal and passes through an arrival gate into the main terminal building. Where the passenger will commence immigration check procedures, baggage collection, customs procedures and pass-through retail. They then commence the journey from the airport to home.

Focus areas for this project

The key information to manage the resource allocations for baggage reclaim belts. This information is made available in part or whole via the AODB clients within the airport depending on the role of each user. Also, arrival flight and resource information is made available via the FIDS to inform passengers, passenger escorts and staff.

2.1.3 Arriving Baggage Process

Business Process Area
23.Offloading Belts

Overview

The arriving baggage process is a real time process that runs in parallel with the arriving passenger process. This normally starts at the point the baggage is offloaded from the aircraft to ground vehicles and transported to the terminal. The baggage is then offloaded at the terminal and placed on a reclaim belt for the passenger to pick up.

Focus areas for this project

The key information to be recorded in the AODB for this process is the “First Bag / Last Bag” SLA which monitors the performance of the baggage handlers. This is a Key Performance Indicator and an area that EANV would look to drive performance efficiencies with the handling agents.

2.1.4 Departure Passenger Process

Business Process Area
1.Road Entry
2.PUDO
3.Check-in
4.Retail Landside
5.Security
6.Retail Airside
7.Gate

Overview

The Departing Passenger process is a real time process that normally starts at the point the passenger enters the terminal building and may check-in baggage. They then pass-through security checks to go airside and use retail facilities prior to leaving the airport terminal building through a boarding gate for departure.

Focus areas for this project

The key information to manage is the resource allocations for check-in desks & boarding gates. This information is made available in part or whole via the AODB clients within the airport depending on the role of each user. Departure flight and resource information is made available via the FIDS to business stakeholders, passenger, passenger escorts and staff.

2.1.5 Departure Baggage Process

Business Process Area
8.Bag-Drop
9.X-ray Screening
10.Sortation
11.Make-up

Overview

The departure baggage process is mostly managed by the airport baggage handling systems to manage the journey of the bag from check-in to reconciling with the passenger on the aircraft.

Focus areas for this project

The key information to manage is to make sure information reaches the business stakeholders, passenger, passenger escorts and staff.

2.1.6 Support Services/Non-Process Related

Business Process Area
24.Financial/Aero-Billing
25.Human Resource Planning
26.Information Technology
27.Audit
28.Planning
29.Generic
30.Admin
31.Messaging
32.Analysis

Overview

The non-process related actually mean these business process areas are not part of the operational day processes for the aircraft, passenger or baggage journey. They are functional requirements which support operational business requirements both in planning and post operational activities.

Focus areas for this project

The airport needs to ensure the flight schedule and planned resources are in the best position possible prior to the day of operation. These should be planned as “best fit” scenarios in advance of operational day to ensure optimal operation

The airport needs to ensure the information shared during & before the day of operation is the one version of the truth from the AODB.

The airport needs to ensure that the flight information and related timings, events, transaction, quantities etc. are accurate and good enough to raise aeronautical charges against. At the end of every month all information of the past month needs to be available to ensure billing and invoicing can take place on a monthly basis. The airport charges and discounts are set yearly.

2.2 Existing systems overview diagram

The diagram below shows a high-level schematic overview of the existing systems deployed at EANV.

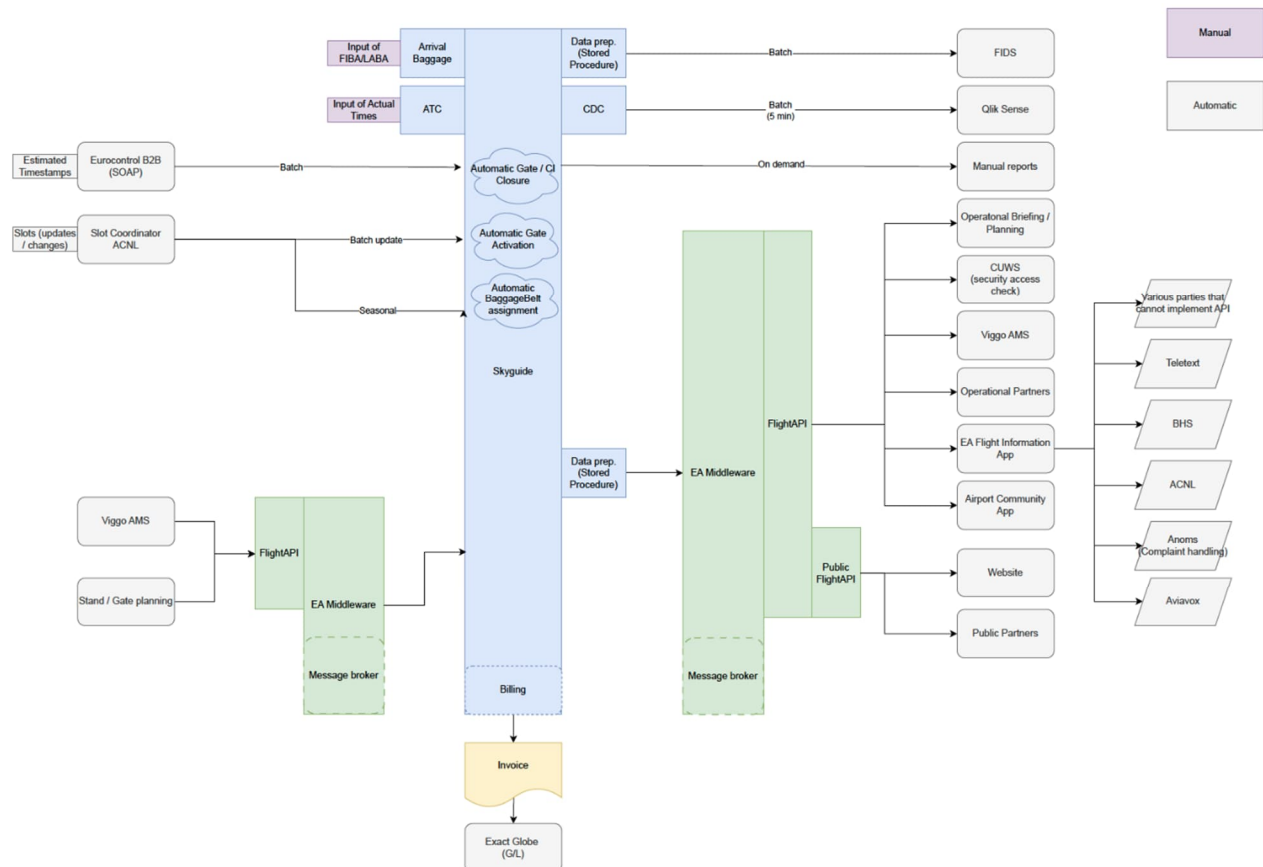


Figure 2: EANV current architecture high level overview

EA Middleware

EANV has deployed a 'middleware' platform to provide an integration platform that provides business services (e.g. Common Use Webservices) and data integration via (RESTful) APIs. The main goal of this platform is to prevent point-to-point integrations, hence is foreseen to be existing in the new architecture. The middleware platform also embeds a message broker architecture for real-time integration. This middleware platform will be part of the new architecture.

It is planned that the input of Actual Times is integrated into the functionality of the middleware platform as well.

EAFlightInformationApp

This application is built in order to resolve the issue of external parties not being able to integrate with the RESTful APIs. The application sends data to either operational internal system (e.g. Baggage Handling System, Flight Announcement (Aviavox), external operational parties (ACNL) and external public information sources (Teletext). The current integrations might be revised based on a new architecture.

Qlik Sense

Qlik Sense is used for business reporting, both on an operational basis (near-real time reporting) and management basis (monthly reporting). In order to enable transaction based logging, Change Data Capture is

enabled in the current database. It is foreseen that the ETL process might be moved to a central data warehouse in the near future to support more central data processing.

External flight information and master data

Currently external flight data is retrieved from direct integrations with Airport Coordination Netherlands (ACNL) and Eurocontrol B2B. The data might be enriched by the handler that receives SSIM files or similar from the airline. Master Data is managed manually in the AODB and retrieved from external sources (e.g. Loop). New integration and data sources might be added within a new architecture.

Billing

There is no existent data exchange between the AODB and the financial system. Financial data is manually entered in Exact Globe per invoice. Exact is able to handle XML-structured imports of billing and finance data and is planned to be implemented in a new architecture.

2.3 Scope of Work

The core components that are mandatory to be replaced are AODB (with RMS), and Aeronautical Billing, any other components are out of scope.

The architecture approach is to retain the AODB as the central source of flight information. The 'to be' architecture will utilise an existing Airport Integration Platform as the primary broker of all integrations. This enables EANV to connect applications together quickly and easily, enabling them to exchange data.

EANV acknowledge that some of the solutions on the market will come with their own integration platform, and this will be considered as an internal component of the tenderer's solution.

The solution should include REST Application Programming Interface (API) functionality that allows third parties to integrate with all functional aspects, components and services of the AMS. The API shall support both inbound and outbound calls for each function aspect, component and service as well as all REST verbs per API. Mechanisms & formats of information/data are contained within the non-functional requirements of the Appendix II – Business Requirements.

2.4 Hosted vs Managed Service Solution

We will consider both a hosted (cloud) solution and an on-site managed solution or a combination of all options. Should an on-site managed solution be proposed, EANV's preference is that the system run on a virtual environment within the Eindhoven Airport server environment. Therefore, detailed specifications and requirements of the server(s) must be submitted with the proposal.

EANV will consider a separate server-based solution that is provided by the successful Vendor. Should this be the proposed solution, Vendors must provide details of rack space, power and any other specific requirements for the server that will be housed in the Eindhoven Airport communications room(s).

2.5 End User Environment

Eindhoven Airports end user environment is predominantly a Window 11 environment. Eindhoven Airports mobile device environment is mainly comprised of Apple phones. The solution should operate on Android / IOS & Windows platforms as necessary.

Type	Quantity
Stands (Contact)	14

Gates	11
Baggage Carousels	3
First Bag / Last Bag Clients	3
Manual Desks	10
Self Service Bag Drop	12
Terminal	1
Runways	1

Aerial map



Green = Military

Yellow = Civil

3 Business Requirements

3.1 Functional Requirements

3.1.1 Scoring criteria

The requirements are made up of Must Have, Should Have and Could Have requirements. All supplier responses must have sufficient detail to assure EANV that the proposed solution is fit for purpose, easy to use/navigate and be in a language that is understandable to a non-subject matter expert.

Requirement Level	Scoring Criteria
Must Have	Scored Question - Pass/Fail
Should Have	Scored Question
Could Have	Scored Question

3.1.1.1 *Must Have, Should Have and Could Have Requirements*

A Must Have can only be in the category 'Standard' or 'Customisation', the category 'Future Release' will be considered a FAIL and this will result in disqualification from the process.

Should Have and Could Have requirements will be scored with no minimum score threshold.

3.1.2 Priority and weighting

This section contains a description of the detailed functional requirements that the solution must satisfy. Each requirement has been assigned a level of priority/weighting as follows:

Priority	Description	Weighting Score
Must Have	The airport cannot operate without this requirement being fulfilled	Pass/Fail (20 Points)
Should Have	The airport would operate without this requirement but will incur impact in terms of service, risk, efficiency, compliance or fulfilling future needs.	15
Could Have	The requirement is desirable. The airport would operate without this requirement without any impact.	5

3.1.3 Scoring Business Requirements

The vendor response shall be categorised as follows: S/C/N/F (Standard / Customisation / Not Provided / Future Release).

Category	Description	Weighting Score
Standard	The solution fulfils the requirement	100%
Customisation	The solution will need to be customised to meet EANV needs but will be in place for when the system goes live or within a defined and agreed timescale between the parties.	50%
Future Release	The solution will provide the requirement in a future release. They need to provide evidence in a roadmap to score.	30%
Not Provided	The solution will never provide this requirement	0%

An example. A should have requirement that requires customisation would score 7.5 points ($15 \times 50\% = 7.5$).

3.1.4 General Scoring Methodology

This scoring methodology is used for the Questionnaire and Presentation.

Score	Rating	Methodology
0-2	Unsatisfactory	In the Contracting Party's judgement the description does not address the Contracting Party's question and/or the description completely fails to correspond to the Contracting Party's question (objective, requirements and wishes).
3-4	Mediocre	In the Contracting Party's judgement the description does not address or addresses to a limited degree the required elements and subjects and/or the description takes no or limited account of and shows little or no connection with the question (objective, requirements and wishes) of the Contracting Party.
5-6	Satisfactory	In the Contracting Party's judgement the description addresses the required elements and subjects and/or the description takes account of and corresponds to the question (objective, requirements and wishes) of the Contracting Party.
7-8	Good	In the Contracting Party's judgement the description addresses the required elements and subjects well and/or the description takes good account of and corresponds to the question (objective, requirements and wishes) of the Contracting Party to such a degree that the Candidate distinguishes itself from the other Applications.
9-10	Excellent	In the Contracting Party's judgement the description addresses the required elements and subjects exceptionally well and/or the description takes exceptionally good account of and corresponds to the question (objective, requirements and wishes) of the Contracting Party to such a degree that the Candidate exceeds the expectation of Principal.

3.2 Non-Functional Requirements

This section contains a description of the detailed functional requirement that the solution must satisfy. Each requirement has been assigned a level of priority as follows:

Category	Description
Must Have	The airport cannot operate without this requirement being fulfilled
Should Have	The airport would operate without this requirement, but its inclusion would either improve the operation of the airport or reduce cost

3.3 Business Requirements Document (BRD)

Please see reference AppendixD_Business_Requirements_Document for full list of functional & non-functional requirements