IMPLEMENTATION OF ASSET MANAGEMENT WITHIN ÖBB

Story-telling

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Once upon a time…
The ÖBB Infrastruktur AG is supposed to be the Leader in the field of Asset Management in Europe
Asset Management = Christian Richard
Our Company

- 4.846 km of track
- 13.760 switches
- 6.327 bridges
- 246 tunnels
- 3.398 level crossings
- 1.095 stations
- 8 terminals
- Investments of € 2 billion per year

**Semmering base tunnel**
- Speed up to 230 km/h
- 27 km long
- Status: under construction
- Start of Service: 2026

**Brenner base tunnel**
- Joint project with Italy
- 64 km long railway tunnel
- Status: under construction
- Start of Service: 2026

**Koralm railway**
- 130 km new railway lines
- 33 km long Koralm tunnel
- 12 new Stations
- Status: under construction
- Start of Service: 2024
Chapter 1: desk research
International Standard
ISO 55000
ISO 55000

Relationship AM to AMS

Managing the organization

Asset management

Asset management system

Asset portfolio

Coordinated activity of an organization to realize value from assets.

Set of interrelated or interacting elements to establish asset management policy, asset management objectives and processes to achieve those objectives.

Assets that are within the scope of the asset management system.

Figure 1 — Relationships between key terms

Relationship between key elements of an AMS

Stakeholder and organization context

Organizational plans and organizational expectations

Asset management policy

Implementation of asset management plans

Assessment and improvement

Asset portfolio

Asset management system's planning and design

Asset management system's policies

Asset management system's support

Asset management system's acceptor elements
ISO 55001

**Asset Management Systems - Requirements**

6.2 Asset management objectives and planning to achieve them

6.2.1 Asset management objectives

The organization shall establish asset management objectives at relevant functions and levels.

When establishing its asset management objectives, the organization shall consider the requirements of relevant stakeholders and of other financial, technical, legal, regulatory and organizational requirements in the asset management planning process.

The asset management objectives shall:

- be consistent and aligned with the organizational objectives;
- be consistent with the asset management policy;
- be established and updated using asset management decision-making criteria (see 4.2);
- be established and updated as part of the SAMP;
- be measurable (if practicable);
- take into account applicable requirements;
- be monitored;
- be communicated to relevant stakeholders;
- be reviewed and updated as appropriate.

The organization shall retain documented information on the asset management objectives.
ISO 55002

Asset Management Systems - Guidelines

6.2 Asset management objectives and planning to achieve them

6.2.1 Asset management objectives

6.2.1.1 The asset management objectives, derived as part of the SAMP, provide the essential link between the organizational objectives and the asset management plan(s) that describe how those objectives are going to be achieved. The asset management objectives transform the required outcomes (product or service) to be provided by the assets, into activities typically described in the asset management plan(s).

The asset management objectives should be tailored to suit each organization's needs, which may include addressing subsets of objectives (e.g. for the asset management system, asset portfolios, the asset system and at asset level), and can vary for different functions carried out to meet stakeholder requirements. The organization should consider information or data from sources internal and external to the organization, including contractors, key suppliers, regulators or other stakeholders.

Asset management objectives should be specific, measurable, achievable, realistic and time-bound (i.e. "SMART objectives"). They can be both quantitative measurements (e.g. mean time between failure) and qualitative measurements (e.g. customer satisfaction).

The organization should consider the monitoring, measuring, analysing and evaluating needed to drive and support its decision making on improvement actions. When deciding what to measure, how to measure, what to analyse, etc., it is important for the organization to understand what type of behaviour and actions it wants to achieve from the asset management objectives before implementing them. The asset management objectives should be aligned to the organizational objectives and should promote collaboration with stakeholders.
„And here, poor fool, I stand once more, no wiser than I was before“

[J. W. v. Goethe, Faust I]
Chapter 2: Knowledge exchange with other Railway Companies
Asset Management Working Group
Asset Management - what is it and why do we need it?

Managing costs performance risk results in value from assets
Asset Management supported by an Asset Management System

Managing

- costs
- performance
- balance
- risk

results in maximal value from assets

Asset Management System supports

- decision making criteria (ISO 55000 - decision making criteria)
- strategic factor (timely commissioning)

right decision at the right time
Asset Management System ≠ IT Tool

Managen der Organisation

Asset Management

Asset Management System

Asset Portfolio

Coordinated activity of an organization to realize value from assets.

A set of interrelated or interacting elements to establish asset management policy, asset management objectives and processes to achieve those objectives.

Assets that are within the scope of an Asset Management Systems
UIC Railway ISO 55000 Application Guide

Asset Management Framework
Chapter 3: our journey
Breaking down network objectives to route objectives

Breaking down network objectives to asset objectives

Develop route strategies

Develop asset strategies

Create route plan

Organisational objectives

Network objectives

Route objectives

Asset objectives

Target network

Network development plan

Network development

Route development

Asset development

Route plan development

Route development plan

Asset development plan

Route plan

www.railway-asset-management.org
How do we develop route/ asset strategies?

Implementation

Elicitation-phase
- SMART Objectives defined
- relevant Stakeholder determined
- requirements elicited and documented
- field of action defined

Analysis-phase
- requirements analysed and tested for plausibility
- inconsistencies detected
- cost-drivers located

Options-phase
- measures defined
- feasibility checked
- strategy conformity assured

Assessment-phase
- cost-benefit analysis created
- measure prioritised

Elicitation Gate

Analysis Gate

Options Gate

Assessment Gate

wishes & ideas
requirements
requirements
cost-drivers
prioritised measures
unavoidable cost-drivers

ARIS Prozess mit Problemstellungen

Implementation

Input Data

Supporting Systems

Output
One Asset Information System (AIS) to rule them all

**Component Model**
Unique, unambiguous Components, subcomponents

**Data Governance/Data Cleansing**
Processes and methods to increase data quality

**Status Administration**
Cross-sectoral State administration

**Visualisation**
The assets are visualised along the routes

**Geometric Model**
True position and length based on geodetic survey points

**Historicisation**
Along the entire Life-cycle including past and future

**Net-model**
(Route- & Track-net)

**Pointer model**
Joining data of one and the same component from different sources.

- **legal notices** (Andos)
- **fixed assets** (SAP)
- **tracks, switches** (iOberbau)
- **switch-drives** (EADB-LS)
- **switch-heater** (EADB-ET)

**AIS**

**Routes** (iOS)

**Geometry** (GISDB)
One thread from the objectives to the strategies

- **target network**
  - Fortschreibung zu Zielnetz 2040+ gestartet

- **network dev. plan**
  - Zielsetzung: Umlegung der Ziele und Strategien auf das ÖBB Streckennetz

- **route dev. plan**
  - Zielsetzung: Konkretisierung und Priorisierung der Zielvorgaben aus Zielnetz/NEP

- **Infrastructure dev. plan**
  - Zielsetzung: Entwicklung von konkreten bewerteten Maßnahmen als Grundlage für die Aufnahme des Vorhabens in den Rahmenplan
Network Development Plan (NDP) structured in 3 parts with 10 chapters

**Part A: Development plan – from actual to target**
- Foundations
- Overarching objectives
- Market & Potentials in passenger transport
- Market & Potentials in freight transport
- Train services at the time xxxx
- Rail infrastructure at the time xxxx
- Effect evaluation

**Part B: Strategy – steps towards the goal**
- Initiatives and programs
- Asset strategies

**Part C: From the network to the route**
- Route definitions, classifications and profiles
Route Development Plan (RDP) | structured in 5 Chapters

Objectives and strategies of a single route

Management Summary

Fundamentals
- Facts and figures | route description

Development Plan – from actual to target
- Route objectives
- Potentials in passenger/goods transportation
- Number of trains
- Target traffic offer
- Target performance route/station
- Objectives: Safety, efficiency, condition, functionality, availability, compliance
- Impact assessment

Measures to achieve the objectives

Graphic depictions target route/station
Durchgehende Zielelogik

- **target network**
  - Fortschreibung zu Zielnetz 2040+ gestartet

- **network dev. plan**
  - Zielnetz 2025+
  - OBB Infrastruktur AG

- **route dev. plan**
  - Entwürfe liegen vor

- **Infrastructure dev.**
  - Projektbericht | Strategische Infrastrukturrevitaleitung | Zugbeeinflussungssystem
ÖBB AM-System

Objectives & Strategies

Long-term

Mid-term

Short-term

Processes

Competences & Capabilities

Enablers

Asset Information System (AIS)
Asset Management System [asset management policy, asset management objectives and processes to achieve the objectives]

Competences, Capabilities and Experience of our Employees
the right asset
at the right place
at the right time

...thank you