INTERNATIONAL UNION
OF RAILWAYS

unity, solidarity, universality

OSDM - An Introduction

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1. Introduction

OSDM
Open Sale & Distribution Model

The aims of the **Open Sales and Distribution Model (OSDM)** are twofold:

1. to substantially **simplify the booking process for customers** of rail trips and,
2. to **lower complexity and distribution costs** for distributors and railway carriers.

Thus, distributors and railways joint forces and developed a state-of-the-art distribution API and fare exchange model.

Specification is Open Source and available to everybody:

https://unioninternationalcheminsdefer.github.io/OSDM/

1. OSDM – Vision

OSDM
Open Sale & Distribution Model

Powerful combination

- It must be possible to **combine fares** according to existing fare combinations (e.g., NRT-style PRIFIS) as well as new fare **combination models**.

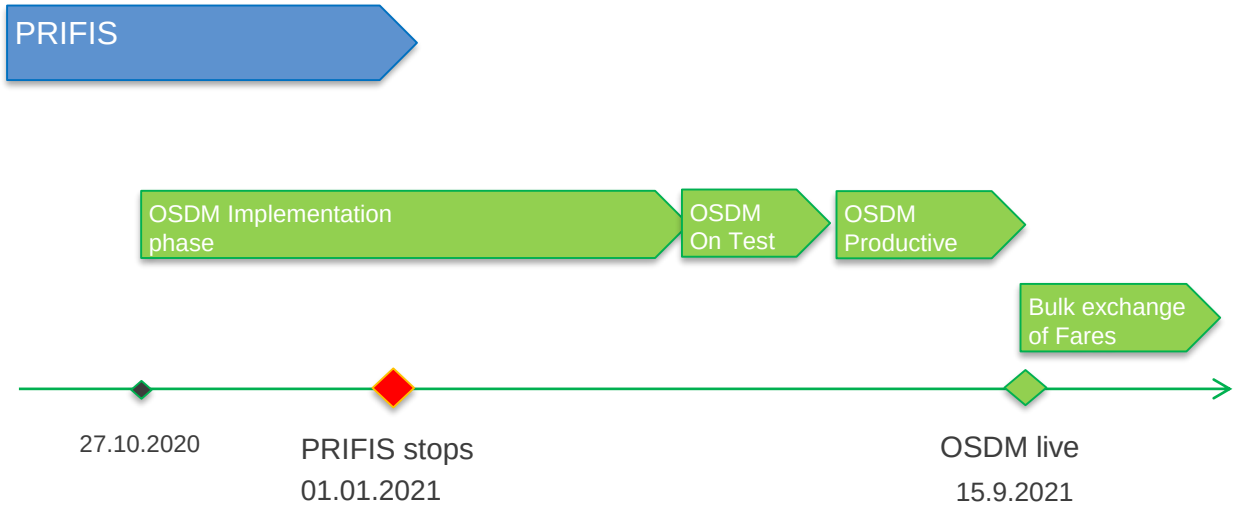
Easy distribution

- It must be **easily possible to distribute** existing and new products.
- Easily possible means two things:

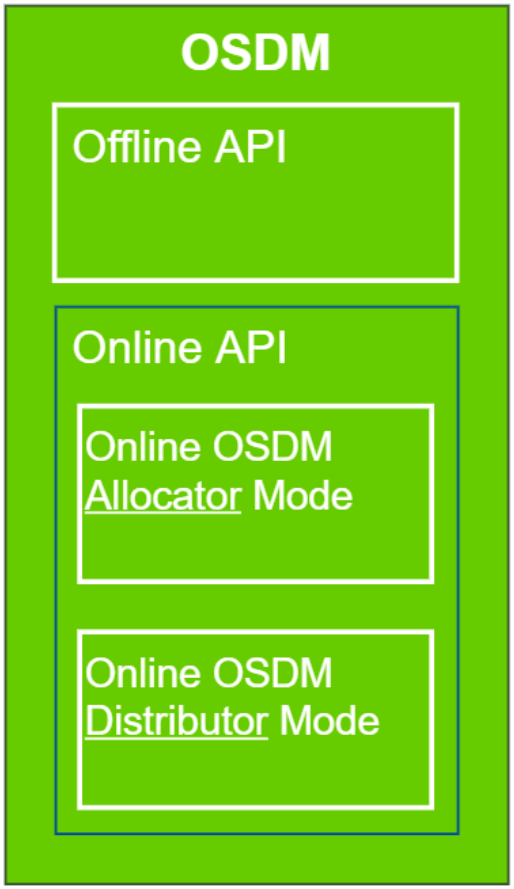
  1. Firstly, for a **customer** it must be easily possible to find and book and – if needed – refund a booking.
  2. Secondly, for the **rail sector as a whole** the complexity of distribution must be reduced to save costs both for development as well as distribution.

1. PRIFIS is End of Live

Replacement: OSDM-Offline



2. Overview of OSDM



Replaces old PRIFIS infrastructure with the OSDM-Offline Plattform

New Online Distribution and Carrier Interface

2. OSDM Online API

OSDM
Open Sale & Distribution Model

- The OSDM is a **light-weight API** consisting of a set of **micro services**.
- It is modelled in YAML, fully supporting the **REST** paradigm.
- The specification is completely **Open Source** and developed in an **agile manner**.

2. Supported Processes

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Open Sale & Distribution Model

Sales and Distribution processes:

- Searching for trips
- Getting offers
- Booking an offer
- Confirmation of the booking
- Fulfillment of the booking

After-sale processes:

- Getting a refund/exchange offers
- Booking a refund/exchange offer
- Fulfillment of the booking

2. Supported Products

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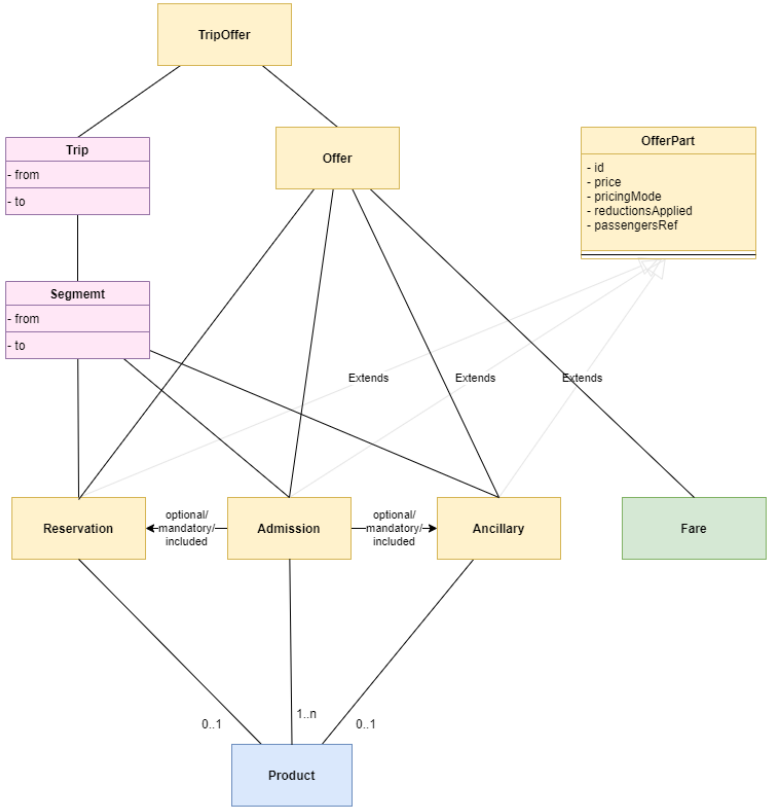
Offers consist of the following parts:

- **Admissions** (aka. tickets),
- **Reservations**,
- **Ancillaries**
- **Fares** (priced segments)

The offers are linked by **optional / mandatory / included relations** to an **overall offer.**



2. OSDM – Roles
Definitions

The **OSDM Online API** is split between roles participants can take:

- **Fare Provider** – defining the fare and combination rules and providing them to allocators offline or online.
- **Allocator** – combining fares, defining after sales rules within the frames et by the fare provider, providing combined offers and managing the booking transaction, managing the ticket security (barcode, control processes), managing compensations processes, managing the stock control process.
- **Distributor** – selling tickets from one or more allocators to the customer. Selecting the allocators and joining multiple independent bookings.

A RU or system provider can support more than one role.

Trips
resources to search for trips and locations

- GET `/locations` Returns matching locations for a given match value based on MatchType.
- GET `/locations/{locationId}` Returns a location element with a given locationId.
- GET `/trips/{tripId}` Returns a trip element representing a travel trip.
- GET `/trips-collection/{tripsCollectionId}` Returns a collection of trips for a specified origin and destination (and via).
- POST `/trips-collection` Returns a collection trips for a specified origin and destination (and via).

Offers
resources to get bookable offers

- GET `/trip-offers-collection/{tripOffersCollectionId}` Returns different offers and trips for a specified origin and destination (and via).
- POST `/trip-offers-collection` Returns trip offers for origin and destination (and via) locations.
- GET `/trip-offers/{tripOfferId}` Returns different offers for a specified tripOfferId.
- GET `/offers/{offerId}` Returns an offer fpr the id requested.
- POST `/offers-collection` Returns offers for non-journey based products.

Bookings
resources to manipulate bookings

- POST `/bookings/search` Allows to search for and find bookings based on a set of criteria.
- POST `/bookings` Allows to create a booking based on a previously requested offer.
- GET `/bookings/{bookingId}` Returns a booking with the id provided.
- DELETE `/bookings/{bookingId}` Deletes the booking with the id provided.
- PATCH `/bookings/{bookingId}` Allows updating the fulfillment type of the booking.

Passengers
resources to manipulate a passenger's information at every stage of the flow

- GET `/bookings/{bookingId}/passengers/{passengerId}` Returns the passenger's information at booking step.
- PATCH `/bookings/{bookingId}/passengers/{passengerId}` Allows updating a passenger's information at booking step.

Products
resources to retrieve products information on one or more products

- GET `/products/{productId}` Returns a product for the id provided.

Fulfillments
resources to retrieve fulfillments, e.g. tickets

- POST `/bookings/{bookingId}/fulfillments` Triggers the fulfillment of the booking.
- PATCH `/bookings/{bookingId}/fulfillments` Allows the effective fulfillment of one ore more confirmed fulfillment.
- GET `/fulfillments/{fulfillmentId}` Returns the fulfillment, aka. ticket for the provided id.

Refund
resources to get and accept a refund offer

- POST `/bookings/{bookingId}/refundOffers` Initiates a refund process by creating a RefundOffer resource.
- GET `/bookings/{bookingId}/refundOffers/{refundOfferId}` Returns the refund offer for the ids provided.
- PATCH `/bookings/{bookingId}/refundOffers/{refundOfferId}` Allows to accept and confirm a refund offer.
- DELETE `/bookings/{bookingId}/refundOffers/{refundOfferId}` Deletes a refundOffer without waiting for expiry.

Exchange
resources to get exchange offers and book it

- GET `/bookings/{bookingId}/exchangeOperations/{exchangeOperationId}` Returns the exchange operation with the id provided. It may be a provisional or a confirmed exchange.
- PATCH `/bookings/{bookingId}/exchangeOperations/{exchangeOperationId}` Allows to update an ongoing exchange operation.
- DELETE `/bookings/{bookingId}/exchangeOperations/{exchangeOperationId}` Cancels an ongoing exchange operation in provisional state.
- POST `/exchange-trip-offers-collection` Returns different exchange offers for a specified fulfillments submitted given requested new trip characteristics.
- GET `/exchange-trip-offers-collection/{exchangeTripOffersCollectionId}` Returns different offers and trips for a specified origin and destination (and via).
- GET `/exchange-trip-offers/{exchangeTripOfferId}` Returns different offers for a specified trip offer id.

CoachLayouts
resources to get the layout of a coach

- GET `/coachLayouts` Returns all coach layouts.
- GET `/coachLayouts/{layoutId}` Returns a coach layout for a provided id.

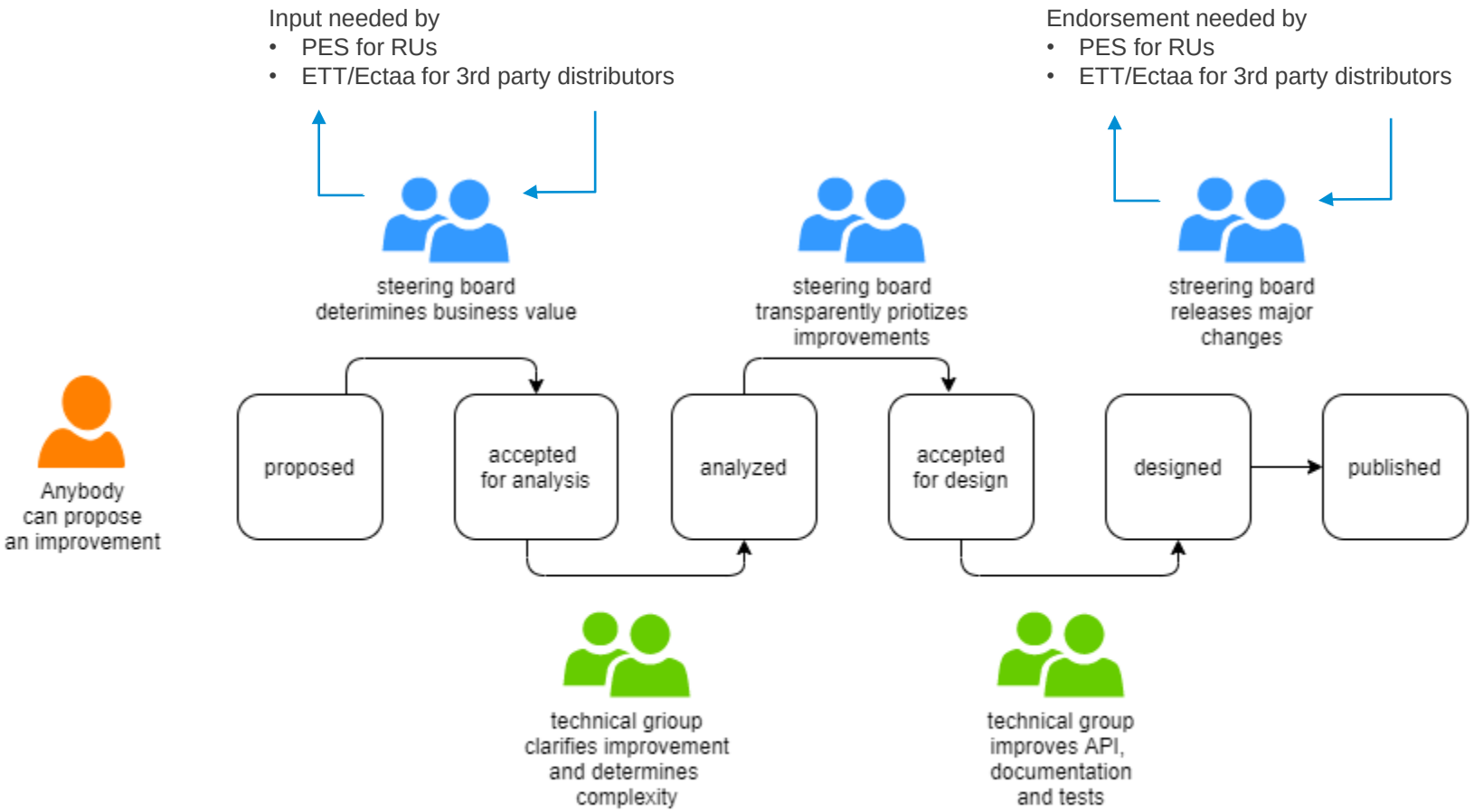
3. Organization of OSDM Working Group
Evolution process

Basic Ideas

- A specification is **product**.
- We have a **backlog of improvements** where all parties can contribute.
- An improvement addresses a need and solves a problem, thus producing **business value.**
- The **OSDM executive committee** prioritizes the backlog based on the value for the railway customer and the railway sector as a whole.
- The OSDM executive committee is a **fair representation of the parties** involved, thus railways and distributors and others.
- The OSDM technical working group **designs** improvements to the standard. To stay focused, the work in progress should not be larger than 3.
- The OSDM technical working group taking special care not to break existing implementations, thus **securing investments** made by all the parties.

3. Organization of OSDM Working Group

Evolution process



3. Organization of OSDM Working Group

Aim: incremental and steady improvement

Technical Aspect

- Versioning major/minor versions following semantic versioning.

Organizational Aspect

- annual publication of an approved IRS 90918-10 version by UIC
- Intermediary minor changes published within the work group

Maintenance Process

- New requirements can be added by all participants in OSDM

4. Schedule for Specification Work

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Offline Stream

OSDM Implementation phase → OSDM On Test → OSDM Productive

Online Stream

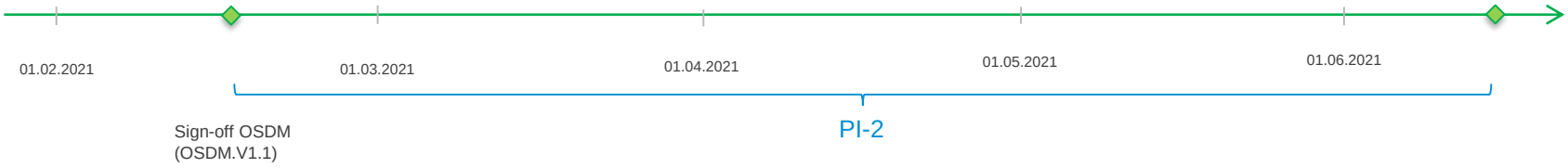
OSDM Working Group every Friday 9:00-11:00

Working Group:

All features in scope for PI-1 are designed and ready for release.

Scope Short List for PI-2

- Needs to be prioritized finally by business representatives from **SPG** and **ETT**!
- I-26 Fares should be bundled in the offline data delivery (Offline-Only) (DB) [planned for end of February]
- I-3 Add support for partial refund/exchange (Trenitalia/SNCF/Amadeus/BeNe)
- I-4 Align /locations and /trips to Transmodel (OJP) (SBB)
- I-16 Add support to sell non-journey based products (passes) (DB/öBB/SBB)
- I-18 Combinations of tickets by distributors (SBB/Amadeus)
- I-19 Add support for tracing (SBB)
- I-28 Add support to query availabilities (Sqills/SBB/ÖBB/DB)



Sign-off OSDM (OSDM.V1.1)

5. Summary

Specification work is on track.

- OSDM will reach a very mature and complete state in Q2/2021

Specification is ready to be implemented

- SBB plans implementing parts of OSDM in Q3/2021 (reservation part).
- öBB and SBB will start a prototype to test online fare combination in Q3/2021

Next meeting.

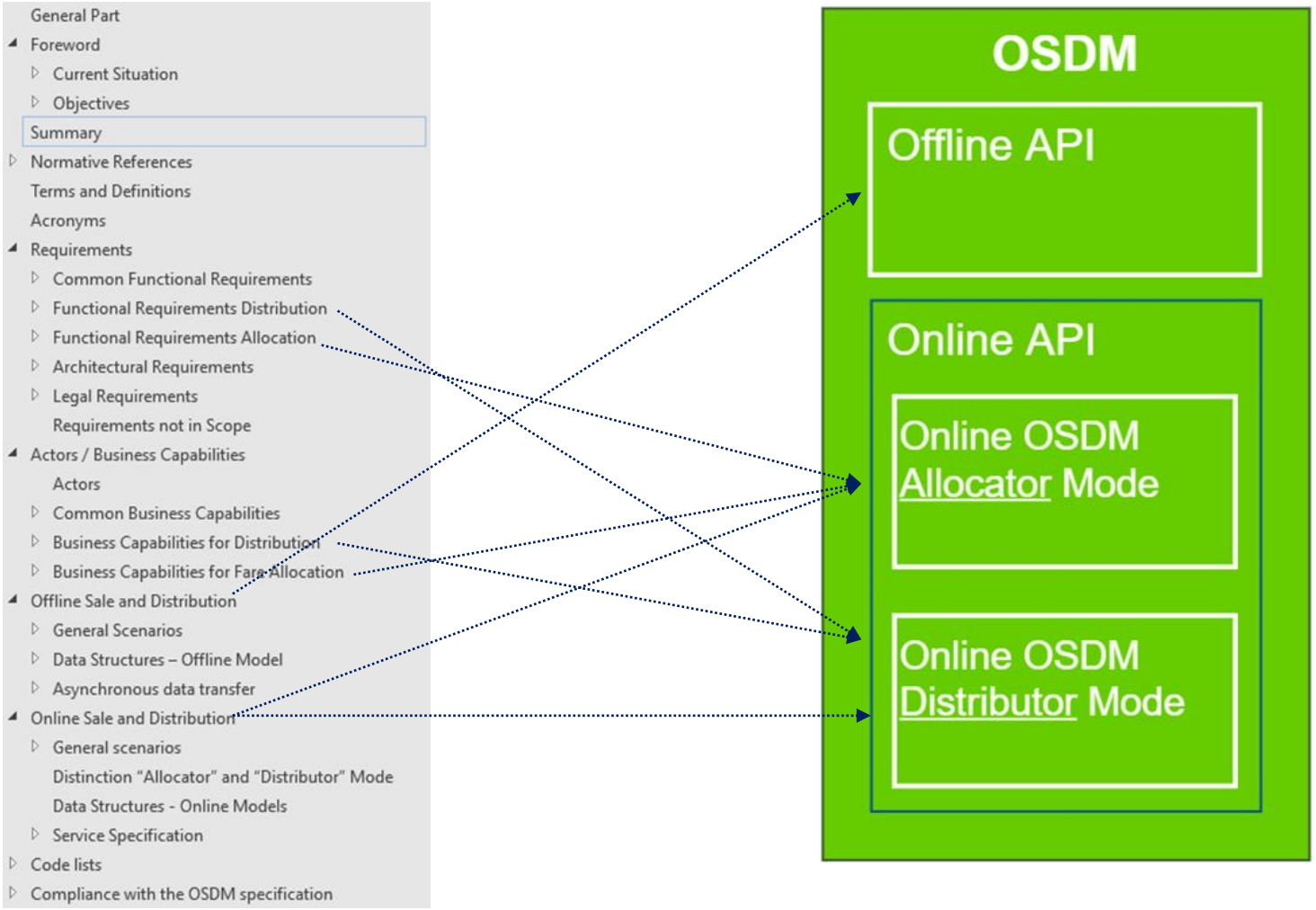
- 28.10.2021

BACKUP

4. Mapping Business Capabilities to Specification

- The specification needs to layout **the business requirements/capabilities** first before documenting the technical implementation
- In order to reflect the functional requirements leading to API they need be made explicit and documented.
- This gives the **business representatives** the possibility to be ascertained that their needs a reflected and addressed.
- Additionally, it helps preventing repeating discussions already had.

4. Mapping Capabilites to API



5. List of Future Enhancements

The API is continuously enhanced

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Scope for Later PIs

- I-7 Add full support for PRMs (CIT)
- I-6 Add support for new mobility services based on pay-after-use (UIC)
- I-8 Add real-time support (DB)
- I-10 Add support for offers only spanning part of a trip (SBB)
- I-17 Add support for stock management (DB)
- I-20 Include links to possible actions (BENE)
- I-21 Add support to support zone-based offer (SBB)
- I-22 Better isolate non-passenger related functionalities & schemas (cars, trailers, etc.) (BENE)
- I-27 Add support for group reservations (SBB)
- I-29 Support promotions in price calculations (SBB)
- I-30 Add the possibility for direct booking (Sqills/Amadeus/SBB)