

INFORMATION TECHNOLOGIES FOR SHIFT TO RAIL

D3.7 Booking & Ticketing Ontology document (FREL)

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EXECUTIVE SUMMARY

This document presents the part of IT2Rail ontology that concerns the Booking & Ticketing module. After a brief introduction, the document presents the ontology development process. Then, the ontology concepts are explained in detail, grouped by subjects (perspectives).

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1. INTRODUCTION

This document presents the fragment of the IT2Rail ontology that concerns Travel Booking & Ticketing (BT) module. In more detail, the BT ontology introduces the concepts necessary to describe and semantically annotate the data that the BT module receives and exports from and towards the other IT2Rail functional areas and the external world.

The document describes in Section 2 the ontology development process. The following sections provide a formal description of the concepts included in the ontology, grouped by perspective: Infrastructure, Travel, Commercial, Roles and Service.

2. ONTOLOGY DEVELOPMENT PROCESS

The following diagram illustrates an iterative ontology development process designed to coordinate and control the development of Specifications developed in Travel Shopping functional area (WP2) to Business Analytics functional area (WP6) with the ontology engineering activities in the Interoperability Framework functional area (WP1).

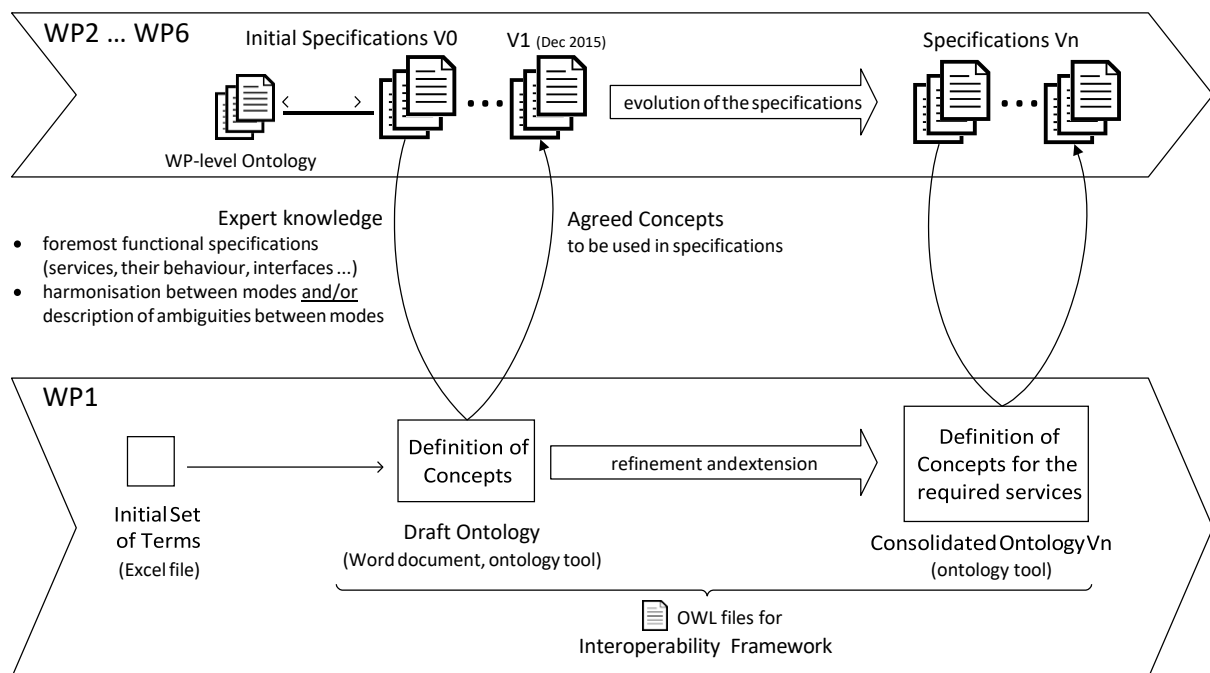


Figure 1: Proposed procedure

Within each functional area, the Ontology and Specification activities must be tightly coupled: the Ontology task should identify concepts needed or handled by the Specifications, particularly the interface specifications, and the Specifications task should use terms defined by Ontology task. The result of both activities is the functional area Specifications document. An important aspect of the identification of concepts at functional area level is the need to harmonize them across transportation modes: when this is not possible, i.e. no common abstraction can be found, differences or ambiguities must be explicitly described.

Specifications documents from the functional areas are used by Interoperability Framework to infer the common/shared ontology, and to refine and extend it generating additional input, i.e. concepts and relationship to the subsequent versions of the functional area Specifications.

In the following section, a methodology based upon table templates shall be used to work out all the concepts required. Emphasis shall be put on those concepts that describe interfaces between components. Each table is structured alike and consists of a table header harboring structural information and a table body representing the concept description.

Concepts are grouped by “perspective”, i.e. Infrastructure, Operations, Travel, Commercial, described in the chapter of each perspective chapter of this document.

We note that the grouping is not by work package, as in general each work package will use concepts from all perspectives at the interfaces. The organization by perspective is necessary to formalize concepts unambiguously, i.e. amenable to automation in Interoperability Framework services.

Each individual concept table contains a ‘header’ with the following metadata:

Header

KEYWORD: A chosen keyword shall be agreed between involved partners. Keyword uniqueness is not required in case the same keyword represents different concepts in distinct domains.

DOMAIN: The domain in which the current concept exists.

SIMILAR TO: In this field keywords of other concepts shall be enumerated which are in some respect similar but not necessarily identical.

RELATED TO: In this field keywords of other concepts shall be enumerated which bear arbitrary relations to the concept in focus.

COMMENT: This field shall be used to annotate the current status of the concept (draft or agreed) in the very beginning. In addition any Information that does not add to the concept itself but may be relevant for reference shall be put in this field. (e.g. “This keyword is drawn from standard ...”).

RESPONSIBLE: Field containing a list of abbreviations of persons, organizations or workgroups responsible for this concept. The abbreviations shall be introduced in section 8.

If the concept in focus is known to be a service, the contents of the table body slightly differ. Otherwise Concepts and Services are considered to be similar to the purpose of the tables. For example, on how completed tables may look like in the case of a service, please refer to the “Access System” in section 7. The free text ‘body’ of each table should be filled in with the following information:

Body

For Concepts	For Services
<ul style="list-style-type: none"> <i>Self-description:</i> What is it? <i>Who employs it, what for, in which context?:</i> Who/What are the Actors? How do they interact? <i>Where does it originate from, how long is it valid?:</i> Description of its Lifecycle. <i>Additional Notes:</i> Any further information which may turn out to be 	<ul style="list-style-type: none"> <i>Self-description:</i> What does it do? <i>Input to the Service, pre-conditions:</i> What does the Service need to be functional? <i>Other actors to invoke:</i> Which other Service might need to be called to generate an answer? <i>Who requests it:</i> Who will probably call

<p>relevant but does not fit in the above fields.</p> <ul style="list-style-type: none"> <i>Example</i> 	<p>the Service and what output will be expected?</p> <ul style="list-style-type: none"> (Of which subservices is it composed?) <i>Additional Notes:</i> Any further information which may turn out to be relevant but does not fit in the above fields. Examples
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Inside the table body (Word) stylesheets (as shown below, concept in red, Relation in blue and Example in green) shall be employed to reference additional Concepts, Relation and Examples. Those stylesheets are already included in the document (see Illustration 2). For an example on how an annotated table body may look like please refer to “Access System” in section 7.

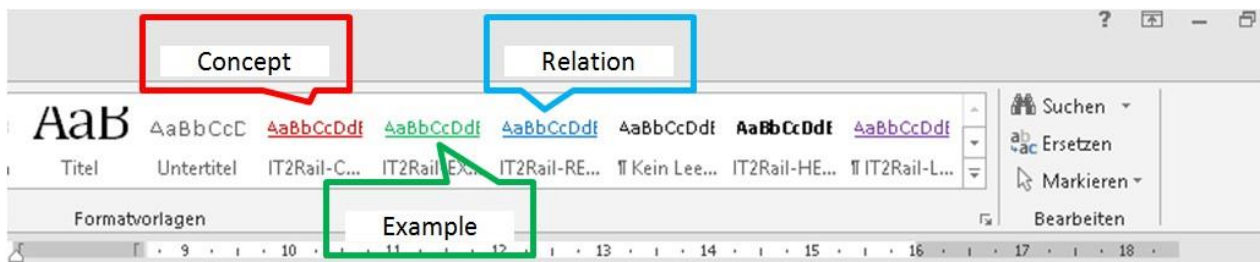


Figure 2: Annotation Concept for Word Document

Any textual elements that are neither Concepts and Relation nor Examples shall have a plain stylesheet applied e.g. “IT2Rail-Text” as displayed in Illustration 3.



Figure 3: Stylesheet for remaining text elements

The following sections are ordered to represent different perspectives (Infrastructure, Travel, Commercial).

3. INFRASTRUCTURE PERSPECTIVE

This chapter groups concepts and/or services related to the infrastructure, i.e. the physical and/or logical organization of the transportation network, as it exists regardless of the actual operation of transportation services over it. It describes an infrastructure on which there are vehicles running. Infrastructures may be different by mode, e.g. an airport is different from a bus station.

3.1 STOP PLACE

KEYWORD	StopPlace
DOMAIN	
SIMILAR TO	
RELATED TO	TransportInfrastructure , Vehicle , Traveller , Location , Quay , VehicleStoppingPlace , LocationCode , RouteLink , TransportMode , StopPlace , AirTransport , BusTransport , CoachTransport , RailTransport , Airport , BusStation , CoachStation , RailStation , Terminal , Topology , LocationCode , Hub , TravelEpisodeStartPoint , TravelEpisodeEndPoint , OpenProduct , Equipment
COMMENT	(draft/ agreed)
RESPONSIBLE	
<p>Is an element of the TransportInfrastructure where Vehicle(s) may stop and where Traveller(s) may board or leave Vehicle(s).</p> <p><i>Additional Notes:</i> A StopPlace has one or more Quay(s) and has one or more VehicleStoppingPlace(s). A StopPlace is located at a Location and has a Name and has one or more LocationCode(s). A StopPlace is connected by RouteLink(s) to one or more other StopPlace(s) at the level of VehicleStoppingPlace(s). A StopPlace may be qualified by TransportMode. StopPlace(s) can be organized in a structural hierarchy. A StopPlace can be composed of StopPlace(s). For example, London Heathrow is a StopPlace, Terminal 5 of London Heathrow is a child StopPlace of London Heathrow.</p> <p>The definition is based on IFOPT.</p>	

3.2 TOPOLOGY

KEYWORD	Topology
DOMAIN	
SIMILAR TO	
RELATED TO	RouteLink , StopPlace , TransportInfrastructure
COMMENT	(draft/ agreed)
RESPONSIBLE	
<p>The way in which constituent parts are interrelated or arranged.</p> <p><i>Additional Notes:</i> A Topology can have a physical and logical representation.</p>	

4. TRAVEL PERSPECTIVE

This perspective describes concepts and/or services related to people in a travel instance realized through the use of travel related services over an infrastructure, i.e. regardless of mode of transportation.

4.1 DESTINATION

KEYWORD	Destination
DOMAIN	
SIMILAR TO	
RELATED TO	Itinerary, TravelEpisodeEndPoint, TravelEpisode, Traveller, Trip, Multimodal, JourneyPlanner
COMMENT	(draft/agreed)
RESPONSIBLE	
Is the TravelEpisodeEndPoint of the last TravelEpisode of the Traveller's Itinerary .	
<i>Additional Notes:</i> For example, Musée d'Orsay , Paris Gare de Lyon , via Focilide 29 Roma , are Destination(s) .	

4.2 ORIGIN

KEYWORD	Origin
DOMAIN	
SIMILAR TO	
RELATED TO	Itinerary, TravelEpisodeStartPoint, TravelEpisode, Traveller, Trip, Multimodal, JourneyPlanner
COMMENT	(draft/agreed)
RESPONSIBLE	
Is the TravelEpisodeStartPoint of the first TravelEpisode of the Traveller's Itinerary .	
<i>Additional Notes:</i> For example, Wembley Stadium , Waterloo Station , 3 Abbey Road London , are Origin(s) .	

4.3 ITINERARY

KEYWORD	Itinerary
DOMAIN	
SIMILAR TO	
RELATED TO	Origin, Destination, Journey, PointOfViewing, MobilityRequest, StopOver, Trip, Comodal, Monomodal, Multimodal, Intermodal, ItineraryOffer, TravelCompanionApplication, TravellerWallet, CustomerWallet
COMMENT	(draft/agreed)
RESPONSIBLE	
Is a sequence of consecutive Journey(s) . It is also a sequence of consecutive TravelEpisode(s) .	
<i>Additional Notes:</i> An Itinerary has an Origin and has a Destination .	

4.4 TRAVEL EPISODE

KEYWORD	TravelEpisode
DOMAIN	
SIMILAR TO	
RELATED TO	Traveller, Vehicle, VehicleStoppingPlace, TravelEpisodeStartPoint, TravelEpisodeEndPoint, Arrival, Departure, Origin, Destination, Itinerary, Journey, Segment, BaggageAllowance, ProductConsumption, DisruptiveTransportEvent, Travel
COMMENT	(draft/agreed)
RESPONSIBLE	
<p>Is the representation of the movement of the Traveller between two TravelEpisodeEndPoint(s) (respectively start and end).</p> <p>Is the movement of the Traveller which is experienced as homogeneous in the sense that the Traveller is using either one and the same commercial Vehicle throughout the TravelEpisode or a non-commercial way to cover a distance such as walking or cycling.</p> <p><i>Additional Notes:</i> It also may include the transfer of the Traveller to and from a VehicleStoppingPlace if this is mandatory to the Traveller and cannot be influenced in any way by the Traveller himself. An Example is the bus transfer from the apron position of a plane to the BoardingGate. In contrast, using a sky train to Travel between two airport terminals is a TravelEpisode on its own, as the Traveller can decide whether to use a sky train or e.g. to walk to cover the distance. A TravelEpisode has a TravelEpisodeStartPoint which marks the beginning of a TravelEpisode and has a TravelEpisodeEndPoint which marks the end of a TravelEpisode.</p>	

4.5 TRAVEL EPISODE END POINT

KEYWORD	TravelEpisodeEndPoint
DOMAIN	
SIMILAR TO	
RELATED TO	TravelEpisode, POI, StopPlace, VehicleStoppingPlace, Arrival, Destination, StopOver
COMMENT	(draft/agreed)
RESPONSIBLE	
<p>Is the spatial end of a TravelEpisode.</p> <p><i>Additional Notes:</i> A TravelEpisodeEndPoint can be a StopPlace or any other Location at which a TravelEpisode ends.</p>	

4.6 TRAVEL EPISODE START POINT

KEYWORD	TravelEpisodeStartPoint
DOMAIN	
SIMILAR TO	
RELATED TO	TravelEpisode, POI, StopPlace, VehicleStoppingPlace, Departure, Origin
COMMENT	(draft/agreed)
RESPONSIBLE	
<p>Is the spatial beginning of a TravelEpisode.</p> <p><i>Additional Notes:</i> A TravelEpisodeStartPoint can be a StopPlace or any other Location at which a TravelEpisode starts.</p>	

4.7 ARRIVAL DATE TIME

KEYWORD	ArrivalDatetime
DOMAIN	
SIMILAR TO	
RELATED TO	Arrival, OpenProduct
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
Are the date and time values associated with the Arrival (as TravelEpisodeEndPoint).	
<i>Additional Notes:</i>	

4.8 DEPARTURE DATE TIME

KEYWORD	DepartureDatetime
DOMAIN	
SIMILAR TO	
RELATED TO	Departure, OpenProduct, BookingTimeLimit
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
Are the date and time values associated with the Departure (as TravelEpisodeStartPoint).	
<i>Additional Notes:</i>	

4.9 TRAVELLER PREFERENCES

KEYWORD	TravellerPreferences
DOMAIN	
SIMILAR TO	
RELATED TO	Traveller, Service, Good, LoyaltyProgram, PRM, TransportServiceProvider, TransportMode, AncillaryService, Passenger, TravellerWallet, CustomerWallet, TravelServiceProvider
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
Is the Traveller -related information that represents its travel-related needs and choices.	
<i>Additional Notes:</i> Service (s) and Good (s) which are offered to the Traveller , should correspond to its TravellerPreferences . TravellerPreferences can comprise the participation in a LoyaltyProgram , being a PRM , the preferred TransportServiceProvider , the preferred TransportMode among others, the location of a seat, meal preferences...	

4.10 VALIDATION TRANSACTION

KEYWORD	ValidationTransaction
DOMAIN	
SIMILAR TO	
RELATED TO	Token, AccessSystem
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	Functional area Booking & Ticketing (WP3)
<p>Is the data describing a Token alteration by an AccessSystem at a date and time.</p> <p>Guarantees non-repudiation.</p> <p><i>Additional Notes:</i> A ValidationTransaction is emitted at validation time by the action of the AccessSystem and the Token/embodiment. It can be used as a proof of passage for the Traveller or the ticketing system.</p>	

5. COMMERCIAL PERSPECTIVE

This perspective describes concept and/or services related to the commercial aspects of travel, i.e. how services and products are searched, selected, purchased, paid for, etc.

5.1 AFTER SALES

KEYWORD	AfterSales
DOMAIN	
SIMILAR TO	Post-sales processes
RELATED TO	Entitlement, Cancellation
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
Is a collection of business processes that <u>can only be performed on</u> issued <u>Entitlement</u> (s).	
Additional Notes: <u>AfterSales</u> can include <u>Cancellation</u> , exchange, modification, revalidation among other business processes (for example re-routing and compensation).	

5.2 ANCILLARY SERVICE

KEYWORD	AncillaryService
DOMAIN	
SIMILAR TO	
RELATED TO	Service, Product, Traveller, TravellerPreferences, Reservation, Organisation, TransportServiceProvider, ProductOwner, BaggageAllowance, TravelClass, ServiceProvider
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	Functional area Booking & Ticketing (WP3)
Is a <u>Service</u> enhancing the value of a <u>Product</u> and therefore <u>cannot be purchased without reference to</u> such a <u>Product</u> .	
Additional Notes: <u>AncillaryService</u> (s) <u>are proposed</u> for the use by the <u>Traveller</u> . The usage of <u>AncillaryService</u> (s) <u>can depend</u> on <u>TravellerPreferences</u> . <u>AncillaryService</u> (s) <u>can contribute</u> to make the travel experience tailored to the <u>Traveller</u> . Examples of <u>AncillaryService</u> (s) are <u>on-board meals</u> , <u>special assistance</u> , <u>Wi-Fi</u> among others. A <u>Reservation</u> may also be modelled and sold as an <u>AncillaryService</u> . <u>AncillaryService</u> (s) <u>may be supplied by</u> a different <u>Organisation</u> than the <u>TransportServiceProvider</u> . The binding business rules are owned by the <u>ProductOwner</u> .	

5.3 PRODUCT AVAILABILITY

KEYWORD	ProductAvailability
DOMAIN	
SIMILAR TO	
RELATED TO	Product, Booking, Facility, Vehicle, UnlimitedSupplyProduct, UrbanTransport, ProductAvailabilityLock, ProductAvailabilityRequest, Booking, LimitedSupplyProduct, Offer
COMMENT	(draft/agreed)
RESPONSIBLE	
<p><u>Is</u> the disposable supply of a <u>Product computed</u> at a certain stage <u>during Booking</u>.</p> <p><i>Additional Notes:</i> <u>ProductAvailability can be constrained</u> for example due to physical limitations of <u>Facility(ies)</u> <u>in</u> a <u>Vehicle</u>, due to time-related or other limitations. For example, only a certain amount of business class seats is available for a specific flight, which implies that only a certain amount of business class tickets can be sold for this flight. However, <u>ProductAvailability is assumed as unconstrained</u> for <u>UnlimitedSupplyProduct(s)</u> such as for <u>Product(s) related to UrbanTransport</u>. For example, the places in a metro are assumed as unconstrained and their availability is not a prerequisite for the selling of such <u>Product(s)</u>.</p>	

5.4 PRODUCT AVAILABILITY LOCK

KEYWORD	ProductAvailabilityLock
DOMAIN	
SIMILAR TO	
RELATED TO	ProductAvailability, Customer, ConfirmedBooking
COMMENT	(draft/agreed)
RESPONSIBLE	Functional area Booking & Ticketing (WP3)
<p><u>Is</u> the temporary holding of <u>ProductAvailability</u>.</p> <p><i>Additional Notes:</i> A <u>ProductAvailabilityLock allows</u> the <u>Customer</u> to complete other necessary steps prior to a <u>ConfirmedBooking</u>.</p>	

5.5 BOOKING

KEYWORD	Booking
DOMAIN	
SIMILAR TO	
RELATED TO	Offer, Customer, ProductRetailer, Product, ProductAvailability, AirTransport, BookingProvider, ConfirmedBooking, BookingClass, BookingTimeLimit, Offer, Reservation, BookingProviderReference, BookingReference, Customer, SeatNumber
COMMENT	(draft/agreed)
RESPONSIBLE	
<p><u>Is</u> the business process of <u>selecting</u> an <u>Offer by</u> the <u>Customer</u> for purchase and recording the subsequent <u>agreement by</u> the <u>TransportServiceProvider to provide</u> the <u>Product(s)</u> described in the <u>Offer</u>.</p> <p><i>Additional Notes:</i> <u>Checking ProductAvailability</u> and <u>obtaining available Offer(s)</u> <u>are a prerequisite for</u> a successful <u>Booking</u>.</p>	

5.6 BOOKING ELEMENTS

KEYWORD	BookingElements
DOMAIN	
SIMILAR TO	
RELATED TO	Booking, ItineraryOfferItem
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
<p><u>Is</u> a set of records linking a <u>Booking</u> with each <u>ItineraryOfferItem</u> for availability. Each record of <u>BookingElements</u> <u>has</u> a BookingStatus property.</p> <p><i>Additional Notes:</i> The <u>BookingElements</u> are all the data needed to identify the <u>FareProduct</u>(s) to be booked and linked to a <u>Passenger</u>.</p>	

5.7 GUARANTEED PRICE BOOKING

KEYWORD	GuaranteedPriceBooking
DOMAIN	
SIMILAR TO	
RELATED TO	Booking, Offer, Customer, ProductRetailer, Product, ProductAvailability, AirTransport, BookingProvider, ConfirmedBooking, BookingClass, BookingTimeLimit, Offer, Reservation, BookingProviderReference, BookingReference, Customer, SeatNumber
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
<p><u>Is</u> a Booking where all booked <u>ItineraryOfferItem(s)</u>'s <u>OfferItemPrice(s)</u> are guaranteed by the <u>ItineraryOfferItem(s)</u> provider.</p> <p><i>Additional Notes:</i></p>	

5.8 CONFIRMED BOOKING

KEYWORD	ConfirmedBooking
DOMAIN	
SIMILAR TO	
RELATED TO	Booking, Customer, ProofOfPayment, Entitlement, Product, ProductAvailabilityLock
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
<p><u>Is</u> a completed <u>Booking</u> due to the fact that the <u>Customer</u> <u>has submitted</u> a <u>ProofOfPayment</u>.</p> <p><i>Additional Notes:</i> A <u>ConfirmedBooking</u> <u>is</u> a necessary condition for <u>issuing Entitlement(s)</u> for the associated <u>Product(s)</u> on these <u>TravelEpisode(s)</u>. A <u>ConfirmedBooking</u> <u>does not authorise actual</u> consumption <u>of the</u></p>	

5.9 PROOF OF PAYMENT

KEYWORD	ProofOfPayment
DOMAIN	
SIMILAR TO	
RELATED TO	Paying, ConfirmedBooking
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
<u>Is an evidence that Paying has already been made or will be made in the future.</u>	
Additional Notes:	

5.10 PAYMENT MEAN

KEYWORD	PaymentMean
DOMAIN	
SIMILAR TO	
RELATED TO	PaymentDetails, Paying, ConfirmedBooking
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
<u>Is the description of a mean that can be used to perform Paying.</u>	
Additional Notes:	

5.11 PAYMENT DETAILS

KEYWORD	PaymentDetails
DOMAIN	
SIMILAR TO	
RELATED TO	PaymentMeans, Paying, ConfirmedBooking
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
<u>Is the detailed data that can be used to perform the payment process depending on the PaymentMean(s).</u>	
Additional Notes: In Transmodel V5.1 the PaymentDetails correspond to SALE TRANSACTION.	

5.12 EMBODIMENT

KEYWORD	Embodiment
DOMAIN	
SIMILAR TO	Synonym: FareMedium
RELATED TO	PhysicalMedium, Token, Entitlement, AccessSystem, InspectionDevice, Ticket, Validation, ProductOwner, ContactlessSmartCard, SmartDevice, Tapping
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	Functional area Booking & Ticketing (WP3)
<u>Is a PhysicalMedium containing one or more Token(s) associated with the same or different Entitlement(s) and which is compatible with the AccessSystem(s) and InspectionDevice(s) that are using the Embodiment's Token(s).</u>	
Additional Notes: Examples are <u>paper tickets</u> , <u>magnetic-stripe tickets</u> , <u>chip cards</u> , <u>smartphones</u> . There <u>can be</u> more than one <u>Embodiment</u> containing <u>Token(s)</u> from the same <u>Entitlement</u> .	

5.13 ENTITLEMENT

KEYWORD	Entitlement
DOMAIN	
SIMILAR TO	
RELATED TO	Traveller, Traveling, Segment, Customer, Cancelling, Contract, Product, Good, TransportServiceProvider, AfterSales, Comodal, Intermodal, Embodiment, Inspection, ProductConsumption, ThroughFare, Ticket, Token, Validation, ProductOwner, TravellerWallet, CustomerWallet, EntitlementNumber, TicketTimeLimit
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	Functional area Booking & Ticketing (WP3)
<p><u>Is</u> the set of the rights, duties and liabilities which are legally binding the parties.</p> <p>Is an electronic representation linked to a TravelOffer involving an Offer Provider and one or more <u>Traveller(s)</u> <u>necessary for Travelling</u> on <u>TravelEpisode(s)</u></p> <p><i>Additional Notes:</i> An <u>Entitlement is created</u> out of a <u>Product offered on</u> these <u>TravelEpisode(s)</u>. For certain purchased <u>Product(s)</u> exactly one <u>Entitlement is issued</u>. Some rights, duties and liabilities are granted contractually by the <u>TransportServiceProvider</u>. It is the contract associated with a travel offer accepted by both the TravelServiceProvider and the customer.</p> <p>In Transmodel V5.1 the Entitlement concept correspond to the PASSENGER CONTRACT.</p>	

5.14 FARE PRODUCT

KEYWORD	FareProduct
DOMAIN	
SIMILAR TO	
RELATED TO	FareRule, Name, Token
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
<p><u>Is a set of</u> <u>FareRule(s)</u> and parameter(s) which are applied together.</p> <p><u>Allows the use of</u> a <u>TransportService</u>.</p> <p><u>Is instantiated in</u> a <u>Token</u> when issued.</p> <p><i>Additional Notes:</i> A <u>FareProduct has</u> a <u>Name</u>. Example: a <u>multiride</u>, a <u>city pass</u></p>	

5.15 FARE RULE

KEYWORD	FareRule
DOMAIN	
SIMILAR TO	
RELATED TO	Price, Product, Segment, UrbanTransport, FareType
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	Functional area Booking & Ticketing (WP3)
<p><u>Is</u> a description of how to compute the <u>Price</u>, validity and consumption of a <u>Product offered on</u> a <u>TravelEpisode</u>.</p> <p><i>Additional Notes:</i></p>	

5.16 ITINERARY OFFER

KEYWORD	ItineraryOffer
DOMAIN	
SIMILAR TO	Synonym: Travel Solutions, TravelOffer
RELATED TO	Offer, Itinerary
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
<i>Is an <u>Offer for a specific Itinerary</u>. <u>Is composed of Itinerary offer item(s)</u>.</i>	
<i>Additional Notes: An <u>ItineraryOffer</u> can be an aggregation of <u>Offer(s)</u>.</i>	

5.17 ITINERARY OFFER ITEM

KEYWORD	ItineraryOfferItem
DOMAIN	
SIMILAR TO	
RELATED TO	ItineraryOffer
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
<i>Is an element of an <u>ItineraryOffer</u> describing a specific offer to Passengers of Products on TravelEpisode(s) (including Start Point and/or End point only) in a specific shopping process instance.</i>	
<i>Additional Notes: Associative class representing a 3-way relation of - one or more Products - one or more Travel Episodes - one or more Passengers with the meaning that the specified Products are offered on the specified TravelEpisodes to the specified Passengers for a single OfferItem Price, a single set of Sales Conditions and After Sales Conditions under a set of accepted payment modes. In Transmodel V5.1, itinerary offer item could correspond to SALES PACKAGE with ConditionSummary and ValidityParameterAssignment with additional information related to passengers that can be matched with CUSTOMER.</i>	

5.18 PASSENGER

KEYWORD	Passenger
DOMAIN	
SIMILAR TO	
RELATED TO	Traveller, Vehicle, TravellerProfile, TravellerPreferences, ContractOfCarriage, Reservation, Facility, SeatNumber
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
<i>Is a <u>Traveller riding on-board</u> a <u>Vehicle</u>.</i>	
<i>Additional Notes:</i>	

5.19 PRICE

KEYWORD	Price
DOMAIN	
SIMILAR TO	Synonym: , OfferItemPrice
RELATED TO	Product, FareRule, Offer, Pricing
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
Is the monetary value for a Product .	
<i>Additional Notes:</i> A Price may include taxes, fees and other debited or credited amounts.	

5.20 OFFER ITEM PRICE

KEYWORD	OfferItemPrice
DOMAIN	
SIMILAR TO	Synonym: Price
RELATED TO	Product, FareRule, Offer, Pricing, OfferItemPriceItem
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
Is the price of an ItinerartOfferItem charged for its purchase. Is composed of OfferItemPriceItem(s)	
<i>Additional Notes:</i> In Transmodel V5.1 the OfferItemPrice concept corresponds to the list of SalesPackagePrice.	

5.21 OFFER ITEM PRICE ITEM

KEYWORD	OfferItemPriceItem
DOMAIN	
SIMILAR TO	
RELATED TO	Product, FareRule, Offer, Pricing, OfferItemPrice
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
Is an element of an OfferItemPrice charged for its purchase.	
<i>Additional Notes:</i> In Transmodel V5.1 the OfferItemPrice concept corresponds to SalesPackagePrice.	

5.22 PRODUCT

KEYWORD	Product
DOMAIN	
SIMILAR TO	
RELATED TO	Service, Good, Segment, AncillaryService, ProductAvailability, Booking, ConfirmedBooking, Entitlement, FareRule, InterlineProduct, LoyaltyProgram, LimitedSupplyProduct, UnlimitedSupplyProduct, Offer, OpenProduct, Price, Paying, Reservation, ThroughFare, MarketingCarrier, ProductOwner, ProductRetailer, TravelServiceProvider
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	Functional area Booking & Ticketing (WP3)
<p><u>Is</u> a travel-related, purchasable <u>Service</u> or <u>Good</u> comprising a sound set of pricing rules, usage rules and commercial rules.</p> <p><i>Additional Notes:</i> A <u>Product can be derived from</u> a combination or enrichment of other <u>Product</u>(s). A product comprises a sound set of pricing rules, usage rules and commercial rules.</p>	

5.23 TOKEN

KEYWORD	Token
DOMAIN	
SIMILAR TO	
RELATED TO	Entitlement, Organisation, Authentication, Embodiment, ProductConsumption, Ticket, Validation, TravelCompanionApplication, TravellerWallet, 2DBarcode, Barcode, CustomerWallet
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	Functional area Booking & Ticketing (WP3)
<p><u>Is a subset of</u> an <u>Entitlement</u>'s information set and <u>is generated and used by</u> an <u>Organisation</u> for its own purposes in the business processes in which this <u>Organisation</u> is participating (in particular <u>Validation</u>).</p> <p><i>Additional Notes:</i> A <u>Token is</u> a specific translation of an <u>Entitlement</u> and has usually a proprietary encoding.</p>	

6. ROLES PERSPECTIVE

6.1 BOOKING PROVIDER

KEYWORD	BookingProvider
DOMAIN	
SIMILAR TO	
RELATED TO	ProductRetailer, AirTransport, Booking, BookingTimeLimit, Reservation, BookingProviderReference
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	Functional area Booking & Ticketing (WP3)
Is an <u>organisation</u> providing <u>booking</u> services.	
<i>Additional Notes:</i> An example is <u>Amadeus</u> .	

6.2 CUSTOMER

KEYWORD	Customer
DOMAIN	
SIMILAR TO	
RELATED TO	Actor, Contract, TransportServiceProvider, Shopping, Booking, Paying, Cancellation, Product, Traveller, ProductAvailabilityLock, CustomerPreferences, ConfirmedBooking, Comodal, Intermodal, Entitlement, LoyaltyProgram, Offer, Refunding, ProductRetailer, TravelCompanionApplication, TravellerWallet, CustomerWallet
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
Is an <u>Actor</u> that <u>enters into</u> a <u>Contract</u> with a TransportServiceProvider.	
<i>Additional Notes:</i> The <u>Customer is involved in Shopping, Booking, Paying, Cancellation</u> among other business processes. The <u>Customer can buy Product(s)</u> in the name of and for the benefit of the <u>Traveller</u> . The <u>Customer can be the Traveller</u> .	
<p>The customer can have different roles at different moments according to the process in which he is involved. E.g.:</p> <ul style="list-style-type: none"> - The customer is a buyer when he buy products in a distribution process - The customer is a payer when his mean of payment is used in a distribution process - The customer is a Traveller when he uses a transportation mean thanks to entitlements - The customer is a contact when he calls a call center or receives a message in a marketing campaign - The customer is a offender when he does not respect the terms and conditions of a service - The customer is a passenger when transported on a vehicle - The customer should always be a client when the actors involved in his travel are requested for help - The customer is a victim when he/she is harmed in a travel accident or travel disruption... 	

6.3 TRAVELLER

KEYWORD	Traveller
DOMAIN	
SIMILAR TO	
RELATED TO	Person, Travel, Individual, PointOfInterest, StopPlace, TransportInfrastructure, PointOfViewing, Connection, LineNumber, VehicleStoppingPlace, Arrival, Departure, Origin, Destination, MobilityRequest, Scenery, TravelEpisode, TravellerPreferences, AncillaryService, BaggageAllowance, LoyaltyMedium, LoyaltyCode, Entitlement, Inspection, OpenProduct, Passenger, TravellerProfile, ThroughFare, Validation, TravelCompanionApplication, TravellerWallet, TravellerContext, DisruptiveTransportEvent, RecoveryTime, Transfer, TravellerDevice, TravellerIdentifier, CustomerWallet
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	Functional area Booking & Ticketing (WP3)
Is a Traveling Person .	
<i>Additional Notes:</i> In some cases a Traveller can be allowed to travel with a minor child (under a given age) under the same and one entitlement. Or a Traveller can be accompanying a PRM Traveller, and in such a case may benefit from specific booking and ticketing conditions.	

6.4 TRANSPORT SERVICE PROVIDER

KEYWORD	TransportServiceProvider
DOMAIN	
SIMILAR TO	Synonym: TSP
RELATED TO	Organisation, TransportService, TransportNetwork, Hub, MinimumConnectionTime, Segment, TravellerPreferences, AncillaryService, Comodal, Entitlement, ThroughFare, Airline, BookingReference, TicketControllingOrganisation, TravelExpert
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
Is a specific case of TravelServiceProvider ensuring transport service operations and running the vehicles used by the passenger (TOC).	
Is an Organisation offering TransportService(s) .	

6.5 RETAILER

KEYWORD	Retailer
DOMAIN	
SIMILAR TO	
RELATED TO	ProductRetailer, AirTransport, Booking, BookingTimeLimit, Reservation, BookingProviderReference
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	
<p>Is an Organization selling the Products of Transport Service Provider(s) using the services of Distributors. A Retailer may have a direct commercial relationship with a TSP whereby it acts as an appointed agent and/or it may have an indirect relationship with a TSPs whereby it uses the services of a Commercial Distributor.</p> <p><i>Additional Notes:</i></p> <p>They can be Travel Agents (offline or online) including Travel Management Companies, or the direct distribution channels of Carriers (stations ticket offices, call centres, ticket vending machines, hand-held on-board devices, websites). In the Legal context, the Retailer concludes the Contract of Carriage between the Passenger and the Contractual Carrier(s) (TOC) in the name of and for the account of the latter as a function of the sales agreement which the Retailer has with the Rail Service Provider, possibly using a Commercial/Technical Distributor as intermediary.</p>	

7. SERVICES PERSPECTIVE

7.1 ACCESS SYSTEM

KEYWORD	AccessSystem
DOMAIN	
SIMILAR TO	
RELATED TO	Facility, Validation, Embodiment, TravelCompanionApplication, TravellerWallet, Tapping
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	Functional area Booking & Ticketing (WP3)
<u>Is a</u> Facility used for Validation .	
<i>Additional Notes:</i> Examples are bus validators , metro gates among others.	

7.2 INSPECTION DEVICE

KEYWORD	InspectionDevice
DOMAIN	
SIMILAR TO	
RELATED TO	Equipment, Inspection, Embodiment, TravelCompanionApplication, TravellerWallet, Tapping
COMMENT	(draft/ <u>agreed</u>)
RESPONSIBLE	Functional area Booking & Ticketing (WP3)
<u>Is a</u> portable Equipment used for Inspection .	
<i>Additional Notes:</i>	

8. ABBREVIATIONS

CSC	Contactless Smart Card
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
NFC	NFC – Near Field Communication
PRM	Person with reduced mobility
POI	Point of Interest
POV	Point of Viewing
RFID	Radio Frequency Identification
TOC	Transport Operating Carrier
TSP	Transport Service Provider

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