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Co-Active

D1.1 – WP1 Travel Shopping CREL Ontology

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Grant Agreement No. 730846

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Grant Agreement No. 730846

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Grant Agreement No. 730846

TABLE OF CONTENTS

Report Contributors	2
Table of contents.....	3
1 Scope.....	4
2 Referenced documents.....	5
3 Ontology description.....	6



Grant Agreement No. 730846

1 SCOPE

This document presents the fragment of the IP4 ontology that concerns Travel Shopping (TS) module. In more detail, the TS ontology introduces the concepts necessary to describe and semantically annotate the data that the TS module receives and exports from and towards the other work packages and the external world.

2 REFERENCED DOCUMENTS

This section lists the document reference number, title, revision, and date of all documents referenced in the specifications document.

Reference Number	Title	Revision	Date
<i>WP2_Ontology</i>	TD 4.3 CREL Ontology	TBD	TBD

Table 1: Referenced documents

3 ONTLOGY DESCRIPTION

Term	Description
A Access Area (or Access Space)	<p>An area such as a concourse and/or a booking hall and/or other areas (e.g. commercial or lounge) which is secured or not and which is managed by a StopPlace manager.</p> <p>An air station manager is the airport manager. Some parts of the Access Area may be opened to the general public, and others restricted to passengers with a valid token/embodiment and also in some cases after a police control (at least of the luggage, often of individual ID or passport as well). In such cases the traveller's token shall be checked more than one time before boarding. An Access Area can offer one travel services to the traveller either from the Transport Service Provider (business lounge) or from the station manager (restrooms, prayers room...). Tax free areas are other examples of parts of Access Areas accessible under specific conditions (valid token) in international stations.</p>
A Access system	<p>These systems manage the access to the transportation system (like bus validators and metro gates). It could also be manual and even not existing in certain cases.</p>
A Accountability	<p>Property that ensures that the actions of an entity may be traced uniquely to the entity.</p>
A Accounting	<p>The Accounting activity consists of processing sales and After-Sales transactions described by confirmed Bookings for financial and controlling purposes (including apportionment, Settlement, etc.).</p>
A Acquiring bank	<p>The entity which performs services for a MERCHANT (travel agent or TSP) and which will route a credit card approval request to the ISSUING BANK (where there is no SWITCH-TO-ISSUER arrangement in place) and will route a CREDIT CARD BILLING request to the ISSUING BANK (if it contains the Approval Code matching the Approval Code in the response to a Credit Card Approval Request).</p>
A Acquisition	<p>Process of acquiring a Contract. It includes Shopping, Booking, Pricing, Billing, and Paying among other processes.</p>
A Actor	<p>An Actor is a behaviour classifier which specifies a role played by an external entity that interacts with the considered system. Can be a Person, or an Organization or a digital system.</p>

Grant Agreement No. 730846

Term	Description
A After sales	After Sales refers to a collection of transactions (ticket cancellation, refund, exchange, modification, revalidation etc.) which share the fact that they can only be performed on Issued and paid for Entitlements.
A Agglomeration	Set of cities served by shared transport services in a continuous territory.
A Agreement	See CMMP Agreement
A Air transport	A transport mode dedicated to the transportation by air
A Airport	<p>Airport is an infrastructure prepared to operate and accommodate the arrival and departure for air traffic.</p> <p>An Airport can also be considered a Stop Place qualified for Air Transportation (Air station).</p>
A Alert Management	A function managing the tracking of messages concerning the trip, such as alerts concerning disruptions affecting the trip.
A Ancillary Service	Ancillary Services are side Products which are bound to transportation Products in an Offer and enhance its value for the Customer.
A Arrival	An Arrival is a Transport Event, occurring, or planned to occur at a specific Arrival Date Time and Stop Place.
A Arrival Date Time	The date and time values associated with the Arrival which marks the actual and/or planned end of a Travel Episode.
A Authentication	The authentication consists in checking the identity of a Customer or a Traveller in order to allow him to do some actions.

Grant Agreement No. 730846

Term	Description
A Authenticity	Property that an entity is what it is claims to be. Authenticity applies to entities such as users, processes, systems and information.
A Authorization Token	A unique identifier of an interaction session. By extension a UserID Token will grant credentials to trigger operations related to a specific user.
A Availability	The quality of being at hand when needed (Collins).
B Barcode	A barcode is a machine-readable optical label that contains information about the item to which it is attached.
B Benefit card	An element of the Passenger Profile allowing a Passenger to use a dedicated Fare Policy or Loyalty Card allowing a Passenger to access dedicated services of a loyalty program.
B Booked Offer	A solution to a travel needs that has been booked and paid.
B Booked Offer Item	An offer item provided by a single TSP on Travel Episode(s) that has been booked and paid.
B Booking	Operational process involved in the sales process to commit to a sales transaction binding the customer and supplier on the offer. It informs the customer about price and reservation.
B Booking Elements	Is a set of records linking a Booking with each ItineraryOfferItem for availability.
B Booking provider	Entity that manages the booking / reservation process.

Grant Agreement No. 730846

Term	Description
B Broker	One that acts as an agent for others, as in negotiating contracts (like travel services), purchases, or sales in return for a fee or commission.
B Bus Station	Bus Station is a Stop Place qualified for Bus Transport, where passengers can access or egress bus transportation.
B Bus stop	There are possibly several Bus Stops for a given Bus Station.
B Bus transport	Bus transport is a transport mode operated by a bus operating carrier and dedicated to the transportation by origin / destination without seat reservation.
B Business Analytics	The activity of analysing transport information by correlating, aggregating and applying statistical functions on measures and KPI. It is usually performed by producing reports / dashboards on collected information.
B Business Rule	A business rule describes an agreement/contract between at least two stakeholders and have an (in)direct impact to a traveller.
B Business Rule Engine	Part of the TSA which interprets BR in order to reflect the impact to Itineraries and Offers.
C Cancellation	Process of terminating a Contract. It may include Refunding among other processes.
C Capabilities	Measure of the ability of an entity (department, organization, person, system) to achieve its objectives, especially in relation to its overall mission.
C Carbon footprint	Quantity of CO2 equivalent produced by the fact a vehicle moves divided by expected number of passenger.

Grant Agreement No. 730846

Term	Description
C Central Acquirer	An ACQUIRING BANK which has the right to ACQUIRE payments from ISSUING BANKS in multiple markets for a single MERCHANT AIRLINE TSP (I don't think this exists for other Transport Sectors) – this entity was first established by NAT WEST I think, as a facility for Airlines who obviously have operations in multiple countries, and for whom, the process of finding an ACQUIRING BANK in each country where they operate is cumbersome and costly.
C City	A centre of population, commerce, and culture with different transport infrastructures.
C Claim	A claim is a demand done by a traveller/customer to a TSP in order to get money back or compensation.
C Clearing & Settlement	The system calculates the revenue split and be able to generate reports between the different stakeholders. This component will use the business rules be defined in Contractual Management Market Place (CMMP).
C Cloud Connector	Module of the Travel Companion application that execute the communication with the Cloud Wallet.
C Cloud Wallet (CW)	A place, invisible to the user (in the cloud), where are stored his booked offers, preferences, profile, etc.
C CMMP Agreement	<p>An agreement between 2 or more providers (TSPs) that will be converted in a business rule.</p> <p>This component has 3 parts:</p> <ul style="list-style-type: none"> - Conditions: circumstances to meet in order to apply the rule. - Benefits: economic advantages that will be provided to the passengers. - Compensation: strategy to follow in order to settle the financial relationship between the TSPs (e.g. revenue split, fixed payment).
C Coach station	Coach Station is a Stop Place qualified for Coach Transport, where passengers can access or egress coach transportation.

Grant Agreement No. 730846

Term	Description
C Coach transport	A transport mode dedicated to the transportation by coaches (long distance buses) with booking.
C Community	Group of Social Network Users that are Friends in a closer way than with other Social Network Users.
C Compensation	Compensation is a benefit obtained by the traveller non-monetary.
C Complex Event Processing (CEP)	Event Computation by a Trip Tracker System from events gathered from its event sources (see also Complex Impact Processing).
C Complex Impact Processing	Events are processed by partial Trip Trackers generating Impacts. They in turn are sent to Tracking Orchestrators where they are treated and proofed regarding impacts on the tracked itinerary.
C Co-modal	A travel is considered as co-modal when it involves multiple modes and operators (multimodal) but there are multiple contractual agreements, all linked to the passenger – one agreement with for Travel Service Provider.
C Concessions	People get concessions under two scenarios: 1. Where, because they buy something, they get reduced ticket prices; and 2. Because of a 'natural' feature of the person (their age, where they live, their employment status) they are entitled to reduced ticket price.
C Confirmed Booking	An entity describing the committed sales transaction.
C Connection	Connection is a link between two Vehicle Stopping Places.
C Consumption	Process of using a Fare Product, during the validation process. Consumption context and data are used for business analytics and inspection process.

Grant Agreement No. 730846

Term	Description
C Contactless Smart Card (CSC)	A smart card is a device that includes an embedded integrated circuit that can be either a secure microcontroller with internal memory or a memory chip alone. The card connects to a reader with a remote contactless radio frequency interface (NFC standard). According to their kind, they allow, or not, to be written by an access system.
C Context Dimension Tree (CDT)	The Context Dimension Tree is a hierarchical representation of the possible perspectives describing the situations in which the users can act in each application scenario.
C Contextual Preferences (C)	These preferences depend on the context in which the travel develops; therefore, they are tailored to apply to all the situations of a certain type (e.g.: leisure vs. working trip, airplane vs. train, temporary impairment or others). Some of these preferences (C*) are connected to travels and travel habits and can be accounted for by the Travel Companion whenever a given context is active.
C Contract of Carriage	A Contract of Carriage for Passengers concluded between a Carrier (Transport Operating Carrier) and the Passenger. Contracts of Carriage define the rights, duties and liabilities of the parties to the contract (the entitlement).
C Contractual Management Market Place	<p>This component manages business rules, which govern the business relationship between the transportation partners (TSPs).</p> <p>The authorized users to configure providers and agreements. The system gives access to formal contracts generated from agreements.</p> <p>The business rules will be used to build an offer and Clearing and Settlements process.</p>
C Corridor	An itinerary use or test case that demonstrates the ability of the solution to reach the specifications.
C Credit card billing	A transaction (usually made by a TSP REVENUE ACCOUNTING department and routed via an ACQUIRING BANK to the ISSUING BANK, or could be made by a PAYMENT SERVICE PROVIDER on behalf of a MERCHANT, via the same route (IATA data processing has this PAYMENT SERVICE PROVIDER status and performs this service for a lot of AIRLINES if they choose the option – but IATA do not perform the credit card approval request service – which is done by GDSs in real time)

Grant Agreement No. 730846

Term	Description
C Critical product	Is a product which is absolutely required to achieve an itinerary. Without a critical product, the travel cannot be purchased.
C Customer	Role of a Person who makes the payment for an offer and is a party (a person or an organization) to a contractual agreement concluded with a Transport Service Provider. The Customer performs a mobility request, selects one or several segments to create their trip and pays for their booking(s).
D Departure	A Departure is a Transport Event, occurring, or planned to occur at a specific Departure Date Time and Stop Place.
D Departure Date Time	The date and time values associated with the Departure which marks the actual and/or planned start of a Travel Episode.
D Destination	A Destination is a Location marking the logical end of the Itinerary.
D Detailed Quotation	Quotation corresponding to one or several products of the itinerary offer item for one of several passengers of this itinerary offer item.
D Device Info	Device information used to perform the search transaction.
D Direct sale	This is a sale made by a retailer NOT owned or run by the TSP
D Disruptive Alert	Information raised to the traveller related to a disruptive event which is impacting his travel.
D Disruptive Event (or disruption)	Unexpected event that causes a delay or a cancellation of the initially planned travel solution.

Grant Agreement No. 730846

Term	Description
D Distributor	An entity that buys noncompeting products or product lines, warehouses them, and resells them to retailers or directly to the end users or customers.
E Effective Time	The effective time of transportation services.
E Embodiment	An Embodiment is a physical medium containing one or more Token(s). Examples are paper tickets, magnetic-stripe tickets, chip cards, smartphones.
E Europay MasterCard Visa (EMV)	Payment protocol sponsored by the EMVCo organization and relying on short range radio communication where the payment card is used as the media for travelling.
E Engine	In software context, an engine is executing components to render a service.
E Entitlement	Entitlement is the digital record representing the rights (license) to travel. It contains all necessary information for a Passenger to get access to the transportation systems.
E Entitlement number	This is a unique ID, which is associated to a given entitlement.
E E-Passport Management	A function which provides the user with an additional secure storage to carry information around with him, within the SIM card of his Passport.
E Equipment	Is a transportation mean used for carrying Passenger(s) and Goods.
E Event	Is a situation not consistent with the norm. Events are treated by Trip Tracking functionalities.

Grant Agreement No. 730846

Term	Description
E Event Sources	Input System for Trip Tracking functionalities providing any kind of event streams that could be relevant to detect disruption. Events are generally localised into a transportation area, they can also come from social networks or other specific streams (e.g. cultural events ...)
F Facility	A resource associated with a Vehicle and / or a Stop place and / or an Access Area such as elevator, a seat, couchette, rack space, lounge etc., used in the physical delivery of a Product. May be allocated to a Traveller through a Reservation.
F Fare media	See embodiment and token.
F Fare Price	Fare Policy is a collection of business rules available to compute the Price of the Product on that Travel Episode for that Traveller in the Quotation process of an Offer. The Fare Policy may also determine the service terms and conditions.
F Fare Policy	Is the set of items describing the price paid by the customer. It includes among other things: taxes, fees and other debited or credited amounts.
F Fare Product	A Fare Product is a purchasable item supplied by a Product Supplier allowing travellers to travel.
F Fare product consumption	Step of a validation process where a fare product instance is altered to reflect the fact that it has been used.
F Fare Product Family	A set of related fare products types.
F Fare Rules	Refer to Fare Policy.
F Fare set	Related to all parameters referring to different types of fares that exist in a single transport network, or in a group of transport networks (if integrated).

Grant Agreement No. 730846

Term	Description
F Fare Type	Category of product dedicated to transportation.
F Fare Policy	Is a set of rules, regulations and principles for Fare Products.
F Fees	An amount of money paid for a particular right or service.
F Ferry station	A Ferry Station is a Stop Place dedicated to Ferry Transport, where passengers can access or egress ferry transportation.
F Fidelity Program	Structured marketing efforts that reward and encourage loyal buying behaviour.
F Free Travel Episode	Part of the travel of the user that is not covered by a fare product.
F Friend	A person who is in good relation with another person. This term is used in Social Networks to denote the relationship that will lead to possible communications among friends.
G Gate	Gate is a Vehicle Stopping Place available at an Airport for air transportation. This is also the name of some close transport network access systems, like some metro systems.
G Global Quotation	Total quotation of an ItineraryOffer.
G Guaranteed Price Booking	Is a Booking where all booked ItineraryOfferItem(s)'s OfferItemPrice(s) are guaranteed by the ItineraryOfferItem(s) provider.

Grant Agreement No. 730846

Term	Description
G GUI	Graphical User Interface (corresponds to HMI).
H Happening	An association between POIs and start/end dates and times.
H HistoricalData	Past-periods data, used usually as a basis for forecasting the future trends in transportations uses.
H HMI	Human Machine Interface
I Identification	Recognition of a Customer or a Passenger in order to provide him with a personalized process.
I Impact	Consequence of current situations on a traveller's trip based on treated Events.
I Indirect sale	A sale made by a TRAVEL AGENT or 3 rd PARTY RETAILER (whether AGENT or MERCHANT retailer)
I Influence	Capacity of a Social Network User to have an impact among his/her friends through messages broadcasted. The influence is computed by using past facts or information collected from one or more Social Networks.
I Infrastructure	Is the collection of physical assets and installations that allow and often control travel operations including the movement and servicing of Vehicle(s) and the access of persons and freight to Vehicle(s).
I Inspection	This activity is made by a roving enforcement officer to verify if the traveller has a valid entitlement and has correctly validated his / her embodiment against an access system.

Grant Agreement No. 730846

Term	Description
Inspection Device	Is a portable Equipment to validate Embodiments or Tokens.
Integrity	Ensure that data has not been modified or deleted in an unauthorized and undetected manner.
Interface	Interface describes how different entities/functions are linked, by what and how.
Intermodal	A travel is considered as intermodal when travel services involve multiple modes and operators (multimodal) which are integrated from a customer's perspective. The contractual agreement links the passenger to only one contractor.
Intermodality	Intermodality [1] is a characteristic of a transport system that allows at least two different modes to be used in an integrated manner in a door-to-door transport chain. Mainly used by the freight sector, "Intermodality" is an issue for both freight and passenger transport sector.
Interoperability Framework	A set of services providing assets and services used to handle interoperability of distributed and heterogeneous ICT assets on behalf of data/service providers and consumers.
Inventory	An itemized catalogue or list of tangible goods or property, or the intangible attributes or qualities.
Inventory Lock	A temporary holding of inventory making it unavailable to other processes.
Issuer	Is an organization issuing Entitlement, Token and Embodiment.

^[1] Commission communication of 29 May 1997 on intermodality and the intermodal carriage of goods within the European Union

Grant Agreement No. 730846

Term	Description
I Issuing bank	Is an entity will supply a CREDIT CARD APPROVAL CODE if the passenger has sufficient funds in his/her account to pay the Amount for which Approval is sought.
I Itinerary	An itinerary defines the Departure and Arrival places and associated Departure and Arrival times used for the realization of a travel. An itinerary is a set of not overlapping journeys.
I Itinerary Customer Satisfaction Survey	Score associated with an itinerary by a user, describing the quality he/she has perceived.
I Itinerary Offer	An offer on the whole itinerary.
I Itinerary Offer Item	Is an element of an ItineraryOffer 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 Itinerary Sentiment Analysis	Analysis of the attitude of the messages posted on the social networks regarding a specific Itinerary. It is described through the number of the discovered messages showing a positive opinion and the number of the discovered messages showing a negative opinion.
J Journey	A Journey is a collection of consecutive Travel Episode(s).
J Journey Planner	A Service that, given a mobility request, returns an itinerary or a part of it.
K Key Performance Indicator (KPI)	Indicator measuring the performance of an organization on a specific task.
L Limited Supply Product	A Product whose supply is constrained by the Product Provider and whose Availability is computed by the Product Provider during the shopping process.

Grant Agreement No. 730846

Term	Description
L Line	An ordered set of Stop Places.
L Local storage	(Some) data must be available to the user even in cases of lack of connectivity (e.g., on an airplane).
L Location	A specific position or point in physical space. Location has geographical coordinates. It could be a Stop Point, a Stop Place, a Point of Interest or an Address.
L Location Based Experience (LBE)	A content proposed to the traveller in order to offer him a service or entertainment during his journey
L Location Based Experience Editor (LBE Editor)	An application used by an experiences author to create and publish Location Based Experiences
L Location Based Experiences Watcher (LBE Watcher)	A module of the Travel Companion application that list all the experiences available for a user according to its current trip and position.
L Location Based Experiences Launcher (LBE Launcher)	A module of the travel Companion application which start an experience on user request
L Logical Topology	Abstracts a physical topology for ticketing purpose.
L Loyalty Program	Rewards/benefits offered by an organization to customers who frequently make purchases/make use of associated services.

Grant Agreement No. 730846

	Term	Description
M	Merchant	Wholesaler or retailer who may buy goods from any or all sources for resale to anyone and everyone for profit.
M	MetaJourney	Is the couple Origin and Destination requested by the end-user, realized by Meta-Route Network.
M	Meta-Route Network	Network representing Stop Places and route links joining these Stop Places. The meta-route network is defined for a given zone (Europa, Berlin's agglomeration, ...) and based on schedule data which is provided by each TSP.
M	Mileage	Is the number of miles covered.
M	Minimum connection time	A property of a Connection.
M	Mission	A Mission is a set of inter-related Use Cases / Capabilities.
M	Mobility request	Is the Traveller's query for travel information. It consists at least of an origin and a destination and a date and time (for arrival or departure).
M	Monomodal	A travel is monomodal when it involves just one transport mode.
M	Motorway	Any public or private road. Also known as highway. These roads are often named and numbered by the governments that typically develop and maintain them.
M	Multimodal	A travel is considered multimodal as soon as it involves multiple modes or multiple ticketing schemes. Note: However, in some particular situations, one ticket may allow to travel in multiple modes.

Grant Agreement No. 730846

	Term	Description
M	Multimodal Hub	Multimodal Hub is a Stop Place or (most often) a station at which different Transportation Mode(s) converge.
N	Navigation at interchanges	One of the functions offered by the travel companion to help the user to find the way through stations at the interchanges.
N	Near Field Communication (NFC)	Is a set of protocols that enables electronic devices to establish radio communication with each other by touching the devices together or bringing them into proximity to a distance of typically 5cm or less.
O	Obstacle-free route	An obstacle-free route is a link between two or more public areas dedicated to the transport of passengers. It can be navigated by all persons with disabilities and reduced mobility.
O	Offer	A potential solution to a travel needs that can be booked and paid for.
O	Offer Item	An offer item provided by a single TSP on Travel Episode(s).
O	Offer Item Price	Is the price of an ItinerartOfferItem charged for its purchase. Is composed of OfferItemPriceltem(s).
O	Offer Time Limit	The Offer Time Limit is the deadline controlled by the Travel Service Provider beyond which the Offer is invalid.
O	OfferItemProvider	An organization providing offer items to OfferProvider.
O	OfferProvider	An organization also BusinessUser providing travellers with travel offers.

Grant Agreement No. 730846

Term	Description
O Ontology	The machine-readable, formal and explicit description of the concepts and their relationships of the IT2Rail domain. It is used to annotate data and interface descriptors to allow automation of discovery and transformation ICT assets that participate in the realization of shopping/booking/payment and tracking instance.
O Open Service	A Product bound to a part of an itinerary which is only characterized by its boarding and alighting Stop Places, while the associated Vehicle, and its departure/arrival time/date, is unspecified.
O Operational management	The design, execution, and control of operations that convert resources into desired goods and services, and implement a company's business strategy.
O Orchestrator	An entity that arrange or control the elements of the system to achieve a desired overall effect.
O Origin	An Origin is a Location marking the logical start of the Itinerary or of a travel segment.
P Parking	Set of spaces located at a given location that can be booked by the passengers to store their vehicles for a certain amount of time, with the cost being defined by a set of fares.
P Parking Space	Place inside a parking where a user can store his vehicle if it fits the space's requirements, such as width or height.
P Partial Trip Tracking (pTT)	A module within the Trip Tracking functionality that treats incoming Events and sends impacts to the Tracking Orchestrator.
P Passenger	Using the Personal Application on the internet enabled device or physical tokens access to the transport network; they go from a point A to a point B through one or more Transport Service Providers vehicles.
P Payload	Is a collection of bytes meaning that a token is able to be used for validation. In the context of IT2Rail it contains the User ID and Booked Offers.

Grant Agreement No. 730846

Term	Description
P Payment	Is the act of paying.
P Payment Details	Is the detailed data that can be used to perform the payment process depending on the PaymentMean(s).
P Payment Engine	In software context, a payment engine is executing components to render a payment service.
P Payment Mean	Is the description of a mean that can be used to perform Paying.
P Payment Module	A payment module is a standard unit that can be combined with other different but compatible modules to assemble a wide range of varied end-products in terms of payment.
P Person with Reduced Mobility	Traveller (Passenger) with reduced mobility, indicates both a Traveller (Passenger) with mobility constraints and the set of specific legal and business rules that apply in Offer and delivering Products for this Traveller (Passenger).
P Persona	Personas are fictionalized characters which are created to fully understand the target user's way of life and needs.
P Personal transport mode	Transport mode that the traveller could decide to use its own vehicle. Park TSP and Toll TSP are involved in the Personal Transport Mode.
P Physical topology	Organized set of the various elements of a transport Infrastructure.
P Place	A location or a set of locations (like a zone).

Grant Agreement No. 730846

Term	Description
P Planned Arrival	Associative class representing the relation <code>departsAt(Vehicle, StopPlace)</code> .
P Planned Departure	Associative class representing the relation <code>departsAt(Vehicle, StopPlace)</code> .
P Platform	Please refer to <code><Quay></code> .
P Point Of Interest (POI)	POI is a Location that holds relevant information for a travel or which may be of Interest for a traveller during his journey.
P Prediction	The process of exploiting past and present data to make deductions about the near future (Nowcasting) or about the future (Forecasting).
P Preference	Is the Traveller-related information that represents its travel-related needs and wishes.
P Preference Management	A function managing the creation and modification of user preferences.
P Price	Is the monetary value for a Product.
P Pricing	Process that computes (quotes) the Fare Price applicable to the journey based on passengers, itinerary details, pricing options and contexts.
P Product	Is a travel-related, purchasable Service or Good supplied by a service provider.

Grant Agreement No. 730846

Term	Description
P Product owner	A Product Owner creates Fare Products, fixes the Fare Rules (terms and conditions) attached to them used in the computation of the Fare Price. It can be a Transport Service Provider or Travel Service Provider (Tour Operator).
P Product Provider	Is contractually responsible for providing a Product to the Traveller.
P Profile Connected Preferences (P)	This is a list of personal characteristics of a user among which we can include some “stable” preferences, which are tailored by the permanent features of the customer, in the sense that they can be modified, but at a low rate (Years) (e.g. Vegetarian food, Diabetic diet, ...). These preferences are permanently connected to the user (e.g. if he/she is on a wheel chair he/she prefers an elevator vs. an escalator).
P Prognosis	Set of functionalities that add to the system the ability to predict possible future irregularities, such as delays or service disruptions, based on real time and historical data.
P Proof of Payment	Is an evidence that Paying has already been made or will be made in the future.
P Public Area	Area reachable by a traveller own means (feet, wheelchair, among others).
P Public Transport Authorities (PTA)	Public Transport Authorities are responsible for the organisation of convenient local public transport and apply fare policies very attractive for local citizens.
Q Quay	A physical installation of a Stop Point. Also named a platform.
Q Quotation	Quotation of the itinerary offer.
R Rail station	A Rail Station is a Stop Place dedicated to Rail Transport, where passengers can access or egress rail transportation.

Grant Agreement No. 730846

	Term	Description
R	Rail transport mode	A Transport Mode dedicated to the transportation by rail.
R	Re-Accommodation	After a disruption, a TSP must operate the transport service to travellers and find a way to satisfy them.
R	Refund	After sales process that allow a customer to get his money back in accordance with the sales policies and the provisions of the entitlement.
R	Reliability	People or things that are reliable can be trusted to work well or to behave in the way that you want them to (Collins).
R	Reservation	Reservation is the allocation of named Facilities associated with a Fare Product.
R	Retailer	A retailer is an organization selling the Products of Travel Service Provider(s) using the services of Distributors. A retailer may have a direct relationship with a TSP whereby it acts as an appointed agent and/or it may have an indirect relationship with a TSP whereby it uses the services of a Commercial Distributor. A TSP can play the role of a retailer.
R	Revenues	Revenue is the amount of money that is brought into a company by its business activities.
R	Route	An ordered list of Routelink(s) connecting Stop Place(s), e.g. an ordered set of physical links between stop points where a vehicle can circulate.
R	Route Link	An element of a Route that connects a pair of contiguous Stop Place(s) of the Route which will be performed with a vehicle.
S	Safety	Safety is the state of being safe from harm or danger (Collins).

Grant Agreement No. 730846

Term	Description
S SalesConditions	Is a subset of terms and conditions specifying the conditions to be allowed to book an ItineraryofferItem.
S Schedule	Transportation schedules, such as airline timetables, train schedules, bus schedules, and various public transport timetables are published to allow commuters to plan their travels. A schedule list the times at which certain events, such as arrivals and departures at a transportation station, are planned to take place.
S Search Options (M)	Among the Contextual Preferences there are still some possible choices left, which can be selected by the 28Traveller on a per-travel instance (e.g.: “hand_luggage_only”, ...). These preferences can be selected by the user from a drop-down menu, where only a few residual possibilities are displayed, when planning or booking the travel (e.g.: “hand_luggage_only” can be meaningful only if the context is “airplane”).
S Section	Road section between two positions.
S Secure storage	Important data must be saved to a permanent, reliable, secure storage, which is highly available.
S Security	Property of a system by which confidentiality, integrity, availability, accountability, authenticity, and reliability are achieved.
S Segment	A Segment is part of a Journey. This is delimited by two Stop Places
S Semantic	Match-making the process of automating the discovery and transformation of semantically annotated ICT assets.
S Semantic Annotation	The process of adding machine-readable fragments from the Ontology to data and interface descriptors, thus enabling machines to automate discovery and transformation of ICT assets.

Grant Agreement No. 730846

	Term	Description
S	Semantic web service registry	A shared registry of validated, approved and versioned semantically annotated interfaces to services, e.g. Travel Expert, Booking Engine, for the execution of a shopping/booking/payment/tracking process instance.
S	Service architecture	A type of business information architecture model designed to allow all current business processes as well as future process additions to be integrated. Large processes and applications are broken into smaller units referred to as "services". By using a Service Architecture, a system can allow the sharing of data across business units.
S	Service Provider	Role of an Organization offering Service(s), especially but not exclusively on transportation.
S	Shared transport mode	Private mode with shared or rent vehicles, e.g. car or bike, which need to be driven by the traveller.
S	Shopping Request Context	Information specific to a given shopping request.
S	Smart Device	This is a personal device, like a smart phone, a tablet or even a portable Personal Computer. It must be able to connect prior to the trip to the Internet in order to download, using the Travel Companion application, the travel wallets of the traveller. The Travel Companion application, using the hardware of the Smart Device and the downloaded data of the travel wallet, will acts as a classical fare medium (NFC contactless smart card, displayed barcode, ...) when it is presented in front of an access system or an inspection system.
S	Social Data	Information that travellers exchange with one another on a social network related to their travels or the feedback that travellers provide to the BA module through the TC Travel Questionnaire.
S	Social Graph	Conceptual representation of a Social Network. In other words, conceptual representation of a group of Social Network Users that are linked among them by Friendship relationships, by communications among them, or by other aspects that determine relationships "f "similar ta"te", "similar objectives in a t"ip", etc.

Grant Agreement No. 730846

	Term	Description
S	Social Network Activity	A Web application or service that provides data about the social activity of individuals who are customers of that application or service. The data provided may be both interactions among those customers and opinion about their trips.
S	Social Network User	Person who uses a Web application or service to make Friends in a Social Network and to broadcast messages about his/her personal activities and in relation with their Friends.
S	Station	A station is a StopPlace offering as well an AccessArea (or AccessSpace). The name of a station shall depend on a hierarchy of modes. In an airport which is an air station you can have many other stations (for e.g. rail and/or other modes). In a rail station, you can have other stations as well (e.g. a metro station).
S	Statistics data provider	Entity providing network statistics.
S	Stop Place	A stop place is an element of the Transport Infrastructure where Vehicle(s) may stop and where Traveller(s) may board or leave Vehicle(s). In most of the cases, a stop place has means to control the access to the transportation system.
S	Stop Point	TBD
S	Switch to issuer	Is a facility which the airlines negotiated with Visa and MasterCard, which allows the GDS (Airline created distribution system) to perform credit card approval requests, on behalf of MERCHANT airlines, without having to maintain enormous tables of ACQUIRING BANKS for each airline being sold in each country where they operate.
T	Tap	First step of the validation process. Act to tap his / her embodiment to the access system or have it properly read by the access system (e.g. for contactless or barcode embodiment).
T	Tapping module	The tapping module is part of the Travel Companion application. Its role is to communicate with the access system using the payload of the token.

Grant Agreement No. 730846

Term	Description
T Tax	Part of the Price of an ItineraryOfferItem related to charges and duties.
T Terms and Conditions	Terms and Conditions refer to the rules and provisions that can be applied to any type of product.
T The preference model	The preference model considered in IT2Rail has been defined based on the CDT model. Every preference is associated with a score which can be represented using different semantics.
T Ticket	An artefact covering entitlement, embodiment and token.
T Ticket Controlling Organization (TCO)	A Ticket Controlling Organization is any organization charged with inspection of passengers' tickets.
T Ticket Time Limit	Time limit by which entitlement generation must occur before that inventory synchronization is un-done, and the requested capacity/availability lost.
T Timetable	See schedule.
T Token	A Token is a proprietary instantiation of an entitlement. It is used by TSP to perform their operations.
T Toll Plaza	Facility inside the motorway where the user must pay when driving through it.
T Toll Sale	The act whereby the user pays at a position for its use of the motorway.

Grant Agreement No. 730846

	Term	Description
T	Toll Service Provider	It is a Travel Service Provider which offers the user the possibility to drive along a motorway at a cost.
T	Tollway	Road composed by a set of sections, managed by a Toll Service Provider, with a cost defined by a set of fares in base to the distance travelled by the user in the motorway. Also known as Toll Road.
T	Topology	The way in which constituent parts are interrelated or arranged.
T	Tracking orchestrator (TO)	A module inside the Trip Tracker functionality that uses pTT information as input (Impacts) and sends incident data and trips alerts to the TC; thus the traveller receives real-time information that impacts his journey.
T	Tram Station	A Tram Station is a Stop Place dedicated to Tram Transport, where passengers can access or egress tramway transportation.
T	Transport	A category of travel which refers to on-board vehicle travel.
T	Transport Intelligence	All the KPIs provided to transport operators. A transport intelligence KPI could also be a travel intelligence KPI and vice versa. The two types of KPIs are not mutually exclusive.
T	Transport Mode	Category of transport grouped by transport means or ticketing scheme.
T	Transport network	A transport network refers to a group of lines of one or more transport modes, within a geographical territory, provided by one or more companies and depending upon a local transport authority.

Grant Agreement No. 730846

Term	Description
T Transport Service Provider (TSP)	<p>Organization providing both services and means for journeys using one or more modes of transports: aircrafts, trains, metros, coaches, buses; or possible other services connected to the journeys (e.g. trip tracking).</p> <p>A Transport Service Provider can also be seen as a specific case of Travel Service Provider (see below) which is only responsible to the journeys.</p> <p>A Travel Service Provider is a company providing travel services. Travel includes “transport” (on-board vehicles) and possibly services which are not transport but connected to it – either at the beginning or during the travel, like the access to a lounge or trip tracking – or at the end of the trip, like the access to a sky resort.</p> <p>The Travel Service Provider offers the customers its Products (including Fare Products) for purchase (through Travel Shopping and Ticketing). It is also responsible for the travel service corresponding to the purchased offer.</p>
T Travel Solution Aggregator (TSA)	<p>Is a module for the calculation of itineraries and offers which interact with the IF – Broker to interface with TSP. The TSA split the mobility request of the traveller in parts per TSP and combines the responses in order to fulfil the mobility request.</p>
T Transportation Service	<p>Service (Flight, Rail, ...) that provides transportation on a TravelEpisode.</p>
T Travel	<p>Generic term without any technical assumptions, referring to the combination of services provided to a customer between a physical origin and a physical destination. Travel includes transport (on-board vehicles), a well as possible transfer between modes, possibly services which are offered during the trip out of vehicles, and possibly non-transport services which are proposed at either end of the trip from A to B.</p>
T Travel Cloud	<p>Digital system accessible from any place by any digital means (mobile phone, tablet or PC) and dedicated to the travel management. It is composed of several wallets: travel wallet, preferences wallet and payment wallet.</p>
T Travel Companion application	<p>Application hosted by the Smart Device of a Traveller and that he have to install before travelling.</p>
T Travel Data	<p>Generically, any information related to travels.</p>

Grant Agreement No. 730846

Term	Description
T Travel Episode	Part of itinerary, characterized by Departure and Arrival consisting of an ordered sequence of Routelinks operated with the same vehicle.
T Travel Episode Endpoint	A Travel Episode Endpoint is a Stop Place at which a Travel Episode starts or ends.
T Travel Episode Start Point	Is the spatial beginning of a Travel Episode.
T Travel Events	Events that a generic traveller regards as important to his/her current journey.
T Travel Expert	Technical entity that render services to allow building an offer. This entity may be deployed by a TSP or distributors thus relying on a TSP fare products and prices services.
T Travel Intelligence	All the KPIs provided to travellers. A travel intelligence KPI could also be a transport intelligence KPI and vice versa. The two types of KPIs are not mutually exclusive.
T Travel Service Operator (TSO)	The TSO could be named also TOC: "Transport Operating Carrier", the company running the vehicles used for transport.
T Travel Shopper	Technical entity offering shopping services based on travel experts.
T Travel Shopping	A function managing the definition of the itinerary.
T Travel Solution	Solution provided to the customer answering its travel need.

Grant Agreement No. 730846

Term	Description
T Traveller	The Traveller (see also “Passenger” when on-board a vehicle) is the person making a travel in accordance with the terms and conditions of the entitlement(s).
T Traveler event report	This could be related to any kind of event resulting from the interaction from the traveler with the Travel Companion. This event can be generated by request or in a spontaneous way. The events reported by the travelers can be used as an event source to improve the trip tracking functionalities or as data to improve the operations of a TSP.
T Traveller Medium	See "Smart Device".
T Traveller Preferences	All information related to a customer or a traveller, which can be used by the travel solutions (fidelity program, PRM, preferred carrier, preferred Transport Mode, preferred payment means, needed facilities, etc.).
T TRIAS	Travellers Real-time Information and Advisory Standard Standard for user centric interface for Travel Shopping and Trip Tracking.
T Trip	A set of linked segments of an itinerary.
T Trip Sentiment Analysis	Analysis of the attitude of the messages posted on the social networks regarding a specific Trip. It is described through the number of the discovered messages showing a positive and negative opinion.
T Trip Tracker (TT)	Functionality within the application that after activation proofs in real time the current situation of the passenger’s trip. It will alert the user of any delay, cancellation, etc.) that might affect his journey.
U User Interface (UI)	User Interface: What the user is able to see and interact with.
U Uniform Resource Identifier	Is used as ID to provide reference to different resources (data or services).

Grant Agreement No. 730846

Term	Description
U UniqueID	This identifies unambiguously a person in the whole IT2Rails ecosystem.
U Unlimited Supply Product	A Product whose supply is not constrained by the Product Provider and is assumed to have unlimited Availability.
U Urban station	A Urban Station is a Stop Place dedicated to Urban Transport (subway for example) , where passengers can access or egress urban transportation.
U Urban transport	A set of transportation modes operated at the local level of a city or an agglomeration, including bus, metro, ferry, tram, ... sharing a common ticketing environment (business rules, no booking, ...). As a result, it is considered as a transportation mode.
U User ID Authorization Token	Unique string of characters identifying a unique user and containing the list of authorizations that guarantees the access to the list of functions for each component, and for different devices.
U User Preferences	A set of characteristics representing the user needs and choices for traveling.
U UserID	A unique string of characters identifying a specific user. This unique identification will be helpful to identify a user for different kinds of operations and on each of his devices.
U UUID	Universally Unique Identifier: see UserID.
V Validation	This process is made by the access system to allow or deny the access to the transportation system. To get access to the transportation system, the embodiment must be compatible with its access system and the token must instantiate a valid entitlement.

Grant Agreement No. 730846

	Term	Description
V	Validation Transaction	Is the data describing a Token alteration by an AccessSystem at a given date and time.
V	Vehicle	Vehicle describe the transportation means that circulate on a physical infrastructure e.g. a Train, a Bus, etc.
V	Vehicle Stopping Place	The physical point at which passengers board or alight from Vehicle(s).
V	Versioned Operational Parameter	Set of parameters used by a TSP to build his Offer Item, referring to Fare Product and Fare Rules and Topology.
V	Virtual credit card	Form of payment valid for retailers within the ecosystem to fulfil payments towards TSPs for any booking. Virtual credit cards generated work in the same fashion as “plastic” credit cards and are branded by schemes (i.e. MasterCard), have 16 digits, expiration date and CVV.
V	Virtual Payment	Functionally exposed within the ecosystem for retailers to generate a valid form of payment to pay suppliers. Users of this component will also be able to delete Virtual credit cards previously created.
W	Wallet	Technical component that will store customer / traveller preferences, itineraries and entitlements.
W	WishedArrivalDate	ArrivalDateTime wished by the Customer.
W	WishedDepartureDate	DepartureDateTime wished by the Customer.
Z	Zone	A set of stop places sharing a common set of business rules.



Grant Agreement No. 730846
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