

Co-Active

D3.2 – WP3 Business and Contractual Management CREL Specification

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EXECUTIVE SUMMARY

Conceptually, the Co-Active project addresses the general enrichment of the 'one-stop-shop' capability as initiated in the IT2Rail project and further completes the scope of functionality by addressing post-sale business transactions, and an underlying payment-settlement solution for co-modally retailed products and services.

The Co-Active project is broken down into several Work Packages (WPs). The present document belongs to work package number 3 (WP3), Business and Contractual Management.

The travel and transport industry involves today many business players including but not limited to companies in charge of the retail of product and services, to companies delivering the transport service, to transport authorities in charge of the regulation of the transport and to the end-customer (either individual or corporate customer). The objective, and this is already the trend of the market, is a move to the collaborative delivery and consumption of transport services rather than individual ownership and independent key players. Furthermore, the new breed of multimodal and co-modal travellers leads to a growing collaboration of the transport industry actors

The cooperation between those actors is based on many contractual arrangements that include especially bi-lateral or multi-lateral agreements.

The purpose of the WP3 is a general analysis of these contractual arrangements in the perspective of the collaboration of the business players through the Shift2Rail IP4 'one-stop-shop' capability.

There is no intention to redefine or alter the existing business models and business rules on which the collaboration of the business players is based but rather to identify the conditions under which the IP4 Regulatory Framework will support their management.

The WP3 work package includes the following deliverables:

- D3.1. CREL Ontology.
- D3.2. CREL Specifications.
- D3.3. FREL Ontology.
- D3.4. FREL Specifications.

This document, WP3 D3.2 Core Release Specification, is dedicated to the analysis of the most frequent business agreement and the definition of their potential impact on the S2R-IP4 implementation. The Ontology Core release, document DR3.1, is focused on the identification of the roles of the business players in the perspective of the S2R-IP4 ecosystem and especially the definition of the concepts required to describe and semantically annotate the data that will support the management of the regulatory Framework.

Note that the governance of the S2R-IP4 Interoperability Framework (IF) managed in the GoF4R project may participate in the review of the WP3 ontology.

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1. INTRODUCTION

The travel and transport industry involves today many business players including but not limited to companies in charge of the retail of product and services, to companies delivering the transport service, to transport authorities in charge of the regulation of the transport and to the end-customer (either individual or corporate customer).

Typical examples are Sales Agreements (contracts) between Transport Service Providers and Retailers which allow a Retailer to sell the products and services of the Transport Service Provider, the Transport Contract itself, which is created via the purchase of Travel Entitlements ('tickets') from TSPs by Customers, and which automatically establish obligations and responsibilities, between the Traveller and the TSP around the provision of one or more Transport Services, on which the Traveller is entitled to travel.

A key point illustrated in the figure below is the separation between the Business to Business agreements (B2B) and Business to Customer agreements (B2C).

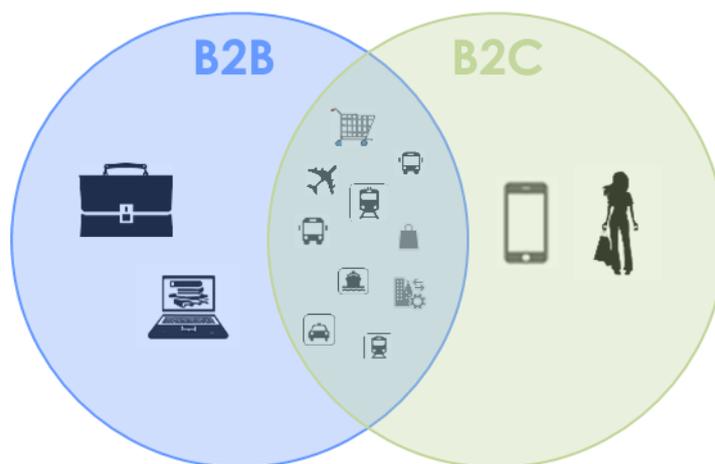


Figure 1: Business to Business, Business to Customer

Business to Customer (B2C, green circle on the figure) refers to the business conducted between the transport industry actors and the end-users (Customer, Traveller). This includes the purchase of Travel Entitlements, the providing of services including Transport Services but also other services such as After Sale Services, Information Services. B2C business models establish obligations and responsibilities between the Customer/Traveller and the transport industry actors.

Business to Business (B2B, blue circle on the figure) refers to the business conducted between the transport industry actors. With the increase of multimodal, co-modal travels and also the move towards collaborative consumption or door-to-door services, the transport is now rarely delivered by a single company. This leads to a wide range of agreements between the transport industry actors. Typical cases are Sales Agreements (contracts) between Transport Service Providers and Retailers – which allow a

Retailer to sell the products and services of the Transport Service Provider, the Operation of the Transport Service itself; typically a Transport Service Provider subcontracts the Transport Service to a Travel Service Operator that runs the vehicles used for transport.

By nature, the S2R-IP4 eco-system that promotes a complete seamless pan-European travel (i.e. multiple operators, multiple countries) leads to increase the number of actors participating in the transport services and hence the number of agreements, obligations and responsibilities established between the actors including the end-users.

The S2R-IP4 business environment is illustrated in figure 2 below.

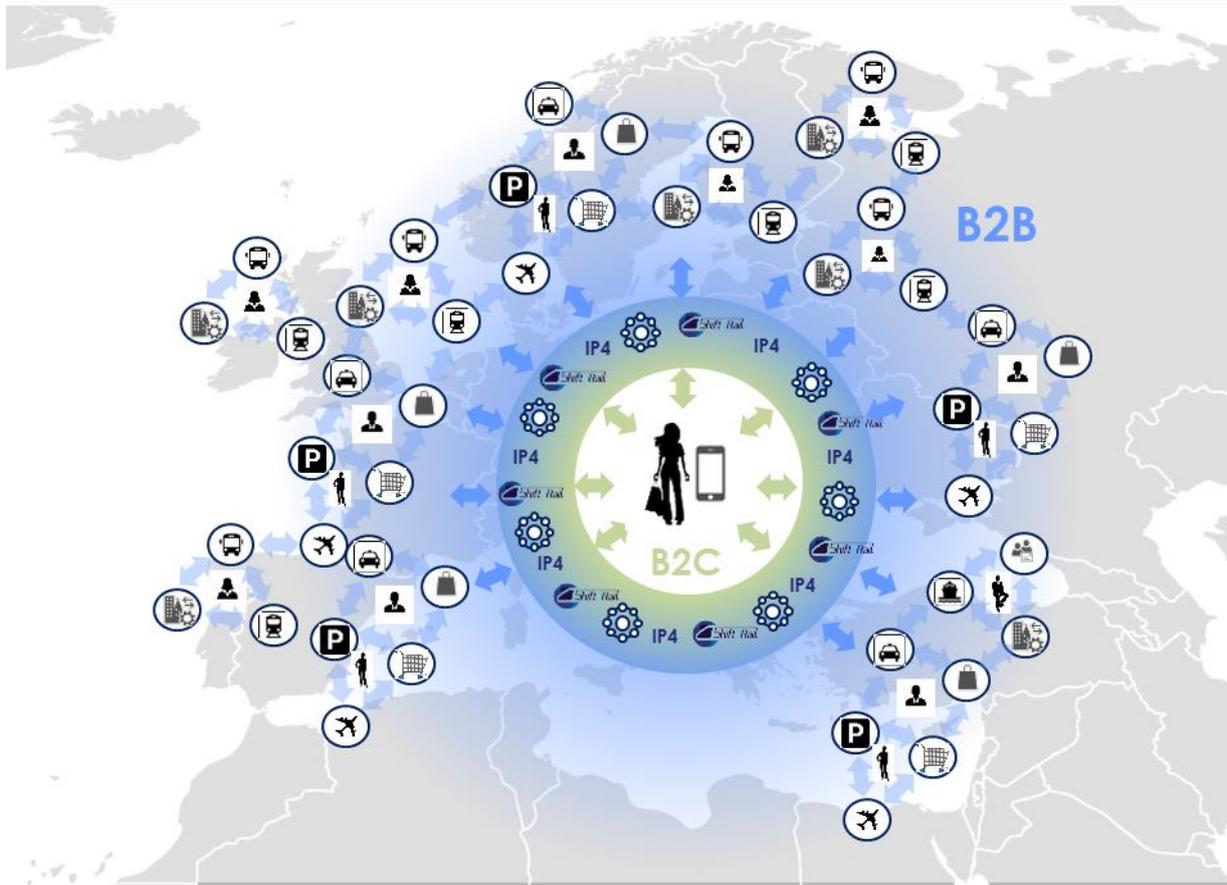


Figure 2: S2R-IP4 Business Framework Overview

The S2R-IP4 ecosystem is an enabler for the European-wide adoption of Mobility as a Service (Maas), meaning the ability for different transport industry actors (Transport Service Operators, Retailers, ...) to provide constant transport services within Europe.

A key objective is also to keep the customer at the centre of the business and operations, to create a positive customer experience, to deliver a user centric solution.

Business to Business

As illustrated in figure 2, the number business partners that may join the S2R-IP4 ecosystem is not limited: any Transport Service Provider, Retailer ... from any European country may join. The assumption is that the existing contractual agreements between those business partners will in general not be affected by the adoption of the S2R-IP4 ecosystem. Such agreements could either continue to be managed outside of the S2R-IP4 ecosystem (e.g. subcontracting of vehicle operation) or be supported by the ecosystem (e.g. Sale Agreement).

Hence, the objective is that existing and future Business to Business agreements (B2B areas highlighted in **blue** in figure 2) can be incorporated in the S2R-IP4 ecosystem and especially supported by the Interoperability Framework (IF) thanks to the semantic interoperability technology.

Chapter 3, in this document, is dedicated to the analysis of the most common B2B agreements in the transport industry and the identification of the candidate concepts that will be then developed in the ontology document. This is in the perspective of the definition of the semantic data annotations that will support the management of such B2B agreements in the S2R-IP4 ecosystem.

Business to Customer

Even if the transport service is delivered by multiple actors, the objective is to limit the complexity for the end-user and hence to provide integrated customer facing solutions. The S2R-IP4 ecosystem solution is the Travel Companion (TC).

There will be multiple Retailers/Merchants providing their own TC or using a TC solution provided by a 3rd party (TC Provider). The TCs will comply with the S2R-IP4 specifications and allow the access to the ecosystem. The Retailers/Merchants will have sale agreements with Transport Service Providers (contractual arrangements will remain unchanged if already existing or be defined when the partners will join the S2R-IP4 ecosystem).

Since there are multiple Service Providers without central regulation, there are multiple B2C agreements, terms and conditions, potentially different T&C per Service Provider. The objective is that existing T&C remain in place with the deployment of the S2R-IP4 technology.

From the end-user perspective, the B2C interaction will be through the Travel Companion (TC) (area highlighted in **green** in figure 2). This includes the sales, after sales and also to usage of the transport service. The TC shall propagate/implement the B2C agreements associated to those of the Products or Services included in the Entitlement purchased by the end-user.

The objective is that the B2C agreements (existing and future) can be incorporated in the S2R-IP4 ecosystem and supported by the Interoperability Framework (IF) thanks to the semantic interoperability technology.

Chapter 4, in this document, is dedicated to the analysis of the most common B2C agreements in the transport industry and the analysis of the way they could be managed in the S2R-IP4 ecosystem. This will be through the definition of the semantic data annotation that will be detailed in the ontology document.



The Service Providers may interact directly with the end-user outside of the S2R-IP4 ecosystem (e.g. at Transport Service Provider customer service centre). Such interactions are outside of the scope of the present document and assumed to have no impact on the S2R-IP4 ecosystem.

Note: The S2R-IP4 technology includes a core component, the Contractual Management Market Place (CMMP) that provides the tools for storing the agreements so that the agreements can when applicable in the process flow be checked and processed. The implementation of the CMMP does not define the content of the agreements. When parts of the agreements need to be processed by the participating systems (typically Travel Companion, Travel Expert), they are tagged with the appropriate ontology. WP3 participates to the definition of this environment by contributing to the elaboration of this ontology.

Note: One of the outputs of this document is the identification of key concepts that are will be detailed in the Ontology document. For a matter of clarity, these concepts are underlined in the text of chapters 3 and 4.

2. REFERENCED DOCUMENTS

Reference Number	Title	Revision	Date
H2020-S2RJU-2015-01/H2020-S2RJU-CFM-2015-01-1	Shift2Rail-IP4: Co-Active Grant Agreement N° 730846	N.A	08/08/16
Shift2Rail Glossary	Shift2Rail Glossary	0.5	12/02/2018

Table 1: Referenced Documents

3. BUSINESS TO BUSINESS

This chapter is dedicated to the analysis of the most common B2B agreements in the transport industry and the identification of the candidate concepts that will be then developed in the ontology document. This is in the perspective of the definition of the semantic data annotations that will support the management of such B2B agreements in the S2R-IP4 ecosystem.

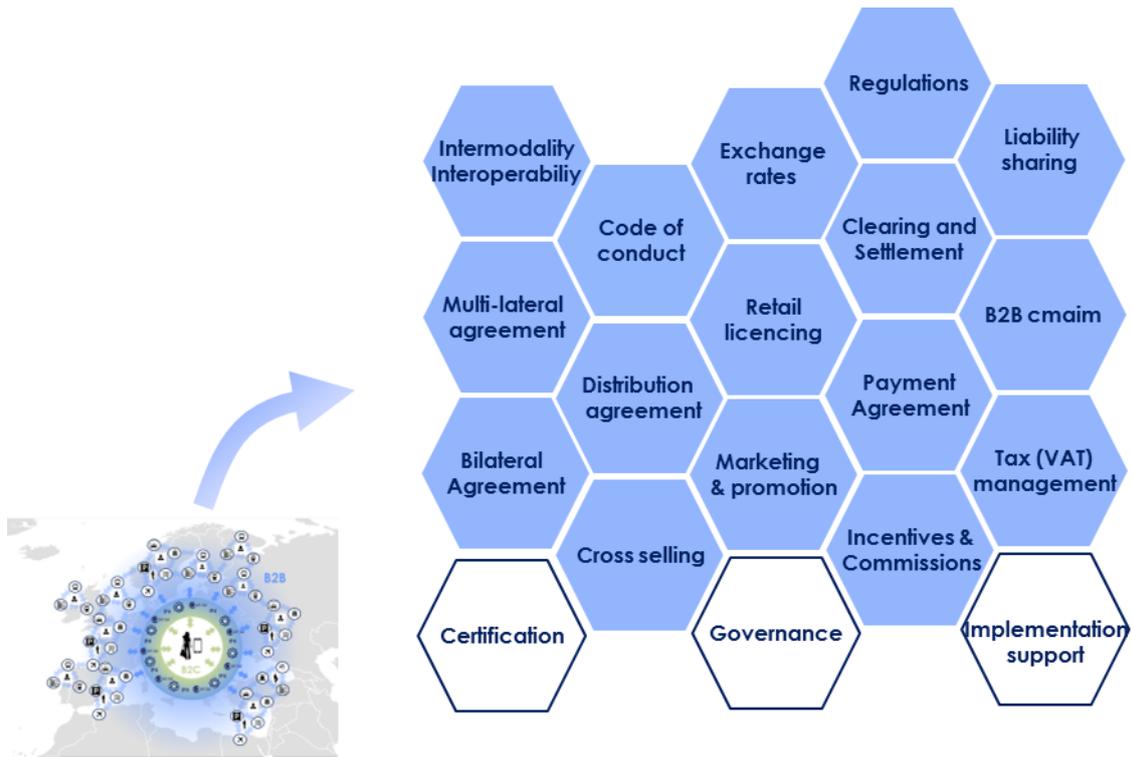


Figure 3: Business to Business

Figure 3 illustrates the selected categories of business agreements that will be developed in the following of this chapter. The **blue** hexagons refer to existing B2B rules in the transport industry whereas the white ones are related to B2B processes that might need to be introduced with the S2R-IP4 go live. Such ‘white’ processes are assumed to be piloted by the S2R-IP4 regulatory business players.

Note that this list of B2B arrangement is not supposed to be exhaustive and may be enriched in the next release of this document as well as during the next steps of the S2R-IP4 project.

The table below summarize the B2B rules.

B2B rule	Summary
Code of conduct	Ensuring fair competition and protect the end-customer rights.
Distribution agreement	Terms and conditions between a Distributors and Travel Service Providers for the resale of the Transport Offer.
Cross selling	Sale of related or complementary products to existing customers (Travel Service Providers selling products from other TSPs or non-transport products such as hotel reservation).
Exchange rates	Management exchange rates between currencies in case of international transactions.
Retail licencing	Legal contract between Retailer/merchant and Service Provider
Marketing & promotion	Improvement of the transport service image through typically marketing campaign and loyalty program.
Regulation	Regulations protecting passenger rights.
Clearing & settlement	Apportionment and settlement of the revenue between the participating parties.
Payment agreement	Customer payment plan and associated management
Incentive and commission	Variable remuneration included in contractual agreements between participating parties.
Liability sharing	Financial liability, liability for injuries the Customer or damage.
B2B claims	Management of business disputes.
Tax (VAT) management	Management of the multiplicity of taxes within an international context
Intermodality - Interoperability	Interoperable fare systems and their incorporation into the ecosystem
Bilateral & multilateral agreements	Nature of agreements between parties.
Certification	Qualification of IP4 participants.
Implementation support	Support to IP4 participants.
Governance	Ecosystem general governance.

Table 2: B2B Rules & Agreements

In the following of this chapter, each B2B agreement is addressed in a dedicated section. Sections start with a general description of the agreement ('state of the art') and in a second part focus on the identification of the concepts that will be developed in the ontology document in the perspective of the processing of the agreements by the machines.

3.1 CODE OF CONDUCT

Overview

Global Distribution Systems, typically Computerised Reservation Systems (CRSs) acts as intermediaries between the Transport Service Providers and the end-customers. They provide information on the availability of the transport service and the fare for such services.

CRSs allow travel agents to make reservations on behalf of the end-customers. It usually applies to air transport (and to rail transport when combined with a flight).

The Code of Conduct intends to ensure fair competition and protect the end-customer rights. It has been the subject of dedicated regulations ((EC) No 80/2009). Key points of the Code of Conduct include the interdiction of attaching unfair or unjustified conditions on certain transport offers, the interdiction of preventing a Transport Service Provider from using other booking channels, the requirement to manage the booking process with equal care and timeliness regarding of the Transport Service Provider.

S2R-IP4 impact analysis and ontology concepts

It makes sense to apply such kind of Code of Conduct in the S2R-IP4 ecosystem in order to maintain neutrality in the market place and ensure fair competition at the Shopping stage.

It is very clear that for a given Itinerary, there will be competing transport offers and the Retailer, Merchant shall propose the offers in a neutral fashion in order to prevent abuse by dominant players.

The assumption is that this Code of Conduct shall be part of the regulatory framework that will be established by the S2R-IP4 governance. Any Business Player that will join the ecosystem will have to comply with the defined Code of Conduct. Theoretically, any company which intentionally fails to comply would be the subject of fines and possibly exclusion from the ecosystem.

It is assumed that such rules will be part of the engagement signed-off by any company joining the ecosystem. No impact on the transport industry system interoperability here.

However, agreed Evaluation Criteria could be integrated in the offers proposed by the Transport Service Providers in order to support the Shopping process. Typical criteria would include: carbon footprint, schedule flexibility, services such as luggage transfer or meal selection, loyalty program, safety, convenience...

The nature of the Evaluation Criteria shall be agreed between the parties and reflected in the annotations so that the systems and especially the retail solutions can discover and use the Evaluation Criteria in order to propose the most suitable offer to the end-customer.

3.2 DISTRIBUTION AGREEMENT

Overview

In the transportation industry, Distributors act as intermediate body between the providers of the transport service (Travel Service Provider) and the Retailers for the purposes of shopping, booking and Ticket Sales. This is typically the case of indirect sale channels.

The Distributor enters in agreement with Travel Service Providers for the resale in territories or geographic areas. The Service Provider may appoint the Distributor as its exclusive distributor of the Products in the Territory.

The Distributor may manage a network of 3rd party retailers, the transport service being just one type of products available at the sale points. The key contribution of the Distributor is in such a case the providing of an existing powerful distribution network.

Usually, a Distributor agrees to exercise its best efforts to promote the sale of the transport service in the agreed geographic area, to abide by the rules and policies of the Service Provider and to conduct its business in a manner reflecting positively on the provider reputation.

The terms and conditions include also usually the conditions under which the Distributor might raise claims to the products.

S2R-IP4 impact analysis and ontology concepts

It is very likely that Distributors will join the S2R-IP4 ecosystem and in to that extent enter in agreement with Transport Service Providers for the distribution of the offer.

The agreement may include terms and conditions such as the exclusivity of rights to distribute, the authorized geographic area and market, the nature of the products, the authorized 3rd party retailers, the term of sale and payment, the duration of the agreement...

The distribution agreements could be pre-existing arrangements or new ones that will be signed within the context of the development of the S24-IP4.

Concerning the implementation, the envisioned perspective is that such agreements will be registered at the Contractual Management Market Place (CMMP) and tagged with the appropriate ontology in order to allow the processing by the appropriate systems, typically at Shopping and Booking time.

The required concepts will include at least the Products part of the agreements, the authorized Geographic Areas and Markets, the Retailer Identity for the authorized Retailers, the Effective Agreement Duration

Note that the terms of sales and payments are addressed in other sections of this chapter.

3.3 CROSS SELLING

Overview

Cross-selling is the practice of selling related or complementary products to existing customers. This is a marketing practice that can be used in many different ways depending on the size of the business and the industry sector. Cross selling allows business players to widen their offer, protect the relationship with customer and increase the income.

In the transportation industry, cross-selling covers different forms from the sale of complementary transport services to the one of services beyond the transportation, typically hotel booking, insurances...

Cross-selling programs are the subject of agreement between the participating parties.

S2R-IP4 impact analysis and ontology concepts

Within the S2R-IP4 ecosystem, the cross-selling concept is primarily applicable to Transport Service Providers that manage both transport services and retail channels.

In term of agreement, such arrangements between Transport Service providers (TSP) are very similar to Sales agreements detailed in a dedicated section of this chapter. Similarly the Retailer/Transport Service Provider case, a given TSP will sign agreements with other TSPs in order to include their transport offer in their own retail channels (typically a train company would include urban transportation tickets in their offer).

Cross-selling has a specific impact on the S2R-IP4 ecosystem when it comes to non-transport services (hotel reservation, insurance, event or theatre ticket...).

Such services could be registered at the Contractual Management Market Place (CMMP) in order to be available to retailers during the Shopping and Booking process. The perspective is to offer cross-selling at a global level in the S2R-IP4 ecosystem and hence foster the integration of business players and maximize the value of the delivered interoperability.

The Service Providers offering such non-transport services would have to be registered as so. The following concepts would at least have to be defined: nature of the Non-Transport Service, Geographic area of availability.

The level of integration in the Shopping and Booking processes would have to be further elaborated. Two options here, either integrate the non-transport services in the core implementation of the S2R-IP4 (typically have non-transport Travel Experts) or have separate access to the booking channel of the Service Provider.

3.4 EXCHANGE RATES

Overview

International transactions involving partners from several countries may involve several currencies.

In case of sale to end-customers, the Retailer usually establishes the tariff in a given Currency (the one of the registered address of the Retailer) and settles the amounts to the Providers in an agreed currency that varies depending on the Provider.

Therefore, there is a need to have defined exchange rates that support international transactions for a given business. One of the main requirements is to ensure that end-customers are not exposed to any exchange risk that may occur during the transaction.

Typically the International Air Transport association (IATA) publishes Exchange Rates as a unique source to support international billing.

S2R-IP4 impact analysis and ontology concepts

Within the S2R-IP4 ecosystem, the exchange rates will impact the financial flows between the business players. It is especially assumed that the settlement to a given Transport Service Provider will be in an agreed currency (depending on the Transport Service Provider).

The concepts to be defined include: the TSP Settlement Currency (agreed currency for a settlement to a given TSP that may be part of the Itinerary Offer Item or integrated into the body of the Clearing & Settlement) and the S2R-IP4 Exchange Rates.

The source of the S2R-IP4 Exchange Rate shall be studied as there is a need to have them guaranteed by the S2R-IP4 ecosystem during billing process that will be carried out by the Clearing & Settlement.

3.5 RETAIL LICENCING

Overview

Licensing agreements are legal contracts between parties (licensor and licensee). Licensing agreements cover a wide range of situations. Typically, a retailer may sign an agreement with a good or service provider in order to sell, deliver products on behalf of the provider.

In the transport industry, a large part of the total sales is not performed directly by the Transport Service Providers themselves but through various other channels from small retailers to travel agencies and collaborative web sites.

The Retailer (i.e. the licensee) shall usually apply for a retail license including topics such as the nature of products allowed to be retailed, potential exclusivities or restrictions, financial aspects including commissions...

The development of the internet sale channels has fostered the collaboration between business players and the multiplication of the actors in the market place leading to a growing number of licencing agreements.

Note that in the transport industry, agreement models have been introduced, typically the IATAN agreement for the air transport.

S2R-IP4 impact analysis and ontology concepts

Within the context of the S2R-IP4 ecosystem, Retailers and Merchants will sign Sales Agreements with the Transport Service providers (TSP) in order to sell the products and the services of the TSP. Without such licence, a Retailer/Merchant would not be allowed from selling products and services from that TSP.

It is assumed that Sales agreement will be created in the Contractual Management Market Place (CMMP). Such agreements will not refer explicitly to the nature of the products to be sold. The details will be available in the ontology supported by the CMMP. Such ontology would probably be consistent with the one of the booking and ticketing so that the systems will automatically enforce the agreements during the purchase workflow.

The required concepts included in the semantic data annotation will include at least the Products part of the agreements, and the associated Ancillary Services.

3.6 MARKETING AND PROMOTION

Overview

The main objectives of marketing in the transport area are to improve the image associated to the transport means, to restraint the use of private vehicles and reduce the carbon footprint of the transport and to attract new users.

The development of marketing in transport is usually based on Customer Relationship Management (CRM) processes covering areas such as customer data information management, marketing campaign management, mass communication and loyalty programs.

Loyalty programs allow building up knowledge about the customers and managing reward programs based on the travels. Loyalty solutions use not only classic communication channels but also social networks.

Note that almost all Transport Service Providers provide their own loyalty program, typically SNCF 'Voyageur program', Air France 'Flying Blue', Thalys 'TheCard', 'Deutsche Bahn', 'bahn.bonus'...

S2R-IP4 impact analysis and ontology concepts

Within the context of the SR2-IP4 ecosystem that promotes a complete seamless pan-European travel, an integrated marketing management would be a plus in the perspective of attracting customers and developing customer trust.

The first step will be to share the Customer details across the business players so that a Customer will be registered only once. However, a given Customer may already be registered at one or several Transport service Providers, Retailers.

The decision to be a 'global S2R-IP4' customer will be up to the Customer herself/himself and the business players that 'own' the Customer details (they may not agree on sharing the customer details). The semantic data that would be needed here is the concept of Shared Customer Record that in addition to the desired customer details will detail the conditions under which the information can be shared between the business players.

The second step will be to go to a global loyalty program where a given Customer can bring home 'points' when travelling on any network part of the S2R-IP4 pan-European system. The semantic data needed here would be the concept of Shared Loyalty Program that could be used by the systems at purchase and travel time in order to accumulate global loyalty points.

3.7 REGULATIONS

Overview

The transport of passengers is the subject of many regulations prescribed by authorities.

In the EU, citizens are protected by a full set of passenger rights. Common regulations (EC) have been established in order to harmonize the national rules. They cover air, road, rail and maritime transports in areas such as cancellations, delays, accidents, rights of persons with disabilities, protection, safety, compensations, complaints ... However certain services may be exempted from these rights (Member State decision).

Public transportation companies are also the subject to rules established by the EC in order to regulate the competition.

The Single European Transport Area (SETA) roadmap defines also the vision for the future of the EU transport system including areas connected to the S2R-IP4 ecosystem such as information technology, multimodal links, cross-border sections, charges and taxes, carbon footprint, competitiveness, using transport infrastructure more efficiently...

S2R-IP4 impact analysis and ontology concepts

The general assumption is that the business players participating on the S2R-IP4 ecosystem and especially the Transport Service Providers (TSP) comply with the regulations and obligations at national or EU level.

The IP4 technology will not enforce any dedicated regulation but rather be agnostic of the rules and process the Shopping, Booking and Ticketing workflows based on the information provided by the TSP Travel Experts.

3.8 CLEARING AND SETTLEMENT

Overview

Clearing and Settlement is the general process by which an organization acts as intermediary body between trading parties, apportions the revenues when applicable and settles accounts.

This intermediary body, usually called 'Clearing House' makes the market smoother and more efficient by centralizing the financial flows and hence preventing the participants to make transfers to each party with which they have transacted.

In global transportation systems and especially interoperable ones that deliver ubiquitous and attractive services to the travellers, a wide number of business players participate in the sale and the delivery of the offer. With the growing complexity of the transportation solutions and so the growing number of participants, clearing and Settlement solutions become mandatory in order to apportion and settle the revenue.

Regional or nationwide interoperable transport systems integrate Clearing and Settlement solutions as core components of the business architecture. This is typically the case of the Netherlands or Denmark national transportation systems.

The air transport industry integrates also Clearing House solutions in the perspective of the settlement of the billing between the world's airlines companies. Typically, the IATA Clearing House (ICH) provides billing and settlement services.

Clearing and Settlement requires the establishment of agreed business rules between the business players.

S2R-IP4 impact analysis and ontology concepts

The S2R-IP4 ecosystem encompasses many money flows between the participants including but not limited to: settlement of the funds from the Retailer to the Service providers, Retailer's commissions, payment Service Provider fees, commissions paid to the central authority managing the ecosystem (IF Authority and Operator), participant claim processing, reverse-flows related to re-imburement...

A key point is probably the clear separation between the Customer payment and the billing and settlement between the business partners. The Customer payment goes to the Retailer and is not directly related to the Clearing and Settlement flows.

The cornerstone of the integration of Clearing and Settlement workflows in the S2R-IP4 ecosystem is the Contractual Management Market Place (CMMP) where the contractual agreements will be registered.

It is assumed that the details of the agreements will be the subject of dedicated annotations, the key concept of which could be Apportionment Model (e.g. percentage, fixed price, distance based, effective price of the travel episode, concession levels...), Commission Level (e.g. percentage, service fees, ..), Discount model (e.g. capping), Operation model (e.g. fees charged by the central body in charge of the operation of the Interoperability Framework).



At the time of the settlement between the parties, the Booking and Ticketing will access the particular agreement in the CMMP to retrieve the processing details and trigger the fund transfers.

Concerning the payment solutions, the Amadeus Virtual Credit Card, Bank Transfer solutions, Direct Payments, ... available for the settlement will be in the Service Registry and annotated . They will be referenced in the Clearing and Settlement agreements in the CMMP so that the financial flow could be automatically triggered.

It is assumed that several natures of agreements will be registered at the CMMP from bi-lateral ones to multi-lateral ones that would ease the processing of the settlement of co-modal journeys.

The re-imbusement processing will logically follow the same implementation and make use of the settlement agreements registered at the CMMP.

As the day to day operation of the S2R-IP4 ecosystem will lead to a high number of settlement orders between multiple parties, it is likely that reconciliation processes would be needed in order to prove the accuracy of the money flows transiting through the systems. This might be through the management of Settlement Audit data that should be produced during the settlement process. Such data could be forwarded to the Business Analytics solution for reporting and control.

3.9 PAYMENT AGREEMENTS

Overview

A Payment Agreement covers a situation where a party owes another party a sum of money and a payment plan is defined. This is usually between a Customer (possibly a Corporate Customer), the owning party and a company or an institution delivering a service or collecting taxes, the owed party.

Typical types of Payment Agreements include instalment agreements, pre-payment, post-payments...

S2R-IP4 impact analysis and ontology concepts

The assumption is that the S2R-IP4 ecosystem will not manage the subscription of Payment Agreements.

Whether a given Customer wishes to use one-off payment or to register for a payment plan will be the exclusive responsibility of the Retailer/Merchant. When applicable, the payment details will be registered at the Retailer/Merchant. The Retailer/Merchant will bear the responsibility in case of declined payment.

3.10 INCENTIVES AND COMMISSIONS

Overview

In global retail organizations as well as in a high number of industry sectors, incentives and commissions encompass all types of variable remunerations.

Commissions are usually directly related to the volume of the business (e.g. transaction percentage, fee for a given contract).

Incentives are usually based on a period of time and calculated on goals that have been agreed on or as an encouragement to reach challenging objectives. 'Signing bonus' is also another type of incentive that makes the engagement to a new organization more attractive.

In today's digital age, business is rarely managed by a single key player but rather by moving organizations. And one of the key drivers for the development is to have the best partners/suppliers on the market regardless of their size. Incentives and commissions participate in the contractual agreements within such organizations.

S2R-IP4 impact analysis and ontology concepts

S2R-IP4 is an open ecosystem which business players can join or leave. Business players are broken down into two main categories: Retailers and Service Providers. A key question for such business players is the attractiveness of the ecosystem.

The major source of the revenue for the Retailers will probably be commissions earned for the reselling of the transport services. Such commissions would be defined by bi-lateral or multi-lateral agreements registered at the Contractual Community Market Place (CMMP). This was addressed in the Clearing and Settlement section.

Incentives might be included in agreements signed by business players when joining the ecosystem. This could be typically the proposal of reduced operation fees during a given period. The concept of Incentive could be added to the annotations of the agreements recorded at the CMMP in order to define the associated details and allow their processing during the Shopping and Ticketing workflows.

3.11 LIABILITY SHARING

Overview

In the transportation industry, the liability of the companies selling or delivering the transport offer can be broken down into three fields: financial liability at purchase time, injury or damage and delays or cancellation.

The financial liability (risk that the passenger payment is declined) is usually shared between the Retailer and the Payment Solution Provider used for the transaction. The Retailer may also subscribe a dedicated



insurance for such a case. Global organization (typically IATA) offers also insurances for accredited Retailers.

The liability for injuries or damages is on the company that provides the transport service. Transport Service Providers ensure their passengers for such risks. Common regulations (EC) have been established on order to harmonize the rules in the EU.

The liability for delays or cancellations is on the Transport Service Provider that failed at delivering the service. The level of compensation is usually part of the contract purchased by the Customer.

S2R-IP4 impact analysis and ontology concepts

Concerning the financial liability, the assumption is that the S2R-IP4 ecosystem will not interfere with the standard model. The risk that the Customer payment is declined is on the Retailer/Merchant. In case the Retailer/Merchant fails at transferring the funds to the other business players, it will be fully responsible for the due amounts.

Similarly, the Liability for injuries and damages will remain on the Transport Service Provider.

Concerning the liability for delays and cancellation, the base approach will be to keep the per Transport Service Provider model: the term and conditions included in the offer sold per each TSP defines the compensations regardless of the impact on the other potential Travel Episodes.

However and in order to increase the Customer trust in the ecosystem and provide added value, global insurance programs could be proposed in order to manage possible disruptions in the purchased co-modal travels. This could be managed through the use of Cross-Selling concepts (refer to the associated sections); Global agreement with insurance companies might be negotiated by the central body of the ecosystem (IF Authority).

3.12 B2B CLAIMS

Overview

Business disputes arise in any type of business and are inevitable. This is usually when business players disagree on the terms of the contractual arrangement that bind the parties. Disputes can occur in many different ways.

In complex business organisations involving multiple contractors, suppliers, retailers, contract disputes are very common. Typical cases include: party claiming that it was not paid the correct price for the delivered service, party claiming that the service was not delivered at all or not delivered according to the agreed conditions, party claiming that the delivery timeline not comply with the timeframe, party relaying end customer claims and arguing that it does not bear the liability, party claiming that the quality of the delivered service does not meet the expected standard...

At first, dispute cases can be limited through the establishment of clear agreements and formal contracts between the parties.

In case the dispute is inevitable, there are usually alternatives to go to court based on mediation. The plaintiff may raise a claim that is instructed by a central and neutral body. Typically in the airline industry, the International Air Transport Association (IATA) has put in place simplified dispute processes in case of disagreement between billing and billed parties.

S2R-IP4 impact analysis and ontology concepts

It is very clear that, within the S2R-IP4 ecosystem that by nature involves a wide range of business players and complex financial flows, disputes will be inevitable.

A Transport Service Provider may argue that the received revenue for the sold Itinerary Offer is not the one expected, a Retailer may report that the perceived commissions for the retail service have not been settled, a Merchant may report a Customer claim when the delivered service did not meet the expected quality...

Therefore, services for managing claims from the business players should be offered as part of the ecosystem in order to resolve the disputes.

The approach could be to include Claim Management Services in the S2R-IP4 ecosystem. The claim details and status could be the subject of dedicated annotations that would allow the systems of the plaintiff and the defendant to manage automatically the dispute workflow. Such annotations could be grouped under the concept of B2B claims.

3.13 TAX (VAT) MANAGEMENT

Overview

The EU does not directly raise taxes or set tax levels. The application of value Added Tax (VAT) is defined by national authorities. However there are some standard EU rules to ensure the consistency of the local taxes with the EU policy especially to avoid unfair competition across borders. Typically, the 2016/112/EC directive defines the EU's VAT regulation in force. The tax level depends on the place where the good or service is supplied.

Concerning the transportation industry, each country and even each operator is free to apply its own policy concerning the VAT. Eurostar journeys does not incur a VAT tax, this is the same for French train tickets. However in Germany a tax, Mwst D, is applied on the train tickets. In Spain there is a value added tax on sales called the IVA. There is no VAT on UK train tickets. Domestic airlines are generally the subject of the local VAT policy. Concerning international airlines the tickets are usually exempt from VAT.

And there are other taxes, typically security taxes, airport taxes, city taxes...

People travelling for business (and others) are often requested to submit VAT compliant receipts in order to apply for re-imburement under the local regulation. Therefore there is a need for the Shopping/Booking channels to deliver such compliant invoices.

S2R-IP4 impact analysis and ontology concepts

Within the context of the S2R-IP4 ecosystem, each purchase transaction may include several different taxes and VAT depending on the location of the Travel Episodes.

It is assumed that the Fare and the detail of the Taxes that make up the total price to be paid will be detailed in each Itinerary Offer Item. This information will be made available to the Customer and especially included in the receipts.

Concerning the S2R-IP4 integrated Clearing and Settlement, it is assumed that the price breakdown will be available and integrated in the billing transactions so that it can be stored by the convenient party and submitted to the local authority when applicable.

As the tax structure varies depending on the area and the Service provider it might be useful to define the concept of Tax Structure annotation so that the Travel Experts and the Retailer system can collaborate and interpret the various tax natures and breakdown.

3.14 INTERMODALITY - INTEROPERABILITY

Overview

The broad definition of Intermodality is the capacity to use more than one form of carrier during a single journey.

The development of Intermodality in passenger transportations and especially public transports has led to the implementation of Interoperable information, on line reservation and smart ticketing systems.

Interoperable smart ticketing systems have been recently deployed at regional and nationwide levels. Typical cases are the Dutch OV-chipkaart, the Danish Rejsekort smart cards that allows Passengers to travel on bus, tram, train, coach, ferry ... networks in the country.

Smart ticketing interoperability can be deployed at several levels, from the sharing of the fare media between the Transport Service Providers (e.g. the same smart card used regardless of the transport mode), to the proposal of interoperable fare products (e.g. same period pass usable on train and bus) and the sharing of the business data (e.g. customer records, travel information).

Different implementation of intermodal/interoperable solutions do exist from the collaboration between independent systems managed separately by the Transport Service Provider to the use of a global system the deployment on each transportation network being limited to the customer facing components.

Intermodal, interoperable systems are usually managed by a central authority that ensures the consistency of the global scheme and its governance. Dedicated standards have been defined for this, typically ISO 24014.

S2R-IP4 impact analysis and ontology concepts

The S2R-IP4 ecosystem is based on co-modality not interoperability. The targeted collaborative delivery and consumption of transport services do not require the implementation of an interoperable framework between the Transport Service Providers.

However, as interoperable frameworks are already in place in a number of countries, it is likely that in such a case, the S2R-IP4 Shopping/Booking workflows would have to take into account such situations (e.g. in case of a travel from Paris to Rotterdam including plane to Amsterdam, train from Amsterdam to Rotterdam and then bus there would be a single combined offer for the “train + bus” Travel Episode).

A solution could be to identify a prime Transport Service Provider for such a case that would provide the Itinerary offer on behalf of the Transport Service Providers included in the interoperable organisation. The alternative (more open) would be to leave any Transport Service Provider join the ecosystem and simply let the systems discover the interoperability cases through dedicated annotations. The concept of Interoperability Structure could be introduced for this in either the Itinerary Offer Items or in the business rules registered at the Contractual Management Market Place (CMMP).

3.15 BILATERAL & MULTILATERAL AGREEMENTS

Overview

Multilateral agreements are agreements (usually commercial ones) between three or more parties. Since more than two parties are involved, there are usually difficult to negotiate but offer a number of advantages: each signatory treat each other the same which levels the playing field, it increases the business for the participants, it standardises the regulation and save costs in the negotiations and trade, it could help the weakest parties. But multilateral agreements have also some disadvantages: they are usually complex, misunderstood by some parties, it may make the competition more complex for less competitive parties, it may put the pressure on the costs.

A significant number of multi-lateral agreements do exist in the air transport industry and cover various domains such as route schedule, traffic rights, tariff regime... MALIAT (Multilateral Agreement on the Liberalization of International Air Transport), COMESA (Common Market for Eastern and Southern Africa), ECAA (Establishment of A European Common Aviation Area)...

Passenger transport in the EU is harmonized based on common EU rules, bilateral agreements being used to regulate the transport between member States and Third Countries. EU rules and bilateral agreements include rules that govern the passenger rights and especially the handling of delays and cancellation in case of multi modal travels.

S2R-IP4 impact analysis and ontology concepts

In the S2R-IP4 ecosystem, the Contractual Management Market Place (CMMP) is the place where the agreements between the parties shall be registered for processing during the Shopping/Booking/Ticketing workflows.

Any Retailer or Merchant will have an agreement with any Transport Service Provider (distribution licence, contract). Existing bilateral agreements would have to be registered at the CMMP. There is intention to redefine existing agreements. This will also be the case for existing multilateral agreements.

We can surmise that with the expansion of the S2R-IP4 ecosystem; there will be a growing number of parties that would have to get in agreement with the existing members. If we were to stick to bilateral agreements, this would be a lot of paper work for a new comer to join the ecosystem.

The best approach would probably to put in place standard multilateral agreements the parties will agree on. The CMMP would have to allow the registration and management of such agreements. The details of the agreements (terms and conditions) would be registered via semantic data annotation the concepts of which have been introduced in the previous sections (cross selling, retail licencing, distribution agreement...).

3.16 CERTIFICATION

S2R-IP4 impact analysis and ontology concepts

As most of the B2B-B2C organisations including Retailers, Merchants, Service providers, the S2R-IP4 ecosystem will need new comers to be qualified as IP4 participant.

The request for qualification process will likely include official request, NDA, delivery of the documentation to the participant so that it can customize its solutions (Travel companion, Travel Expert) and join the S2R-IP4 ecosystem.

Following the customization of the newcomer solutions, we can surmise that there will be a Certification process the objective of which would be to ensure that the newcomer complies with the interfaces and that its connection will not make havoc in the global solution. This is to guaranty the security of the system to the existing participants.

It is assumed that this process will be managed under the responsibility of the Interoperability Framework Governance Authority and its definition part of the GOF4R project. The Governance Authority will deliver the certificate that will give to the newcomer the 'Permission to Connect'.

The services in the registry could be annotated with Test Statuses such as test, preproduction, production so that the certification process can be carried out without breaking anything for either party.

3.17 IMPLEMENTATION SUPPORT

S2R-IP4 impact analysis and ontology concepts

As underlined in the previous section, the first step for a new comer will be to customize its IT solutions in order to connect to the IP4 Interoperability Framework (IF).

No technical impact is foreseen here on the framework; however the Governance will have to provide some support to the new partner including typically documentation and technical support.

3.18 GOVERNANCE

S2R-IP4 impact analysis and ontology concepts

A good governance of the S2R-IP4 ecosystem is mandatory in order to best promote the use of the Interoperability Framework and secure the confidence of the Partners and the Customers.

The definition of this governance is assumed to be part of the GOF4R project. The areas covered by the governance may include (a) the management and funding of the vendors in charge of the development and maintenance of the IF as well as the hosting of the solution (b) the definition and negotiation of the S2R-IP4 roadmap with the business players, (c) the enforcement of the B2B and B2C rules, (d) the management of the support and certification.

4. BUSINESS TO CUSTOMER

This chapter is dedicated to the analysis of the most common B2C agreements and rules in the transport industry and the identification of the candidate concepts that will be then developed in the ontology document. This is in the perspective of the definition of the semantic data annotations that will support the management of such B2C agreements in the S2R-IP4 ecosystem.



Figure 4: Business to Customer

Figure 4 illustrates the selected categories of business to customer agreements and rules that will be developed in the following of this chapter.

Note that this list of B2C arrangements is not supposed to be exhaustive and may be enriched in the next release of this document as well as during the next steps of the S2R-IP4 project.

The table below summarize the B2C rules and agreements developed in the following

Rule, agreement	Summary
Discount policy	Discounted fares for certain category of persons.
Refund	Refund conditions.
Compensation	Compensation in case of cancellation or delay.
Proof of eligibility	The documents provided by a customer to access reduced fares
Exchange	Ticket exchange conditions.
Lost, stolen or mislaid tickets	Conditions of exchange, re-imbursement of lost or stolen ticket
Defective, altered or damaged ticket	The condition of exchange of a defective, altered ticket
Inspection and fining	Conditions and obligations related to inspection and fining during the travel.
Passenger obligations	General obligations of the Passenger including regulations.
Customer trust	Rules and practices enabling Customer trust.
Claim and complaint	Conditions (mean, time...) under which Customer claims and complaints can be raised
Corporate customers	Management of Corporate Customers.
Privacy	Compliance with privacy regulations.
Travel conditions and services	General conditions related to the travels and related services.
Customer service availability	Conditions for accessing the Customer service.
Spoken language	Management of multi-language in customer facing processes.
Luggage	Conditions related to luggage (number, weight, etc.).
Damage of property	Conditions related to a damage of a customer property
Loss of property	Conditions related to the management of the loss of property during the travels.
Personal injury	Liability of the TSP for any personal injury, death.

Table 3: B2C Agreements

In the following of this chapter, each B2C rule is addressed in a dedicated section. Sections start with a general description of the agreement ('state of the art') and in a second part focus on the identification of the concepts that will be developed in the ontology document in the perspective of the processing of the agreements by the machines.

4.1 DISCOUNT POLICY

Overview

Transport Service Provider (TSP) generally offers discounted fares for certain category of persons (e.g. children, students, senior...). Customer Profiles collected by the Travel Companion (TC) and stored in the Wallet could be used to obtain discounted fares without the need to provide the original documents for each purchase operation. This information shall be trusted by the TSP and will give rights to discounts.

A discount may be applied when several persons travel in group.

TSP may offer special discount when travel services are coupled with special event (e.g. football) or amusement park.

Discount may also be obtained when cross-sell is performed (train + hotel).

In the context inter-modality, discounts often exist when a traveller uses both train and park (park & ride).

After a number of travels or distance covered; a customer can benefit of special discounts.

S2R-IP4 impacts analysis and ontology concepts

Based on the above analysis of the discount policy, a number of concepts might be useful to manage across the system and especially store in the TC so that the systems can use them during the execution of the workflows.

The following concepts are suggested in the perspective of the semantic data annotation: Discount Policies taking into account (customer) Profile, Group Travel detail, Travel Frequency, Travel Units Earned, combined Park and Ride, combined Travel and Event.

4.2 REFUND

Overview

Refund conditions are generally part of after sale services.

It is generally admitted that the customer should initiate the refund process (refund submission) even if the cause comes from the Transport Service Provider (TSP) and it is on his recommendations to submit such a request.

A customer may initiate a refund process by submitting a refund request for a ticket or any unused portion of a ticket.

An automatic refund may also be initiated following certain circumstances (e.g. flight or train cancellation due to strikes) to protect the end-customer rights and increase the level of trust of the customer in the system.

The refund request is recorded and processed by the ticket seller in charge of the after sales services; which could be a Retailer, a Merchant or a Transport Service Provider.

Whether tickets can be amended and/or cancelled and refunded is determined by the ticket type and these are decided by the TSP, Retailer or Merchant offering the fare. The customer should be able to check these when booking a ticket to ensure he or she is buying a ticket which meets her/him requirements.

S2R-IP4 impacts analysis and ontology concepts

The concepts that might be introduced in order to support the refund workflow are the following

- Refund payee: Person to whom refund will be made. The refund is made generally to the person named in the ticket, the company for a corporate customer or the person who paid the ticket.
- Involuntary refund. This is a refund associated with circumstances when the Transport Service Provider is unable to deliver the service or to provide the expected level of service (flight or train schedule which leads to unacceptable delay).
- Voluntary refund. The refund is requested by a customer when part of the ticket has not been used.
- Refund on lost or stolen ticket. This refund is requested by a customer.
- Refund Currency. The refund is generally made in the currency in which the fare was paid.
- Refund payer: By whom ticket will be refunded. Refunds include both who reimburses the client but also the impact of sales amount distributed amongst the business actors.
- Refund Regulatory: refunds will be subject to Government laws, rules and regulations or orders of the country in which the ticket was originally purchased and the country in which the refund is being made. Country in which the travel is performed may also be taken into account.
- Method of refund. They are several methods of refunds can be paid such as cash, cheque, credit or debit card, voucher, etc. The refundable amount may be chosen or defined by the customer (preferences) or dictated by the payment means used during the ticket purchase.
- Refund Expiry date. A ticket may not be subject to refund after a specified period following the ticket' validity.

4.3 COMPENSATION

Overview

The possible compensations in case of cancellation or delay are generally part of the contract.

A Transport Service Provider (TSP) may prefer to provide to traveller compensation instead of a reimbursement.

TSP indicates conditions which lead to compensation instead of refunds.

Compensation could be provided as a discount for the next travel, a outclassing.

S2R-IP4 impacts analysis and ontology concepts

The concepts that might be introduced in order to support the compensation conditions are the following:

- Compensation Discount – reflects the discount obtained by a customer related to compensation.
- Compensation Reason indicates the circumstances which lead to the compensation.

4.4 PROOF OF ELIGIBILITY

Overview

The Customers may have access to reduced priced tickets (discounted tickets) when providing some proof of eligibility.

In order to qualify, the Customer needs to submit (officially) the proof of eligibility. This may necessitate the creation of a customer account which requires a unique email address which may need to be validated.

Unaccompanied children, incapacitated persons, pregnant women, persons with illness or other people requiring special assistance have to be registered at the time of ticketing. Again the accompanying person usually travels for free or gets a special discount.

S2R-IP4 impacts analysis and ontology concepts

It is assumed that within the S2R-IP4 context, the proof of eligibility would have to be registered (presumably in the Travel Companion Wallet, TCW) and processed by the systems. The following concepts could be introduced in order to support the workflows:

- Proof of Identity – is a document such as a passport, Nation ID Card, Driver Licence, Photo...
- Disability situation – is a document which states the kind and level of disability.
- Welfare – is a document which defines aids or discount paid by welfares (e.g. situation related to unemployment).

4.5 EXCHANGE

Overview

It is common situation that a Passenger requests to exchange his or her ticket.

The Transport Service provider (TSP) usually defines the conditions under which an exchange can be carried out:

- Before departure (e.g. ticket exchangeable and refundable without charge until the day before departure).
- Day of departure (e.g. 5% charge).
- After departure (e.g. non-exchangeable).

Some tickets are non-refundable but they can be exchanged with or without a charge.

S2R-IP4 impacts analysis and ontology concepts

As the exchange will presumably be performed via the Travel Companion a number of concepts shall be present in the data annotations in order to support the workflows: Least Product Exchange Date part of the agreements, Product Exchange Rate, Product Exchange Fee and Product Exchanged Source.

4.6 LOST, STOLEN OR MISLAID TICKETS

Overview

Under certain conditions, a lost, stolen or mislaid ticket may be replaced or reimbursed.

Some operations such as refund or reimbursement may be provided by the Transport Service Providers (TSP) for (their) registered customers only.

The conditions of exchange, re-imbusement of lost or stolen ticket are already defined and set out in the fare rules by the TSP which may be attached to the product.

There will be a defined and systematic 'storage' of such conditions, to enable easy and direct access to either passengers or to aftersales processes which may need access in order to make calculations on money owed or to be paid (in either direction) between the TSP and the Customer.

A valid ticket is the passenger evidence of his/her right to travel and is his/her responsibility to keep it safe.

A Retailer or TSP may refuse to issue a duplicate ticket if they have reasonable grounds to believe that such requests are being made fraudulently.

A traveller/passenger may have to pay a reasonable administrative charge for the issue of the duplicate ticket.

S2R-IP4 impacts analysis and ontology concepts

In the perspective of the support of the exchange workflow in the ecosystem, the following semantic data annotations would probably be required:

- Lost Ticket, Stolen Ticket and Mislaid Ticket are concepts included in S2R-IP4.
- For each situation, the customer should be informed whether a Ticket exchange or a Refund ticket is offered and whether an Exchange Fee or Refund Fee is applied.
- The customer may also be informed whether the replacement or refund operation is performed immediately or not. What is the Refund Channel or Exchange Channel?

4.7 DEFECTIVE, ALTERED OR DAMAGED TICKET

Overview

Usually when a valid ticket cannot be used, the Transport Company or travel agent which sold it will arrange for a replacement ticket. A charge has usually to be paid.

There are different cases when the ticket cannot be used leading to different workflows:

- A defective ticket is generally considered as not the responsibility of the Traveller and is subject to replacement or refund.
- An altered ticket is generally considered as a fraudulent operation which necessitates additional investigations by Ticket Controlling Organization.
- A damaged ticket is generally the case when the Traveller/Passenger does not take care of the ticket and may be subject or not to replacement or refund by the Retailer or Transport Service Provider.

S2R-IP4 impacts analysis and ontology concepts

The general assumption is that the Traveller will apply for replacement using the S2R-IP4 retail channel used for the purchase and that the process shall go up to the Transport Service Provider. The following concepts should be introduced to support the workflow:

- Defective Ticket, Altered Ticket and Damaged Ticket information at request time.
- For each situation, at purchase time, the Customer should be informed whether a Ticket Exchange or a Ticket Refund is offered and whether an Exchange Fee or Refund Fee is applied.
- The customer shall also be informed whether the replacement or refund operation is performed immediately or not. What is the Refund Channel or Exchange Channel?

4.8 INSPECTION & FINING

Overview

Usually, enforcement officers on the transportation networks are entitled to check the tickets. The Traveller/Passenger is responsible for having an adequate valid ticket.

A Passenger must show and, if asked to do so by the staff of a Transport Company or its agent, hand over for inspection a valid ticket.

If a ticket cannot be displayed (paper, electronic...), the passenger will be treated as if you are unable to hand a valid ticket over for inspection.

When a passenger is unable to provide valid ticket he or she may be applied a fine.

The traveller may have to pay immediately the fine to continue his or her journey or to pay later.

Generally the traveller or passenger should provide a proof of identity.

The ticket inspector collects a penalty fare in addition to the relevant one-way fare.

S2R-IP4 impacts analysis and ontology concepts

It is very clear that the inspection process will be managed outside of the S2R-IP4 ecosystem. However, it seems that a number of concepts shall be introduced in the ecosystem especially to allow a feedback through the Travel Companion:

- Penalty Fare or Fine amount shall be available as part of the general conditions at booking time and later in case of the Customer has been fined in the travel history at the TC.
- In addition, the offender should be informed of the Penalty Payment Expiry Date and resulting additional fees.

4.9 PASSENGER OBLIGATIONS

Overview

A Traveller/Passenger is subject to certain obligations when using the transportation networks.

Such obligations depend on the Transport Service Providers. Typical cases are as follows:

- Have a valid ticket.
- Agree on requests from the enforcement officers.
- Comply with the transportation regulations (e.g. not smoking).

S2R-IP4 impacts analysis and ontology concepts

The main impact on the S2R-IP4 ecosystem is that the obligations shall be available at purchase time. This is especially critical because with the pan-European perspective, the obligations may differ between the location of the purchase and the location of the travel. The following concepts should be introduced in the Itinerary Offer:

- Traveller/Passenger Obligations defining the Rights and Obligations of passengers.
- Regulation may be applicable to specific transportation mode (e.g. Rail Passengers Right Regulations) or more generally Convention concerning International Carriage by Rail or Air.
- General Terms and Conditions of Travel (the “Travel Terms and Conditions”) may also be applicable in a country or in the European countries to every agreement regarding travel and the transportation mode.

4.10 CUSTOMER TRUST

Overview

The customer-centricity of sales and service policies and particularly in the mobility related services is at the heart of enabling Customer Trust.

Transparent and Honest Business Practices – Many companies provide products and services which are processed by complex algorithms in order to build an offer to the end-customer based on his or her preferences. A customer should trust these algorithms and rules to preserve its interests. Customer should have choices for service or product whenever possible.

Customer Privacy Protection – In the era of Big Data, it's important to preserve the customer's privacy.

Bring Value - Serving customers and meeting their needs is at the heart of everything. Deliver quality; never deliver anything less than what you promised the customer. Delivering quality every time shows customers they can rely on your business long term. Once they believe that, they have reached the line of trust.

Customer Service Efficiency and Availability - Customers often have questions, and if there's nowhere for them to get an answer, or the response is not given in a timely manner, this is an issue.

Customer Feedback – The best way to measure the Customer Trust is to conduct survey and collect customer feedback. Respond to negative reviews: take time to respond to every online review, even the negative ones.

S2R-IP4 impacts analysis and ontology concepts

It seems that the key drivers to enable Customer trust are rather in the governance and rules of the ecosystem than in the introduction of technical concepts. The key rules to apply are probably among the following:

- Have a known control and regulatory authority in charge of the governance of the ecosystem (refer to B2B chapter).
- Ensure that TC provides an efficient and available customer service.
- Ensure the protection of the customer privacy (refer to Privacy section).
- Collect customer feedback.
- Have a defined process before letting a company join the ecosystem and deliver its services. The Customer shall trust the members of the ecosystem. Refer to certification section in B2B chapter.

4.11 CLAIM & COMPLAINT

Overview

A key point in sales and service policies is the providing of services for processing claims and complaints (e-mail, feedback form on the mobile app or web site, customer service centre.) This is essential to enable Customer trust.

S2R-IP4 impacts analysis and ontology concepts

Within the S2R-IP4 ecosystem, the customer claims would be a global workflow as they will surely be captured at the retail channel (Travel Companion) and submitted to the convenient Transport Service Provider.

Note that claim and complaint are linked to Co-Active WP2 and part of after sales services.

The envisioned process is illustrated as follows (the key concepts that might be the subject of semantic data annotation are underlined in the text).

In the event a traveller/passenger wishes to complain about a circumstance which entitles him or her to Compensation pursuant to the Travel Terms and Conditions, he or she should firstly contact the TSP staff or the staff at staffed points of sale or the TC. Where such staff cannot make a decision regarding compensation, the passenger should, not later than within a Complaint Period (e.g. two months) from the date on which the journey was taken, submit a claim to Customer Service, via website or TC.

The traveller/passenger may also write to a defined Complaint point of contact which identifies where complaints about matters that could not be solved by contacting the TSP staff should be sent.

4.12 CORPORATE CUSTOMERS

Overview

Usually, corporate customers, with their hierarchy and organisation, are managed via dedicated sales representative using dedicated view on those particular customers.

The corporate customer registration (corporate customers are rarely anonymous) requires additional fields available for company registration including especially contact information, company type.

The corporate customers can usually purchase tickets in bulk.

Dedicated payment methods can be used, typically bank transfer.

S2R-IP4 impacts analysis and ontology concepts

It shall be clarified whether the corporate purchase will be performed through the Travel Companion (TC). For sure, the employees (i.e. the passengers) will use the TC after it has been loaded by the company.

The key impact is probably the enabling of the link between the Corporate Customer and the employees. Here, the concept of Corporate Agreement shall be introduced in order to enable the management of such a link by the various processes.

4.13 PRIVACY

Overview

The compliance with EU General Data Protection Regulation (GDPR) is a must. Enforcement date is 25 May 2018 - at which time those of the organizations that remain not compliant may face heavy fines.

The EU General Data Protection Regulation (GDPR) replaces the Data Protection Directive 95/46/EC and was designed to harmonize data privacy laws across Europe, to protect and empower all EU citizens' data privacy and to reshape the way organizations across the region approach data privacy.

The information systems shall respect customer privacy and take care of the storage and use of the personal information.

The use of Customer personal data includes especially the following cases:

- To provide and administer the Services for the customer.
- To administer customer loyalty programs.
- To operate the solution from a technical and practical perspective.
- To personalise the customer usage (for instance, to follow up on purchases made on the site).
- To manage customer care (for instance, responding to complaints).
- To use customer personal data for sending emails and marketing communications.

S2R-IP4 impacts analysis and ontology concepts

S2R-IP4 ecosystem shall comply with the GDPR regulation. The Governance authority is assumed to be in charge of defining and enforcing the ecosystem security policy among the partners.

The management of customer privacy relies on the implementation of the systems (core IP4 implementation, partner systems including Travel Experts, Travel Companion) and their operation. No special semantic data annotation is expected here but rather the application of the GDPR prescriptions.

The main S2R-IP4 areas impacted by the GDPR are the following:

- Customer/Traveller/Passenger Consent. By using the S2R-IP4 Services, the customer shall explicitly agree with the terms of the Privacy Policy and whenever he/she submits information via the TC, he /she shall explicitly consents to the collection, use and disclosure of that information in accordance with this Privacy Policy that shall be available.
- Active Collection of information. Some areas of the TC) will require the customer to actively submit information in order for him to benefit from specific features, or make ticket bookings. Some of this information may be personal (namely, information that can identify him, such as his name, address



or phone number). The S2R-IP4 ecosystem shall only collect such information when the Customer agrees to supply it.

- Explicit agreement and confirmation. The customer shall confirm that he will only enter information about himself and that such information is true.
- Passive Collection of Information. The S2R-IP4 ecosystem may collect and process anonymous information about a Customer/Traveller, such as some of the pages he/she visits and some of the searches he/she performs. Such information may be used to help improve the contents of the site and to compile, for internal market research purposes, aggregate statistics about individuals using it. The management of such data and their disclosure is subject to GDPR rules.
- Right to be forgotten. If the Customer is unhappy with the policy he/she shall be able at any time to amend the permissions that he/she has given in relation to use of his/her data.

4.14 TRAVEL CONDITIONS & SERVICES

Overview

Each Transport Service Provider delivers usually the service under conditions stipulated in dedicated terms and conditions the Passenger shall be aware of. Typical cases are listed below:

- Passengers must be present at the boarding not later than the time specified at the booking time.
- Small pets may be taken free of charge, provided that they are kept in a carrier or cage. Small pets are not entitled to a separate seat.
- A person may be allowed to freely escort a disabled person. This exception applies to a maximum of one companion per disabled person.

S2R-IP4 impacts analysis and ontology concepts

In the context of the S2R-IP4 ecosystem, it is very clear that the travel conditions and services proposed by each Transport Service Provided participating to the combined travel shall be available to the Customer at booking time.

Such information, Travel Conditions and Services, shall be available in the form of semantic data annotation so that it can be processed at Shopping/Booking time, especially by the Travel Companion (TC).

4.15 CUSTOMER SERVICE AVAILABILITY

Overview

The availability and reactivity of the customer service is a key point in customer centric businesses especially to build customer trust.

The starting point is probably to know who to talk to in case of needs of complementary information or in case of problems – A customer should be comfortable to clearly and simply identify which person or service to contact when he or she faced some problems and where and when to submit a claim or complaint.

S2R-IP4 impacts analysis and ontology concepts

Within the context of S2R-IP4, a pan-European multi-tenant ecosystem, the task of answering Customer queries seems to be a collaborative work. Typically the Retailer that delivered the Entitlement will not be able to process any queries. Therefore, it seems that any Itinerary Offer shall include Customer Service Details data so that the Retailer/Merchant managing the TC channel would be able to redirect the queries to the convenient customer service.

4.16 LANGUAGE

Overview

In international customer centric system, the spoken language is a key element of the customer service.

S2R-IP4 impacts analysis and ontology concepts

In the S2R-IP4 ecosystem, the interaction with the Customer is largely based on the Travel Companion, the use of sale agencies or voice calls being probably limited to the management of complex customer queries and supported by the Retailer or Transport Service Provider facilities.

In any case, a European Customer will expect to use his/her native language to perform Shopping, Booking and Ticketing as well as to interact with the customer service.

Therefore, the concept of Customer Preferred Language shall be registered in the Customer details so that the on line services could be automatically configured, the redirection to service desks could be done by selecting the adequate spoken language, the term and conditions could be made available in the desired language.

4.17 LUGGAGE

Overview

Luggage means such articles, effects and other personal property of a passenger as are necessary or appropriate for wear, use, comfort or convenience in connection with the trip, it includes checked and unchecked luggage of the passenger.

In the passenger transport industry, the management of luggage is the subject to complex and variable terms and conditions. Typical cases are illustrated below:

- Limitation (weight, number). Guests travelling on a given carrier are limited to a certain number of checked pieces of luggage per person. Total checked luggage weight per person cannot exceed a specified weight (at least without additional fees). In some transportation modes (air) each piece of luggage must have an identification tag attached to it that may include information such as customer name, return address, and telephone number.
- Unaccepted items. The passenger is not allowed to put certain items in his/her luggage depending on the type of carrier or country regulations.
- Rejected luggage. A luggage may be refused depending on its size, shape, weight or character.
- Luggage fee. A passenger may have to pay a charge for excess luggage.
- Ticket conditions. A ticket purchase provides the traveller/passenger with free of charge luggage specified and subject to the conditions and limitations in TSP's Regulations.
- Identification. In certain circumstances, luggage needs to be identified providing traveller/passenger name or other personal identification.
- Animals. If accepted as luggage, the animal, together with its container and food may be subject to a charge.
- A passenger generally travels with one or several luggage. A passenger shall be notified whether the luggage can be transported or moved, is portable, or can be shifted by hand, and which fits the storage areas provided for this.

S2R-IP4 impacts analysis and ontology concepts

The conditions related to checked and carry-on baggage shall be made available to the Customer at Shopping and Booking time. Therefore, the concept of Luggage Policy shall be introduced in the Itinerary Offer in order to be processed during the various workflows and to be made available to the Customer.

4.18 DAMAGE OF PROPERTY

Overview

Damage refers to death, wounding or physical injury of a Passenger, as well as loss, partial loss, theft or other damage, which occur in connection with the carriage of Baggage or other incidental services carried out by the Transport Service Provider.

Carrier is usually not liable for damage to unchecked baggage unless such damage is caused by negligence of Carrier.

Carrier is not liable for any damage arising from its compliance with any laws or Government regulations, orders or requirements, or from failure of the passenger to comply with the same.

The Traveller/Passenger shall usually raise a complaint to the carrier within the times specified by the TSP.

S2R-IP4 impacts analysis and ontology concepts

In order to enable the management of the potential damages to the Customer property across the ecosystem, the concept of Property Damage should be defined. It should especially integrate the nature of the damages and the conditions of compensation that are proposed by the Transport Service providers.

4.19 LOSS OF PROPERTY

Overview

In the transport industry, the Service Providers take usually care of luggage, articles, and animals... left in vehicles or premises. They are taken in their safekeeping and when applicable they will make a reasonable effort to contact the owner.

Not that when a property is left in a vehicle or on a premises, the carrier has usually the right to open it and examine the contents before removing to the safekeeping.

Unclaimed property that has not been retrieved within a specific period will be sold or otherwise disposed.

S2R-IP4 impacts analysis and ontology concepts

In the context of S2R-IP4 ecosystem, the concept of Lost Property Terms should be introduced so that the systems and especially the Travel Companion shall be able to process it and assist the Customer in the retrieval of the property.

4.20 PERSONAL INJURY

Overview

The terms limits for liability for death or personal injury directly caused by a Service Provider are usually part of the terms and conditions.

S2R-IP4 impacts analysis and ontology concepts

The term and conditions managed at each Transport Service Provider shall be available to the Customer during the Shopping/Booking/Ticketing processes. The concept of Liability for Personal Injury should be introduced in the semantic data made available as part of the terms and conditions included in the Itinerary Offers.