Newsletter

Introduction & Background

The Co-Active project is one of two initial 'calls for members' within the overall Shift2Rail IP4 program. As such it coincides with the European challenge first spelt out in the EC's 2011 white paper on transport: "Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system", which includes as one of its top 10 goals: "By 2020, establish the framework for a European multimodal transport information, management and payment system."

IP4 is one of five Shift2Rail innovation programs, which specifically addresses this white paper goal by defining an Attractive Railway System as one which is integrated seamlessly with all other modes of transport, enabling seamless D2D (Door-to-Door) pan-European travel. IP4 has been initiated by its lighthouse project, 'IT2Rail', with a basic Technical Enabler Framework, and a set of preliminary complementary business applications in the end-to-end travel process up until Ticket (or Travel Entitlement) issuance.

Co-Active will build on these business applications with a focus on the end-to-end processes around transport Service Disruption, and, Settlement payments and clearing, as well as enriching IT2Rail functions and increasing the IT2Rail scope of transport modes covered.

IT2Rail

IP4

(Co-Active, ATTRACkTIVE…)

This first Co-Active newsletter describes the project aim, management, status, its partners, and their contributions.

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Horizon 2020
European Union Funding
for Research & Innovation

Co-Active Introduction

Co-Active is a European project, in which the following Shift2Rail-IP4 Associate and Founder members: Thales, Amadeus, Indra, HaCon and Network Rail, are engaged.

The project name partially reflects the focus of the project "**CO-modal** journey **re-ACcommodation** on associated **Travel serVicEs**" where 'comodal' refers to a combination of modal operator services (with no underlying commercial agreements between those operators – see Comodal definition on page 3) and 'Re-Accommodation' refers to the task of 're-accommodating' the passenger on an alternative set of transport services following a critical Service Disruption invalidating his or her originally booked itinerary.

Its overall objective is to build on the achievements of the IT2Rail lighthouse project in the furtherance of Shift2Rail IP4, which is entitled: "IT Solutions for Attractive Railway Services", and contributes to its objectives together with IT2RAIL, ATTRACkTIVE projects and complementary 'open-call' projects GoF4R and ST4RT.

Shift2Rail – IP4

2015 Lighthouse project:

IT2Rail

2016 Calls for Members Projects:

Shift2Rail ATTRACkTIVE

Shift2Rail Co-Active

2016 Complementary – Open Call Projects:

GoF4R
Governance of the Interoperability Framework for Rail and Intermodal Mobility

ST4RT
Semantic Transformations for Rail Transportation

IP4 back-drop Key Requirements

To become more attractive, the European transportation ecosystem must meet travelers needs to support anytime, anywhere, door-to-door, multimodal journeys encompassing all modes of transportation within a Single European Transport Area.

It requires interoperability between the business applications that need to dialogue with each other for that purpose, amongst the relevant transport supply-chain entities, regardless of their geographical situation (country, regions, city), the type of mobility service (journey planning, shopping facility, booking engine, ticketing engine etc.) or transport mode, and associated format(s)/protocol(s) adopted for such dialogues by the existing legacy systems.

It should focus on Customer experience, and corresponding multimodal services, in facilitating:

- A ubiquitous one-stop shop capability for transport retail outlets, providing customers with access to all transportation services for a selected origin-destination, and combining them variously into a list of competing/alternative multimodal travel solutions, sorted according to customer preferences.
- A seamless negotiation of transportation in at least rail, coach, air and urban modes.
- Compatibility with existing solutions (Smartcard, Smartphone Apps, Barcode…) for portability of the customer's travel entitlements and compatibility with existing access mechanisms and technologies (Gates, Readers, Portable Validators etc.) to the transport services customer is entitled to.
- Trip Tracking services in order to provide real-time information about potential and actual disruptions, which can trigger re-accommodation when necessary.
- A single intuitive interface (a Travel Companion) to all relevant services whether searching, planning, purchasing, or, travelling.
- Multimodality in either of its two identified forms.

Co-modal: Travel is considered 'co-modal' when it involves multiple modes / operators and the passenger has a separate transport contract with each operator participating in their journey.

Intermodal: Travel is considered 'intermodal' when it involves multiple modes / operators but the passenger has a single transport contract agreement with only one entity, which represents each of the operators participating in their journey, according to predefined commercial agreements.

turn_key_solution.jpg

Key features for Co-Active to fit against this back-drop

- Product flexibility and configurability;
- New Urban transport modes;
- Influences of customer preferences;
- Reaccommodation and after-sales;
- Settlement: Payments and Clearing.

The Co-Active challenges are:

1. Improving the quality of customer services by demonstrating the capacity to orchestrate multiple processes, including services failure, automatic **re-accommodation**, and reliability of shopping, booking and ticketing functions across private and mass transit public transport modes as well as **shared and personal transport modes**.

2. **Enriching the Customer Experience** by innovating on the interface domain (via close collaboration with ATTRACkTIVE project) and the use of personalized data, in a secured and integrated environment, whatever the number of business entities involved in the journey definition.

3. Simplifying decision-making for the customer by optimizing the automation of **after-sales business processes** as much as possible. The aim is to provide the customer with rapid and efficient resolution of **re-accommodation** use-cases.

4. Enhancing the technical framework for interoperability by consolidating and extending the ontologies defined during the IT2Rail project, and enlarging the mapping with existing standards (TAP TSI, NeTex, GTFS …), to capture post-sale use-cases. The booking and ticketing concepts will be strengthened to facilitate market update and ease of integration with the interoperability framework. Complete interoperability will also cover taking into account **diverse media for the 'embodiment'** of electronic **'tokens'** (representing the traveler's **'travel entitlement'** for access validation purposes), where legacy or new access validation systems require it.

5. Piloting a potential European settlement infrastructure which can facilitate, and therefore encourage, the distribution of TSP products and services in markets other than the domestic market of the TSP, for the mutual benefits of customers, TSPs, and EC environmental and competitivity goals as defined in the 2011 EC white paper.

6. Strengthening the methodologies for integrated engineering between all partners and reusing the modeling approaches initiated during the IT2Rail project.

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Enrichment of the Customer Experience with extended functionalities

The customer experience is one of the Key Performance Indicators for all transportation systems. By extending transportation services and functionalities, the Customer Experience can be improved and enriched.

Three areas of improvement have been identified:

- After-sales;
- Ancillary services;
- Flexibility and Configurability of Products.

After-sales

The Co-Active project introduces orchestration of existing after-sales process management in rail, air, coach and urban modes, in order to respond to customer or Trip-Tracker invoked changes at multimodal itinerary level. Whether the required change is voluntary (customer) or involuntary (service disruption requiring reaccommodation) the system ought to invoke the Travel Shopper in such a way as to generate alternative travel solutions for the remainder of any interrupted journey or for any customer desired change of final destination, without the traveler having to initiate the Shopping him or herself. The aim is to limit the need for human interactions during after-sales processes.

Ancillary services

Ancillary services are not directly part of the transport service itinerary offer, but the traveler may be invited to shop for them whilst attempting to book / purchase any selected itinerary offer.

Booking and/or purchasing ancillary services may also be an After Sales process because the traveler may have options to add ancillary services to already purchased travel entitlements. For example:

- Wi-Fi/Multimedia content during the travel episode;
- Access to business lounges before the travel episode;
- Luggage allowance extension – e.g. an extra bag, or a bike (for example);

Flexibility and Configurability of Products

The aim is to describe and/or store configurability/business rules for products e.g. Transport Services may be cheaper or more expensive depending on the level of flexibility for refunds or cancellation attached to the fare e.g. from unrefundable, through cancellation penalties, to full flexibility at no extra cost to the customer. In aftersales situations – these rules need to be retrieved in order to calculate the cost, or otherwise, of cancelling and and/or rebooking itinerary segments – and can be fully automated. The aim is to have a better description and parameterising of TSP fare rules.

Enhanced door to door possibilities by integrating other transportation modes

Co-Active will support multimodal journeys including public or collective modes, but also **personal and shared modes**, especially in the first and last mile of a travel experience. The project wants to reduce the gap between these worlds, and create a solution that allows the traveler to include any preferred mode in his/her route, such as their own car, in order to provide a full end-to-end journey-planning capability that can answer to the variety of customer situations and needs.

The scope and flexibility of multimodal D2D travel solution propositions will be increased in the Co-Active project by introducing new modes of transport such as private car, park&ride, car sharing, and public bike. The project considers the concept of "private-public interchange nodes". This solution offers the user useful information to plan their trip; by taking into account information such as traffic, parking availability or toll tariffs, combined with public transport and rail information (stations, schedules…). In that way, those travelers who need to begin their trip by car, can obtain information on where they can park their vehicle and switch to public transport (urban or sub-urban) and ultimately connect with long distance, such as rail or air, fostering co-modality and the use of public transport, making it easier for travelers to connect with rail stations regardless where and how they start their journey. This approach also contributes to reducing traffic congestion, for example, by facilitating a shift from personal cars to collective modes far earlier in a trip, where the traveler intends to use their own vehicle to start their journey.

Diagram of a journey with different transport mode, including personal transport mode

Concepts and components developed in IT2Rail, which are a starting point for Co-Active´s work, will be augmented to allow introduction of these new modes (not included in IT2Rail) to become part of the ecosystem's potential pool of travel solution resources. This may entail the re-design of some key itinerary concepts, such as "stop-places", used until now to describe, for example, bus stops, subway stations, airports, or railway stations, which have fixed locations and geographic positions. The concept of "Stop-places" will be extended to also cover non-fixed car-sharing 'pick-up' or 'drop off' parking areas. Moreover, this assists with flexibility in ticketing schemas for such modes, which could include adapted tariffs and/or unknown prices beforehand (such as parking, where cost may depend on the duration of the parking period).

Virtual Credit Card – an innovative B2B (Business to Business) payment solution

Any retailer sourcing content in Shift2Rail's ecosystem which is willing to collect the payment from the customer and then fulfill the payment due to each participating TSP, using its own method of payment, will be able to benefit from Virtual Credit Cards usage.

Virtual cards aim to replace other cumbersome payment methods such as invoicing, wire transfers, bank cheque and cash advances, as well as improving reconciliation and reducing fraud.

The Amadeus' B2B Virtual Payment solution is designed to allow retailers to pay their travel suppliers instantly, with the use of a virtual card, which generates additional revenues (based on volume of usage) as well as avoiding the sort of credit card surcharges applied to standard credit card transactions.

Thales Image Bank

Why Virtual Cards?

- Accommodate the latest technology in supplier payments within the 'retailer space';
- Ensure payment acceptance by relying on existing payment networks;
- Immediate way to pay suppliers and secure pricing.

What's in it for the Travel Service Providers?

- Protection against fraudulent payments;
- Receive money comparatively "instantly";
- No additional effort, as Virtual Cards can be accepted like any traditional Credit Card.

What's in it for the Retailers?

- Improve reconciliation with a detailed statement containing additional booking information;
- Protection of the Retailer (and customer) against TSP bankruptcy and subsequent non-provision of the purchased Transport Service.

Contractual Management Market Place (CMMP)

Three domains covered by Co-Active consider the case where at least one contractual agreement exists between TSPs, which could affect a multimodal offer provided to a customer, which includes the participation of both contractually-linked TSPs.

For instance, if an agreement exists between a long distance TSP (e.g. TSP Rail A), and an urban TSP (e.g. TSP Urban B), which specifically offers a discount for TSP Urban B's urban service on the condition that the passenger arrives at the city on a train operated by TSP Rail A , the IP4 'Offer Builder' component must include this discount business rule when pricing such an itinerary. Even if Co-Active targets mainly co-modal journeys, in which such agreements are rare, they are certainly a defining characteristic for intermodal journeys, and the project wants to pave the way for future IP4 projects which will address Intermodality more fully, and so anticipate the technical artefacts which will support intermodal contractual agreement among TSPs. This innovatory approach to intermodal ticketing agreements may provide significant cost reductions for TSPs joining the ecosystem who may be willing to develop intermodal strategies but who have found them previously cost-prohibitive.

This objective will be realised through development of a new component based on the concept of a **Contractual Management Market Place**. This component allows for the registration of multimodal contractual agreements between TSPs (such as special prices or availability), and generates "multimodal rules" / parameters that feed the IP4s 'Offer Builder' component's pricing capability. The diagram below shows this functionality (simplifying the rest of the Shopping flow).

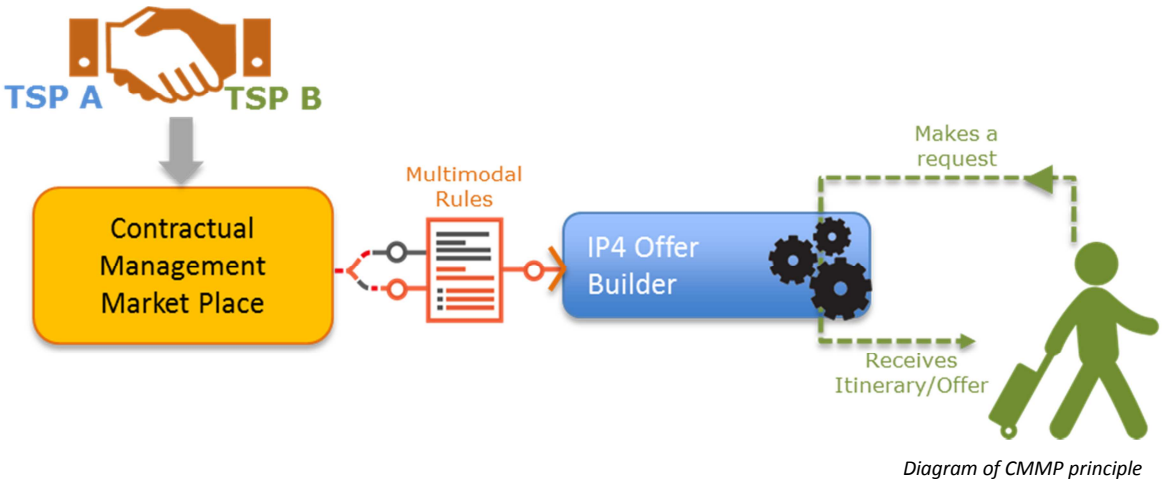


Diagram of CMMP principle

In other words, the CMMP "translates", to a technical level, the formal commercial contracts that describe the agreements, business rules and/or settlement rules for splitting the ticket revenues that TSP partners wish to apply when combining their services into a joint product. Therefore, it feeds the initial pricing operation of the Offer Builder component, (as in the graphic above) as well as subsequent settlement payment and clearing processes.

Co-Active Project task content (5)

The component provides access to each member of the eco-system (whether operator, distributor, retailer or other) for the purposes of creating agreements, consulting their status, or even accessing proposed new agreements with other stakeholders. The diagram below indicates the type of interactive screen that will be designed and developed for the CMMP.

Mock-up of the screen of the CMMP and potential functionalities under design

Co-Active Structure, Management and Intra-project relationship

Co-Active aims at extending the functional capabilities of the IP4 ecosystem as initiated by IT2Rail with all of the key features described above in order to foster the likelihood of market uptake.

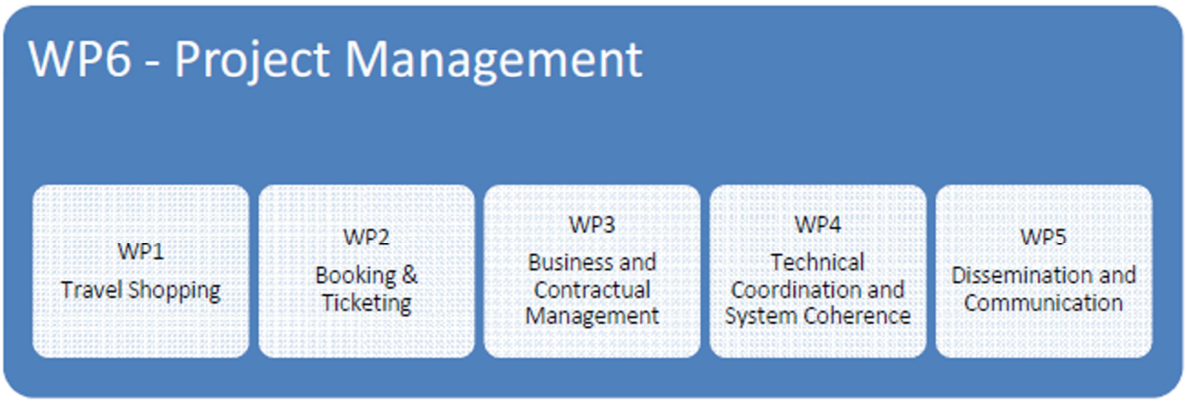
The project will contribute to increase the attractiveness and ease of use of the services made available to the Traveler through his/her Travel Companion.

It will also focus on what happens "behind the scenes", by defining how different stakeholders interact with each at technical and contractual levels.

In order to achieve its objectives, the Co-Active project is organized into three Work Packages that are brought together by a Technical Coordination Work Package, as illustrated in the diagram below.

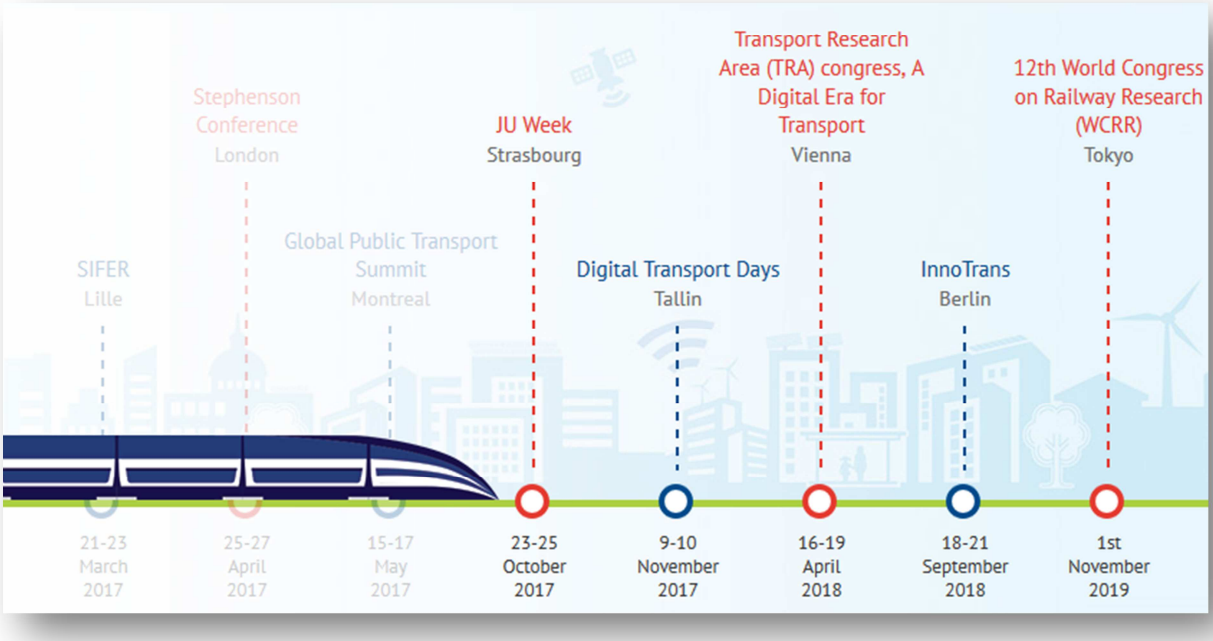
Co-Active only addresses Technical Demonstrators (TDs) 4.2 Shopping and 4.3 Booking & Ticketing (and settlement) a subset of the Shift2Rail-IP4 program. Other IP4 projects are progressing and focusing on other IP4 TDs: 4.4 Trip Tracker, 4.5 Travel Companion, 4.1 Interoperability Framework, and 4.6 Business Analytics.

Strong collaboration between these projects is essential to guarantee global system coherence within IP4, in order to reach the targeted level of technical readiness for the IP4 Integrated Technical Demonstrator.



Work Package representation with designation

Past & Upcoming Events



Timeline of next meetings or congress

Shift2Rail events took place at the following conferences:

- SIFER, Lille, 21-23 March 2017
- Stephenson Conference, London, 25-27 April 2017
- Global Public Transport Summit, Montreal, 15-17 May, 2017

Current and upcoming Shift2Rail events are:

- JU Week, Strasbourg, 23-25 October 2017
- Digital Transport Days, Tallinn, 9-10 November 2017
- Transport Research AREA (TRA) congress, A Digital Era for Transport, Vienna, 16-19 April, 2018
- InnoTrans, Berlin – 18-21 September 2018
- 12th World Congress on Railway Research (WCRR), Tokyo, 1st November 2019

There are potentially more events to come during the year as partners complete current planning activities - for example:

- European mobility week, 16-22 September 2017
- Connecting Europe Conference, 21-22 September 2017
- To be continued…

Facts & Figures

Total budget		Duration
€8	5	28
Millions	*Partners*	*Months*

Co-Active Coordinator

THALES

HaCon
Traffic • Software • Service

indra

Co-Active Partners

amadeus

NetworkRail

www.shift2rail.org/projects/co-active/