

Bonvoyage

What:

- For end-users: providing the best information to go from a place to another, before and during the travel, door to door, with any combination of any transport means, taking into account real-time conditions and user preferences
- For the EU and ITS community: providing a federated architecture, able to cluster planning services and data sources, exploiting an innovative communication network that collects and distributes all data required to optimize a travel



Why:

Trip mode:

Multi-modal
(e.g. bike+train+bus+on foot)

VS.

Mono-modal

Planning typology:

On-trip
Real-time
Event driven re-planning
(e.g., in case delay of trains,
construction work, etc.)

VS.

Pre-trip
Static data
Schedule driven

Services:

Based on:
user preferences
behaviours
profiles

VS.

Un-personalized
User independent
Schedule driven

Transport data sources:

Millions of small scale,
local public transport,
private providers

VS.

big airlines,
train operators
only

Data sharing:

New telecommunication
network (Internames)

VS.

The current
TCP/IP Internet

Providers data handling:

Keep their data
in their premises,
with their formats
and interfaces

VS.

Ask to transfer data
to a third, centralized
party and to comply
with specific formats

Transport solutions sources:

Anyone,
including private citizens
(e.g., for car sharing)

VS.

Professional-only

Access restriction and privacy policies:

Anyone setting them up
on published data

VS.

Unsecure or
one-for-all solutions

Operations and solutions:

Federated operations

VS.

Centralized solutions
(thus Implementing Directive 2010/40/EU
to make ITSs interoperable across borders)

How:

- A new communication network concept (**Information Centric Network**) providing users with access to information by names, instead of providing communication channels between hosts, as it is now
 - Particularly suited to the mobile, heterogeneous, fragmented environment of ITS
 - Secures the information itself, instead of securing the communication channels: just perfect for our needs
 - Offers Publish/Subscribe services: key to easily re-plan on mutable conditions
- OpenGeoBase**, a decentralized large-scale storage system for building georeferenced mobile Apps
- A **travel optimizer** based on the federation of heterogeneous optimization services, scalable enough to handle dense, continent-wide travel networks, real-time events and personalized travel preferences
- Machine learning-based user profiling** techniques for analyzing data from user feedback and sensors

Where:



When:

April 2018

7 demonstrators:

- Android + Empatica E4 watch App for trip personalization via sensors, to infer specific user profiles (e.g., User A never rides a bike, User C is stressed by the plane)
- Multi-objective Optimization Tools, based on the concept of federation and decomposition and allow interoperability of journey planners
- The urban soloist integrating car-pooling in an urban area and providing personalized travel solutions
- OpenGeoBase, our multi-tenant distributed discovery service, to be used by software developers, transit agencies and stakeholders to discover information and data sources
- The Internames-based infrastructure for dissemination of real-time travel data through pub/sub functionalities, where users are able to receive live updates about changes of selected DATEX II information
- The Green Score Policy algorithm that assigns prizes, awards and discounts on the basis of the selected transport means, influencing mobility choices with the goal to reduce environmental impact
- The Tariff Scheme algorithm for pricing rules that allow the transport operators that build partnerships to:
 - increase their profits
 - benefit passengers
 - reduce pollution

Main achievements so far:

- Use cases, system requirements, reference scenarios and system architecture
- Internames Communication System, with publish/subscribe and OGB DB services
- Intelligent Transport Functionalities: User Profiler, Multi-Objective Optimization, Tariff Scheme
- Definition of interfaces and application architecture
- Early prototypes of single components that will be integrated in the second half of the project
- Handling and adaptation of heterogeneous data



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Who:

