



Criteria catalogue for ICT travel planning solution functionalities

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Criteria catalogue for functionalities

This document has been created in the framework of **Interreg cities.multimodal project** by the Institute of Baltic Studies¹ in cooperation with project partners. One of the aims of the Cities.multimodal project has been mapping web- and mobile-based individual travel planner applications providing different transport options and enabling individualized door-to-door travel for end users according to their preferences. These ICT solutions aim at facilitating the choice of transport options and travel planning for people, hence **encouraging multimodal behaviors**.

This document is meant for civil servants, public transport providers and project partners who are developing or procuring ICT solutions that support multimodality and travel planning (as apps for smartphones or as websites). **The aim** of the criteria catalogue for functionalities **is to support the procurement process of individual travel planning applications**. Considering how fast technology develops civil servants might not be aware of the latest trends and possibilities in technology.

The criteria catalogue for functionalities **lists technological solutions available for promoting multimodality with ICT travel planning solutions**. The list seeks to inform about the different solutions used around the world². It **helps officials to get ideas what kind of functionalities would be valuable to have in their city's or region's ICT solution to increase multimodality**. The document can be used to get ideas for creating a new ICT solution and for improving existing solutions.

It should be pointed out that the compiled list is not to demonstrate the “best-of”. Value judgements to these functionalities are not given. Rather, different sorts of functionalities have been listed. Some are more thorough and technically complex than others. **It is important to remember that one size does not fit all** – officials should consider what are the real needs of a travel planning solution in their region and what is doable with the funds available. Sometimes less is more. For more recommendations on what to keep in mind while procuring such solutions, it is recommended to read the full report “ICT solutions for travel planning”.

The catalogue for functionalities has been compiled on the basis of data collected throughout the project. First, market research based on desktop review were conducted that mapped the state-of-the art ICT solutions globally. Second, Cities.multimodal project partners were asked to fill in templates about their own regional travel planning solutions and needs related to such applications. 15 such templates were filled in and analyzed. Third, ten follow up interviews were conducted with project partners regarding travel planning applications. Additional data was also received from Technische Universität Berlin in the

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² The list does not cover all apps used in every country but the ones that were brought out on the Internet and different documents as (good) examples. Also, apps used or noticed (e.g. during other projects, visits of other cities) by partners were mapped.

form of three interviews conducted with local experts regarding travel planning solutions available in Berlin. In total around 40 ICT solutions were identified while developing the criteria catalogue.

The catalogue for functionalities is a table containing three columns:

- **“Functionality”** is a general name given to a certain function. The functions have been categorized under specific themes: route planning, travel information, navigation, maps, travel planning, personalization, booking and payment, and other.
- **“Explanation”** contains the description of the function.
- **“Offered by”** lists some exemplary applications or websites that use/offer the functionality.³

Table of functionalities that support multimodality

No.	Functionality	Explanation	Offered by ⁴
Route planning			
1	Route optimization	Suggests the most favorable (fastest) routes to the selected destination.	CombiTrip, Citymapper, INRIX Traffic
2	Price optimization	Suggests the cheapest routes to the selected destination.	CombiTrip, Trafi, MinRejseplan
3	Door-to-door planning	Provides the user with all the door-to-door details and connections, e.g. maps with walking/cycling/driving/public transportation routes. The user can compare all travel options based on the entire itinerary from door-to-door.	<i>Various</i>
4	Door-to-door planning with <i>via</i> points	The user can add stops between the start and destination locations and mark how much time they would need at these points.	Reittiopas
5	Separate to-and-from planning	Searches for relevant itineraries based on the user’s preferences and any outbound and inbound journey can be combined, e.g. the user can depart by plane and return by train.	CombiTrip
6	Automatic planning	Enables automatic planning of trips between home, work or events in the calendar.	TripGo, MobiTime
7	Timing filters	Enables looking at routes through timing filters: leave now, leave by, arrive at.	<i>Various</i>
Travel information			
8	Live travel information	Real-time information on departures, schedule/platform changes, cancellations, congestions, accidents, weather conditions, roadworks etc.	<i>Various</i>

³ As new solution providers might appear and old ones might change or be closed, it must be noted that the functionalities in the application might have changed over time. The main period of the desk research was between February 2018 and April 2019. The applications from project partners were gathered in March 2019. Some later additions were made in September and October 2019.

⁴ The list is not exhaustive, these are just a few examples of applications that have such functionalities. *Various* indicates that it is a common feature. Mentioned application may not have all the functionalities described in column „explanations“, but just some of these.

9	Real-time arrivals	Real-time arrivals taken directly from GPS devices positioned on buses and trains.	Moovit, Tartu bussiajad
10	Traffic webcams	User can see real time traffic camera footage.	MapQuest
11	Detailed public transport information	Offers detailed information about public transportation, e.g. which train to take, which platform, which direction and how to connect with other modes of transport.	<i>Various</i>
12	Station facilities information	Detailed information on which facilities each of the stations have.	PTV
13	Offline timetables	All timetable data is stored on the phone, so it can be used offline.	TripView
14	Sends a timetable	Sends a timetable list to the user's email.	Resrobot
15	Next departures	Information on the next buses, trains etc. that depart from a specific station.	<i>Various</i>
16	Countdown until departure	Countdown mode until departure.	PTV, Tartu bussiajad
17	Reminders	Reminders on the journey (including reminders of departure, stops, get-off alerts).	<i>Various</i>
18	Number of stops	Along with the name or number of the bus the app also tells you the number of stops along with where you need to get off.	<i>Various</i>
Navigation			
19	Location finder	GPS is used to pin-point the user's location after which a list of the nearest stations, sorted in order of increasing distance, is provided. This list will update as the user walks around.	TripView
20	Using sensors	Using sensors inside the user's phone, the system knows and shows which direction the user is facing, with the map turning as the user does.	Google Maps, HERE, Blekingetrafiken
21	Indoor navigation	The indoor localization system of the airport can be accessed through a smartphone. Generates optimal indoor paths and navigates users to security checks, boarding gates, points of interest, etc.	Dora
22	Step-by-step directions	Directions continually presented to the user in the form of spoken and visual instructions.	Google Maps, HERE, Trafi
Maps			
21	Offline maps	Maps are available when the user is offline or underground on the subway.	<i>Various</i>
22	Interactive maps	The user can create their own trip by clicking on a station/stop and customize exact change locations.	TripView, Jakdojade
23	Vehicle position	Click on a route to see the position of a public transport vehicle live on the map.	TripGo, FUTAR, Nysse, MobiTime
24	Compatibility with Google/Apple maps	The system is connected with Google Maps/OpenStreetMap/Apple Maps so that GPS navigation routes can be offered based on the user's location.	Traveline, FUTAR
Travel planning			
25	Points of interest	Displays a map of the surroundings, including points of interest, businesses etc.	Citymapper
26	Information about destinations	Displays information about hotels, restaurants, attractions, landmarks, etc.	Google Maps, MapsWithMe

27	Sight-seeing route planner	Depending on the selected timeframe the system generates various sightseeing routes, including how to get from one location to another by walking or public transportation.	Visitacity
28	Parking assistance	Presents a list of nearby parking lots and garages on the map. Some solutions also allow reserving, paying and adding more time for the parking through the system.	Google Maps, Rīgas satiksme, ParkChicago
Personalization			
29	Movement preferences	Enables the user to customize their travel, e.g. by selecting the maximum walking distance, walking speed, amount of transfers, etc.	Reittiopas, Nysse, Google Maps, VBB jump
30	Setting preferred stops	The system allows selecting favorite stops throughout the city instead of automatic optimization for a quick access to the user's favorite stops and stations.	PTV, Transit App, Moovit
31	Integration with address book	Integrates with the address book to enable quick travel planning to contacts.	PTV
32	Calendar compatibility	Connects with the user's personal calendar and provides automatic trips, leave alerts and best connections.	TripGo
33	Various cycling routes	Presents different cycling routes, e.g. quiet, regular and fast.	Citymapper
34	Save a trip	Allows viewing the times for any trip saved beforehand with a single tap.	TripView, MobileMPK, MobiTime
Booking and payment			
35	Pricing info	Displays pricing information for public transport, taxis, tolls or car parks.	TripGo, Reittiopas, Google Maps, URBI
36	Information about payment methods	Informs the user about which payment methods are accepted on the given transport mode, so that the user could be better prepared for the trip.	MinRejseplan, Blekingetrafiken, Rīgas satiksme
37	Ticket sales points	Displays the locations (on a map) and working hours of ticket vending machines, ticket offices, customer service centers and other ticket distributors.	FUTAR, Rīgas satiksme, MobiTime
38	Book tickets through provider	Enables booking and purchasing of tickets by being redirected to the provider.	Qixxit, MinRejseplan
39	In-app ticket payment	Enables purchasing all tickets through one platform without being redirected.	Trafi, Reittiopas, Whim
Other			
40	Open data services	The system's data can be used to develop new services. The dataset is updated each week and it can be downloaded for free once subscribed.	Traveline, Blekingetrafiken
41	Crowdsourcing	Real-time traffic data is collected from users via crowdsourcing.	Moovit, Waze, INRIX Traffic
42	Motivational statistics	Shows the number of calories used, as well as trees and money a user has saved through planning the trip by more eco-friendly means of transport.	Citymapper
43	Special needs	Offers a wider set of functions to fully assist blind and visually impaired customers.	FUTAR

44	Customer support	Ability to contact with app provider/operator directly from the system or includes a direct link to customer support.	PTV, Reittiopas
45	Accessibility	The ICT solution can be accessed conveniently both from web browsers and mobile devices (Android, iOS).	<i>Various</i>