Project name:	Open data by public transport operators
Date:	27/03/2018, 10.00-12.00
Notes:	Peter Van der Perre
Location:	Bluepoint Brussels

Participants

Name	Organisation	Present
Pierre-Paul Bertiaux	BMC	√
Bert Van Hemelen	De Lijn	√
Paul Theyskens	De Lijn	√
Philippe Leeman	Touring	Apologies-strike
Sandra Vancolen	Bosch	Apologies-strike
Stijn Vernaillen	Stad Antwerpen	√
Pieter Colpaert	IMEC/iRail/UGent	√
Sampo Hietanen	MaaS Global	√
Tias Guns	VUB	√
Louise-Marie Platteau	Optimile	√
Vincent Houart	Arval	√
Eric Ibens	Proximus	Apologies-strike
Olivier Bauden	STIB/MIVB	√
Diego Eggermont	STIB/MIVB	√
Arnaud Wattiez	SNCB	Apologies
Ahmed Nasr	HERE	√
Jens Verhiest	Lab Box	√
Bernard van der Lande	Worldline	√
Jean-Pierre Deknop	Siemens	√
Sven Maerivoet	TML	√
Nils Wuytens	The New Drive	√
Jean-Marc Timmermans	Agoria	√
Ruben Cappelle	CIBG	√
Peter Van der Perre	ITS.be	√

Apologies: Olympus Mobility, VBO, FOD Mobiliteit, Voka, Be-Mobile, BECI, Tractebel, UGent, Orange

Agenda

1. Welcome
2. Status update by De Lijn & STIB/MIVB
3. Overview of current status from user perspective
    a. Status
    b. Linked open data
    c. MTIS Delegated Act
4. Open discussion

Notes & decisions

1.
Mobility-as-a-Service (MaaS) is one of the strategic priorities for ITS.be (see presentation). To get MaaS up-and-running in Belgium, true open static and real-time public transport data is essential. Goal of the meeting today is to see where we are and to jointly define the steps forward - also in terms of linked open data and the MTIS Delegated Act that is imposing to publish new and existing datasets in the European NeteX and Siri standards.

2. Bert Van Hemelen of De Lijn gave an update of open data developments at the side of De Lijn (see presentation). There are some key developments at De Lijn, namely regarding the publication of real-time data (now live in beta). A research project is examining how ETA's can be enriched by using floating car data - the enriched data would still be published as open data. De Lijn is also clearly aware and open to supporting both linked open data developments and the MTIS Delegated Act.

3. Olivier Bauden of MIVB/STIB gave an update of open data developments at the side of MIVB/STIB (see presentation). MIVB/STIB has been a frontrunner in publishing (real-time) open data, for which it uses controlled access via API keys (and charges a cost for high-intensity use). Interesting on-going developments are to publish many related datasets such as operator messages to end users or accessibility data. STIB/MIVB clarified that all (also commercial) usage of its data is encouraged (except reselling the data 'as is', i.e. without enrichment).

4. Pieter Colpaert of UGent/IMEC/iRail assessed the current open data policies of the Belgian public transport operators (see figure below and attached presentation). He also gave a compelling demo of linked open data using the European standards (DATEX), and more specifically the Belgian DATEX parking profile developed by ITS.be.

	B	MIVB STIB	LIJN	TEC
Schedules	Contract	API keys	Contract (about to change)	Open License
Real-time	Contract	API keys	API keys beta-version	no
Historic	no	no	no	no

Peter van der Perre of ITS.be complemented Pieter's talk by briefly presenting the MTIS Delegated Act and the datasets that public transport operators are obliged to publish in the NeteX and Siri standards.

Based on these presentations, the following discussion and action points emerged:

1. ITS.be as host of the Belgian MaaS cluster will clarify the status of real-time open data @ TEC.
   -> inquiries made after the meeting show that TEC's target date to publish real-time open data is only end 2018-beginning 2019
2. A discussion on license models/contracts/API keys took place. Though it is clear that:
   a. operators are under some pressure to follow the license model that is being promoted by the governance level they belong to (i.e. the regional or federal level)
   b. it is important for operators to know who is using their data for what purposes
   c. intense use, especially for streaming real-time open data, could become costly for operators

(but is currently not so)

there are also compelling reasons to use a truly open license such as 'creative commons zero' https://creativecommons.org/choose/zero/ and no restrictions:

a. MaaS providers present cite that BY FAR their highest cost is the time spent in negotiations about the use of data and/or access to ticketing
    a. Though this is not the scope of this meeting, MaaS providers pointed out that access to open ticketing APIs are - after the mobility budget - the number one obstacle for a flourishing MaaS market
    b. ITS.be and the Belgian MaaS cluster are aware of this
b. Longstanding users of the MIVB/STIB data indicate that the complication of access via contracts and/or API keys does itself not give insights in data usage; possibly a better way is to advocate the use of 'user agents' and headers indicating what the data are used for (eg digital signage).
c. The usage data of iRail also shows that any restrictions on open data publication by operators is likely to create other more popular channels.

The group's recommendation is therefore to publish static and real-time data under a true open license such as 'creative commons zero' (as is currently only done by TEC). Also, the use of user agents and feedback mechanisms should be promoted as best practice.

3. Linked open data based on the vocabularies of the European standards are considered by all as the way forward. As a user-friendly license model (without human interactions and dependencies) increases the usability of the data ('by a factor 100'), publishing them as linked open data again increases usability ('by a factor 100'). ITS.be will bring the public transport operators, IMEC and BMC on this topic together with representatives of the three regions and the federal level that are also working on the implementation of the MTIS delegated act (and have secured some European funding to support the implementation of the MTIS delegated act). Ideally, open public transport data is at one point published both according to the European NeteX and Siri standard (as this is a legal requirement) and as linked open data using the NeteX and Siri vocabularies (as this is the next, future-proof step).

Overview of next MaaS meetings

24 April 2018 (AM) - Open workshop: Traffic Management-as-a-Service
24 April 2018 (PM) - Open workshop: Marketplaces for mobility
2 May 2018 (PM) - Open workshop: The vision & research agenda for MaaS
15 May 2018 (PM) - High-level meeting: Enabling the business model for MaaS
29 May 2018 (PM) - MaaS all hands meeting
26 June 2018 (AM) - Open workshop: The use of FCD in traffic management
11 October(whole day) - ITS.be Congress
23 October 2018 (AM) - Open workshop on regional/national access points
6 November 2018 (AM) - High-level meeting: roadmap for access to data and ticketing
4 December (AM) - MaaS all hands meeting

Data categories for the MTIS Delegated Act - provision EU-wide multimodal travel information services

Partition of transport modes by type, such as:

- Scheduled: Air, rail including high speed rail, conventional rail, light rail, long-distance coach, maritime including ferry, metro, tram, bus, trolley-bus
- Demand-responsive: Shuttle bus, shuttle ferry, taxi, car-sharing, car-pooling, car-hire, bike-sharing,

bike-hire

- Personal: Car, motorcycle, cycle.

1. The types of the **static travel data**
    1. Level of service 1
        - (a) Location search (origin/destination):
            - (i) Address identifiers (building number, street name, postcode)
            - (ii) Topographic places (city, town, village, suburb, administrative unit)
            - (iii) Points of interest (related to transport information) to which people may wish to travel
        - (b) Trip plans: Operational Calendar, mapping day types to calendar dates
        - (c) Location search (access nodes):
            - (i) Identified access nodes (all scheduled modes)
            - (ii) Geometry/map layout structure of access nodes (all scheduled modes)
        - (d) Trip plan computation - scheduled modes transport:
            - (i) Connection links where interchanges may be made, default transfer times between modes at interchanges
            - (ii) Network topology and routes/lines (topology)
            - (iii) Transport operators
            - (iv) Timetables
            - (v) Planned interchanges between guaranteed scheduled services
            - (vi) Hours of operation
            - (vii) Stop facilities access nodes (including platform information, help desks/information points, ticket booths, lifts/stairs, entrances and exit locations)
            - (viii) Vehicles (low floor; wheelchair accessible.)
            - (ix) Accessibility of access nodes, and paths within an interchange (such as existence of lifts, escalators)
            - (x) Existence of assistance services (such as existence of on-site assistance)
        - (e) Trip plan computation - road transport (for personal modes):
            - (i) Road network
            - (ii) Cycle network (segregated cycle lanes, on-road shared with vehicles, on-path shared with pedestrians)
            - (iii) Pedestrian network and accessibility facilities
    2. Level of service 2
        - (a) Location search (demand-responsive modes):
            - (i) Park & Ride stops
            - (ii) Bike sharing stations
            - (iii) Car-sharing stations
            - (iv) Publicly accessible refuelling stations for petrol, diesel, CNG/LNG, hydrogen powered vehicles, charging stations for electric vehicles
            - (v) Secure bike parking (such as locked bike garages)
        - (b) Information service: Where and how to buy tickets for scheduled modes, demand responsive modes and car parking (all scheduled modes and demand-responsive incl. retail channels, fulfilment methods, payment methods)
        - (c) Trip plans, auxiliary information, availability check:
            - (i) Basic common standard fares (all scheduled modes):
                - Fare network data (fare zones/stops and fare stages)
                - Standard fare structures (point to point including daily and weekly fares, zonal fares, flat fares)

        - (ii) Vehicle facilities such as classes of carriage, on-board Wi-Fi.
    3. Level of service 3
        - (a) Detailed common standard and special fare query (all scheduled modes):
            - (i) Passenger classes (classes of user such as adult, child, student, veteran, impaired access and qualifying conditions and classes of travel such as 1st, 2nd.)
            - (ii) Common fare products (access rights such as zone/point-to-point including daily and weekly tickets/single/return, eligibility of access, basic usage conditions such as validity period/operator/time of travel/interchanging, standard point to point fares prices for different point to point pairs including daily and weekly fares/zonal fare prices/flat fare prices)
            - (iii) Special Fare Products: offers with additional special conditions such as promotional fares, group fares, season passes, aggregated products combining different products and add on products such as parking and travel, minimum stay
            - (iv) Basic commercial conditions such as refunding/replacing/exchanging/transferring and basic booking conditions such as purchase windows, validity periods, routing restrictions zonal sequence fares, minimum stay.
        - (b) Information service (all modes):
            - (i) How to pay tolls (incl. retail channels, fulfilment methods, payment methods)
            - (ii) How to book car sharing, taxis, cycle hire etc. (incl. retail channels, fulfilment methods, payment methods)
            - (iii) Where how to pay for car parking, public charging stations for electric vehicles and refuelling points for CNG/LNG, hydrogen, petrol and diesel powered vehicles (incl. retail channels, fulfilment methods, payment methods)
        - (c) Trip plans:
            - (i) Detailed cycle network attributes (surface quality, side-by-side cycling, shared surface, on/off road, scenic route, 'walk only', turn or access restrictions (e.g. against flow of traffic)
            - (ii) Parameters needed to calculate an environmental factor such as carbon per vehicle type or passenger mile or per distance walked
            - (iii) Parameters such as fuel consumption needed to calculate cost
        - (d) Trip plan computation: Estimated travel times by day type and time-band by transport mode/combination of transport modes
2. Types of the **dynamic travel and traffic data**
    1. Level of service 1
        - Passing times, trip plans and auxiliary information:
            - (i) Disruptions (all modes)
            - (ii) Real-time status information — delays, cancellations, guaranteed connections monitoring (all modes)
            - (iii) Status of access node features (including dynamic platform information, operational lifts/escalators, closed entrances and exit locations - all scheduled modes)
    2. Level of service 2
        - (a) Passing times, trip plans and auxiliary information (all modes):

        - (i) Estimated departure and arrival times of services
        - (ii) Current road link travel times
        - (iii) Cycling network closures/diversions
    - (b) Information service: Availability of publicly accessible charging stations for electric vehicles and refuelling points for CNG/LNG, hydrogen, petrol and diesel powered vehicles
    - (c) Availability check:
        - (i) Car-sharing availability, bike sharing availability
        - (ii) Car parking spaces available (on and off-street), parking tariffs, road toll tariffs
3. Level of service 3
    - Trip plans: Future predicted road link travel times.