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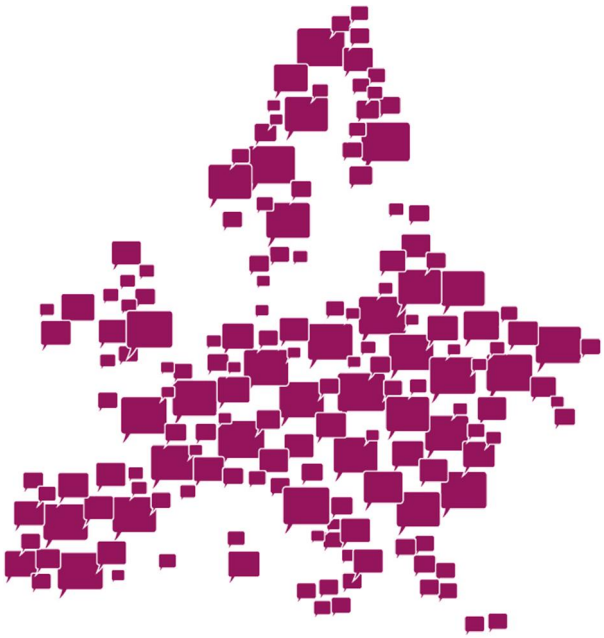
SocialCar

Open social transport network for urban approach to carpooling

D2.3

Data Sources and Data Formats



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1 Introduction

1.1 Scene setter

This deliverable is needed to give an overview of the data available at the individual SocialCar sites. Of course: without data SocialCar will not be able to exist. But in detail we need to know what exact data is stored and available to get to know what exact functionality can be offered in the app. Can we offer real-time information? Or just static? Can we offer all modalities? Or just a limited set? Can we offer tickets? Or just a journey suggestion? The answers to these questions will be valuable input for the design and development of SocialCar.

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1.2 Executive summary

This deliverable contains a summary of answers sent by the SocialCar sites on the availability, formats and accessibility of data sources relevant to SocialCar at each site. The document shows:

1. the availability of data per site, influencing the functionality that can be offered per site;
2. the formats in which data are stored, influencing the way SocialCar needs to be developed;
3. the accessibility of data, influencing the way SocialCar needs to be developed and maintained;

These items have a strong influence on SocialCar's specifications: they drive what can – and cannot – be locally offered to passengers. To bring all insights together, we propose to offer SocialCar in various versions, ranging from basic (static) to flex (real-time) with a diverse set of modalities depending on what is offered on site. In the last paragraph we are proposing a SocialCar service-level per SocialCar site.

In this document many conclusions are drawn. A summary of these conclusions is listed below:

General conclusions based upon the answers from both surveys:

Table 1 – General conclusions based upon the answers from both surveys

Modality	Conclusions concerning data availability
Public transport	• 8 sites use the GTFS standard for their scheduling and infrastructure data; the other 2 use a standard that can be modified to this GTFS standard. • Real time data are not available in all sites. And if they are available, then only after all parties involved have come to an official agreement. • Vehicle data is available in most of the sites. But only when SocialCar creates a CSV file in which the sites can enter the vehicle data manually. • Tariff data is available in all the sites. But only when SocialCar creates a CSV file in which the sites can enter the vehicle data manually.
Taxi	• The most common data available are the GPS coordinates of taxi ranks. • Data will generally be free and open for SocialCar. • In many sites data is not stored centrally. • Real time data on positions and availability of individual taxis is not available. • Intensity of taxi data related to SocialCar's functionality is not high.

Car-sharing	• In most sites data about car sharing is stored centrally.
	• Access to the data will generally be open and free.
	• In all cases the location of parking spots are stored.
	• In some cases the actual car availability is stored and distributed.
	• All in all: car-sharing information could be used at two levels:
	  • Static: parking spots, pricing & service information.
	  • Dynamic: parking spots, actual availability, pricing & service information.

Bike-sharing	• Data intensity when it comes to bike-sharing is high. • In most cases, not only stall locations are available, but also the actual number of bikes. • It is expected that bike-sharing data will be open and free, if these services are offered.

1.3 Scope of the document

In this D2.3 deliverable the availability, formats and accessibility of the data at the 10 SocialCar sites is displayed. Of course we have focused on the data that is already available on site and that are needed to add the selected transportation modes to the SocialCar app: public transport, taxi, car sharing and bike sharing. In this document the data for car-pooling is not analysed because this needs to be created by SocialCar itself.

2 Data analysis – 10 sites, 2 surveys

In the past three months two surveys have been performed to gather insights into the availability, structure and accessibility of data at the individual SocialCar sites. In this chapter the various sites and surveys are introduced. In the remaining chapters the output of the surveys are shared and interpreted.

2.1 SocialCar sites

The two surveys were distributed among all 10 SocialCar sites. The sites are displayed below including the modalities they indicated to be available. Also the name of the contact persons is displayed:

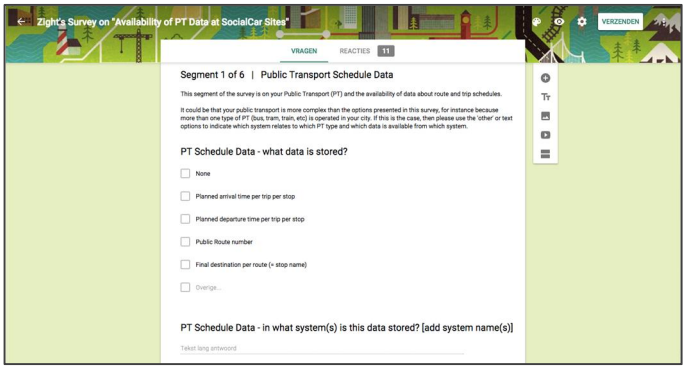
Table 2 – SocialCar sites and their modalities

	Site	Bus	Tram	Metro	Train	Taxi	Car sharing	Car pooling	Car rental	Bike sharing	Bike rental	Other	Contact name
1	Brescia	X		X		X	X			X			Severo Pace
2	Brussels	X	X	X	X	X	X	X	X	X	X	1)	Angelo Meuleman
3	Canton Ticino	X			X	X	X	X	X	X	X		Simona Pfund
4	Edinburgh	X	X		X	X	X	X	X	X	X		Lisa Freeman
5	Lazio Region	X	X	X	X	X	X	X	X	X	X		Stefano Grancini
6	Ljubljana	X			X	X		X		X	X	2)	Blaz Jemensek
7	Luxembourg	X			X	X	X		X	X	X		Falk Fernbach
8	Skopje	X				X			X		X		Nenad Tonic
9	Torino	X	X	X	X	X	X	X		X		3)	Giuseppe Estivo
10	Zagreb	X	X		X	X	X		X	X	X		Matija Vuger

1) ride source apps, 2) Funicular railway to Ljubljana castle, 3) touristic mobility services

2.2 Survey on availability of public transport data

In the survey on the availability of public transport data, we asked what data is used and stored, and what the availability is for the SocialCar system: (a) is the data free? Yes or no? (b) is the data open? Yes or no? First an image of the survey is displayed and then a general overview of the output:



More information about this survey is displayed in chapter 5 annex 1 (Q&As Brussels) and annex 2 (Q&As all sites),

Table 3 – SocialCar sites and the availability of public transport data

Sources	Data	Brescia	Brussels	Canton Ticino	Edinburgh	Lazio Region	Ljubljana	Luxembourg	Skopje	Torino	Zagreb
Infrastructure	Stop names	X	X	X	X	X	X	X	X	X	X
	Stop coordinates (GPS)	X	X	X	X		X	X	X	X	X
	Stop ID	X	X	X	X	X	X	X	X	X	X
	Info about accessibility		X					X		X	
	Info about local facilities	X	X			X		X		X	
	Other		b			c					
Vehicle	Accessibility for disables	X				X	X	X	X	X	X
	Air-conditioning	X				X	X	X	X	X	X
	Numbers of seats	X				X	X	X	X	X	X
	Emission	X					X	X	X	X	X
	Availability of WiFi					X		X	X		X
	Other					e					f
Tariff	General info on tickets (text)	X	X			X	X	X	X	X	X
	General info on pricing (text)	X	X			X	X	X	X	X	X
	Full-price tariff per km, zone or trip	X	X			X	X		X	X	X
	Full price tariff per OD-relation (table/ matrix)		X			X					
	All tariffs of all products per km, zone or trip	X		X		X	X				
	All tariffs of all products per OD-relation			X		X	X				
	Other							g			d
Schedule	Planned arrival time per trip per stop	X	X	X		X	X	X	X	X	
	Planned departure time per trip per stop	X	X	X	X	X	X	X		X	X
	Public route number	X	X	X	X	X	X	X	X	X	X
	Final destination per route (= stop name)	X	X	X	X	X	X	X	X	X	X
	Other								a		
Real time feeds	Actual expected time of arrival		X	X	X	X	X	X		X	X
	Trip cancellation					X					X
	Incidents					X				X	X
	Accidents					X				X	
	Disruptions/ deviations				X	X		X			
	Detours				X	X					
	Other										
	Are non-paper tickets distributed online?	Y	Y	Y	YN	Y	N	Y	Y	N	N

Legend	
X	Yes, data is free and open
X	Yes, data is free, but not open
X	Yes, data is available, but not free
X	Yes, data is stored but costs & availability are unknown
	No, not available
a	Transit bus stations
b	Check GTFS Standards, separate document
c	http://regionelazio.luceverde.it/-http://www.atac.roma.it/-
d	Full-price tariff per zone, The ticket value is 1 hours 30 minutes
e	Moby + On Board Ticketing
f	Vehicle type, condition, registration ID etc.
g	Very popular are cards that allow unlimited use of public transport
N	Yes, passengers can buy a ticket online and board using their mobile phone
YN	On line tickets available for some operators' services
N	No, no tickets are available online.

2.3 Questionnaire on data availability, formats and accessibility

After the first survey, more insights into the exact formats and accessibility of data sources was needed. Therefor a second questionnaire was sent to the same contact persons in all 10 SocialCar sites. They were asked the following questions:

- Public Transport:
  - How to obtain/ access the data?
  - Could we receive documentation?
  - What are the costs and who will pay?
- Taxi:
  - What data will be available?
  - How to obtain/ access the data?
  - Could we receive documentation?
  - What are the costs and who will pay?
- Car sharing:
  - What data will be available?
  - How to obtain/ access the data?
  - Could we receive documentation?
  - What are the costs and who will pay?
- Bike sharing:
  - What data will be available?
  - How to obtain/ access the data?
  - Could we receive documentation?
  - What are the costs and who will pay?

To illustrate the questions and answers, an example of the questionnaire is displayed in chapter 5 annex 3, with the answers given by Torino. Not all questions were answered perfectly by all sites. But the answers were sufficient for an overview of formats used per mode and of the accessibility of data per transportation mode. This overview is displayed in chapters 3 and 4.

3 Formats and accessibility – per mode and per site

In this chapter an overview is given of the formats that are available per modality and per site. Also we tried to find similarities in these formats in order to simplify the future import of data into SocialCar.

3.1 Public transport

Data in public transport is in many cases highly structured. Thanks to the global adoption of Google Transit, data about schedules and positions are structured across the world in the GTFS (General Transit Feed Specification) format. This format is described in the next paragraph (3.1.1) and the structures of all other public transport data sources are displayed in paragraph 3.1.2.

3.1.1 GTFS format for scheduling and infrastructure

The most common format for public transportation schedules and associated geographic information is GTFS. It was first conceived by Bibiana McHugh, an IT Manager at the TriMet transit agency in the Portland metropolitan area (Oregon). The GTFS-format was developed by Google and Portland TriMet, and was originally known as the Google Transit Feed Specification.

The following sites use the GTFS format:

- Brescia
- Brussels
- Canton Ticino *)
- Edinburgh
- Lazio Region
- Ljubljana
- Luxembourg *)
- Skopje
- Torino
- Zagreb

*) In these sites the HAFAS format is used, but this can be exported to the GTFS format. For more information, use this link.

A GTFS feed is a collection of CSV files (with extension .txt) contained within a .zip file. Together, the related CSV tables describe a transit system's scheduled operations. The specification is designed to be sufficient to provide trip-planning functionality, but is also useful for other applications such as analysis of service levels and some general performance measures. GTFS only includes scheduled operations, and does not include real-time information. However real-time information can be related to GTFS schedules according to the related GTFS-realtime specification.

Following are descriptions of the tables required for a valid GTFS data feed. Each table is literally a text CSV file whose filename is the name of the table, suffixed by '.txt'. So for the 'agency' table below, a CSV file called 'agency.txt' would be included in a valid GTFS feed (source: Wikipedia).

Table 4 – General explanation of the GTFS format

	Tables	Explanation	Required fields
1	agency.txt	Information about the transit agency as such, including name, website and contact information.	agency_name
			agency_url
			agency_timezone
2	routes.txt	Identifies distinct routes. This is to be distinguished from distinct routings, several of which may belong to a single route.	route_id (primary key)
			route_short_name
			route_long_name
			route_type
3	trips.txt	Identifies trips and connects them to routes and services. Block_id is an optional fiels, it indicates the schedule block to which a trip belongs.	trip_id (primary key)
			route_id (foreign key)
			service_id (foreign key)
4	stop_times.txt	Information about arrival and departure times. Note that dwell time may be modelled by the difference between arrival and departure times. However, many agencies do not seem to model dwell time for most stops.	stop_id (primary key)
			trip_id (foreign key)
			arrival_time
			departure_time
			stop_sequence
5	stops.txt	Defines the geographic locations of each and every actual stop or station in the transit system as well as, and optionally, some of the amenities associated with those stops.	stop_id (primary key)
			stop_name
			stop_lon
			stop_lat
6	calendar.txt	Defines service patterns that operate recurrently such as, for example, every weekday. Service patterns that don't repeat such as for a one-time special event will be defined in an optional table: calendar_dates. Optional tables are: calendar_dates.txt, fare_attributes.txt, fare_rules.txt, shapes.txt, frequencies.txt, transfers.txt, feed_info.txt	service_id (primary key)
			monday
			tuesday
			wednesday
			thursday
			friday
			saturday
			sunday
			start_date
			end_date

More detailed information about the GTFS format van be found via Google Developers or in the example GTFS feed in chapter 5, annex 4.

3.1.2 Formats for other public transport data

The formats for public transport data differ per site. A general overview is shown in the table below:

Table 5 – Formats per site used for real time, vehicle and tariff data

	Real time feeds *)	Vehicle data	Tariff data
Brescia	Not available.	Vehicle data is not published on the company website nor available on a specific URL. It can be made available in a dedicated CSV file.	Pricing data is stored in the ticketing DB. Targeted extractions can be made to produce a list of ticket types in use, but it will make more sense to produce a one-off CSV file.
Brussels	Not available officially, could be made available after negotiation.	Not available.	Availability is not clear. General feeing is that a dedicated CSV file should be created that can be entered manually.

Canton Ticino	Not available.	Available.	Could be made available after negotiation.
Edinburgh	Data is available but should be accessed via the system owners (either City of Edinburgh Council or SESTRAN).	Not available.	Not available.
Lazio Region	Real Time Feeds are available from operators (Trenitalia, Cotral and Atac). Real Time Feeds are accessible through web services (via http) directly to the companies system.	Not available.	Not available.
Ljubljana	To get access to the feeds, a licence agreement will be needed. The data formats are currently unknown; no documentation available. Click on this link for an example of the LPP feeds for real-time arrival in Ljubljana.	General vehicle data is included in the company's annual report, but not available in a current export. Therefor a dedicated CSV file should be created.	Tariffs are available in PDF: general, school, senior and occasional tickets. So this data is available but not in a format that SocialCar can use. So it should be made available in a dedicated CSV file.
Luxembourg	The real time feeds of most of the city busses are available. Format and accessibility is still analysed.	Not available. Vehicle data is not published but it might be stored "internally" by the city.	Tariff is available via the website of the Verkéiersbond. If SocialCar needs the data, a dedicated CSV-file should be created.
Skopje	Available. But accessibility for SocialCar is still unclear.	Available. It can be obtained after request. Or via www.jsp.com.mk	Available. It can be obtained after request. Or via www.jsp.com.mk
Torino	Real time feeds can be obtained/ accessed via 5t (www.5t.torino.it). Therefor a dedicated agreement should be closed between City of Turin and 5T.	Vehicle data is not published, nor available on a specific URL. It could be made available in a dedicated CSV file.	Gtt or Comune di Torino – Transport Division has this data and publishes it via this URL. The data is manually entered, so also for SocialCar a dedicated CSV-file should be created.
Zagreb	Currently, the real time data is only available for the surveillance system due to restriction from the manufacturer. Data could only become available after negotiation	Vehicle data is not published, nor available on a specific URL. It could be made available in a dedicated CSV file.	Availability is not clear. General feeing is that a dedicated CSV file should be created that can be entered manually.

*) data on expected time of arrival and/ or departure at a bus stop or station

3.1.3 Conclusions public transport formats

The general conclusions based upon the answers from the SocialCar sites are:

1. **Scheduling data** is in 8 out of 10 sites based upon the GTFS standard, in the other 2 the data can be modified to that format.
2. **Infrastructure data** is – in all sites – based upon the GTFS standard or can be modified to that format.
3. **Real time data** are not available in all sites. And if they are available, then only after all parties involved have come to an official agreement.
4. **Vehicle data** is available in most of the sites. But only when SocialCar creates a CSV file in which the sites can enter the vehicle data manually.
5. **Tariff data** is available in all the sites. But only when SocialCar creates a CSV file in which the sites can enter the vehicle data manually.

3.2 Taxi

The formats for taxi data differ per site. A general overview is shown in the table below:

Table 6 – Formats per site used for taxi-related data

SocialCar Site	Taxi data
Brescia	Input not available
Brussels	The taxi-data in Brussels is stored in the JSON system owned by The City of Brussels. The data is both open and free for SocialCar. The format of the data available via this link and consists of static information about the taxi stands.
Canton Ticino	Not available.
Edinburgh	In Edinburgh the coordinates of all taxi ranks are stored in the NaPTAN database, which is owned by the Department for Transport. This GPS data is free and open, and can be made available in a GTFS-alike format.
Lazio Region	Input not available
Ljubljana	In Ljubljana the address of each taxi rank is stored. Based on these addresses, coordinates of all ranks can be derived. The addresses can be made available in a standard that SocialCar needs to define. Then the City of Ljubljana can enter the data from their own TXT, XLS or CSV files.
Luxembourg	Taxiservices in Luxembourg are offered by multiple taxi operators like Webtaxi and Colux taxi. They all have their own systems with their own formats and accessibility. With each individual operator this access should be discussed; this has not started yet.
Skopje	The City of Skopje has Taxi data about the taxi ranks: address, ID and actual number of taxis available. This data will be open and free for SocialCar; it can be obtained on request. The format is still unclear, but documentation is available (in Macedonian).
Torino	In Torino the GPS coordinates of each taxi rank are stored, but the accessibility for SocialCar is still unknown. In order to discuss this with the taxi associations, a meeting is planned. When new insights are available, these will be added to this document.
Zagreb	Input not available

General conclusions:

1. The most common data available in the taxi industry is the GPS coordinates of the ranks
2. This data will generally be free and open for SocialCar
3. The data is in many cases not stored centrally, so accessibility needs to be investigated more thoroughly
4. Real time data on positions and availability of individual taxis is not available
5. All in all: the data intensity related to SocialCar's expected functionality is not high when it comes to taxis

3.3 Car-sharing

The formats for car-sharing data differ per site. A general overview is shown in the table below:

Table 7 – Formats per site used for car-sharing-related data

Brescia	Car-sharing data is recorded on the management software of Deutsche Bahn Rent. For insights into what data is currently stored, go to: www.carsharingbrescia.it. This data can be made available for SocialCar, but it would be necessary to make a specific request. Then Brescia Mobilita could process the data into an XLS or CSV file. If the requested information doesn't contain privacy-sensitive data and if it doesn't vary in time, it will most likely be provided by Brescia Mobilita for free upon a simple request. If the requested information is about passengers and their mobility, then this requires a specific request.
Brussels	Cambio – the car-sharing company in Belgium – stores all car-sharing-related data in Brussels. They use XLS/ CSV files. These will most likely be available for SocialCar. One of the initiators of Cambio is TaxiStop.
Canton Ticino	Mobility Car Sharing offers car-sharing services in Ticino. On their website each parking stall is displayed on a geographical map with the actual number of cars per type of car. The data is owned by the Mobility Genossenschaft in Luzern. It is expected that the data will be open and free. Access and formats still need to be discussed with the data owner.
Edinburgh	No input received yet
Lazio Region	No input received yet
Ljubljana	Service not available
Luxembourg	In Luxembourg car-sharing services are offered by Carloh. The organisation has 5 parking locations and 2 types of cars. The car availability is not displayed on their website in real time, and this data will not be available for SocialCar either. It is expected that the data from Carloh (station, car model, price, …) will be open and free, but this still to be discussed.
Skopje	Service not available
Torino	In Torino there are four carsharing service providers: 1. Carcityclub – data is available 2. Car2go – not all data is available 3. Enjoy – the data is not available, but negotiations are ongoing 4. Autolib – the service will start in march These could offer information about their parking spots but so far only Carcityclub opened it all up for use. To receive all data, talk should start with the other providers (or with www.urbi.co). If they decide to deliver the data, it is expected that SocialCar will have to deliver a format in which the data needs to be processed and shared.
Zagreb	No input received yet

General conclusions:

1. Data about car sharing is in most sites stored centrally.
2. Access to the data will generally be open and free.
3. In all cases the location of parking spots are stored.
4. In some cases the actual car availability is stored and distributed.
5. All in all: car-sharing information could be used at two levels:
    a. Static: parking spots, pricing & service information.
    b. Dynamic: parking spots, actual availability, pricing & service information.

3.4 Bike-sharing

The formats for bike-sharing data differ per site. A general overview is shown in the table below:

Table 8 – Formats per site used for bike-sharing-related data

Brescia	Bike-sharing data concerning locations is stored and can be made available in the GTFS format. It is most likely that this data can be shared with SocialCar. Pricing data is stored too, but in the ticketing DB, which is not accessible from outside of the ticketing system. It could be possible to make targeted extractions, but it would make more sense if Brescia Mobilita would produce a CSV file with rates to be sent by means of file transfer.
Brussels	Bike-sharing in Brussels is offered by a company called Villo!. They distribute their data via an API (json/xml) and therefor this data is open and free.
Canton Ticino	In Ticino bike-sharing services are offered by Publibike. The data (probably station coordinats, address, ID, number of bikes, type of bikes) is owned by PubliBike SA in Fribourg. The details and the accessibility of the data are still unknown.
Edinburgh	No input received yet
Lazio Region	No input received yet
Ljubljana	In Ljubljana bike-sharing is offered by a company called Europlakat. Via the Bicikelj site both static and real time information is displayed ranging from stall locations to number of actual available bikes. So much data is available, but it is not clear yet if this data will become available for SocialCar, and under which conditions. The City of Ljubljana is owner of the data and should decide. So on short notice access should be applied for.
Luxembourg	Luxembourg offers bike-sharing services via Vel'oh!. The data is stored in a VDL application and will be open and free for SocialCar. The owner of the data is HOTCITY S.A.. The bike-sharing information is also distributed via an app. The exact format of the data is still unknown.
Skopje	Service not available
Torino	TObike is the company that offers bike-sharing to the people of Torino. Both static information and real time availability is displayed on their site. The data with stall locations is open, but the accessibility of the real-time data is not clear yet. This needs attention from Torino.
Zagreb	No input received yet

General conclusions:

1. The data intensity when it comes to bike-sharing is high, especially compared to taxis and car-sharing.
2. In most cases, not only stall locations are available, but also the actual number of bikes available.
3. It is expected that the bike-sharing data will be open and free, if these services are offered.
4. All in all: bike-sharing has the data-intensity to become a high quality functionality in the SocialCar app.

4 Availability – per mode and per site

In the paragraphs below the data availability per mode and site is displayed. These overviews are based upon the input from all sites. The quality of the input was not very constant though. That is why not all cells are sending a clear message. Please note that the cells have the following types and messages:

1	X	Yes, available
2		No, not available
3	?	Input is received, but availability is still unclear
4		Input not available

4.1 Public Transport

To add public transport services to the multi-modal journey planner in SocialCar, public transport data needs to be available at the SocialCar site. In the table below the required data is displayed. This list is based upon the Functional Design created in T3.1.2. In the case of public transport data, all info needs to be structured per stop-stop-relation. In the table below the availability of this data is displayed per site:

Table 9 – Availability of essential public transport data per site

Public transport data needed for journey planning structured per stop-stop-relation		Brescia	Brussels	Canton Ticino	Edinburgh	Lazio Region	Ljubljana	Luxembourg	Skopje	Torino	Zagreb
CompanyID	ID of the PT operator	X	X	X	X	X	X	X	X	X	X
CompanyName	Name of the PT operator	X	X	X	X	X	X	X	X	X	X
StopID	ID of stop origin	X	X	X	X	X	X	X	X	X	X
StopName	Name of stop origin	X	X	X	X	X	X	X	X	X	X
StopGPS	GPS coordinates per stop	X	X	X	X	X	X	X	X	X	X
NextStopID	ID of stop destination	X	X	X	X	X	X	X	X	X	X
NextStopName	Name of stop destination	X	X	X	X	X	X	X	X	X	X
Modality	Bus, tram, metro or train	X	X	X	X	X	X	X	X	X	X
LineID	Public line number	X	X	X	X	X	X	X	X	X	X
TripID	To connect stop-stop-relations	X	X	X	X	X	X	X	X	X	X
Timetable-1	Scheduled departure times	X	X	X	X	X	X	X	X	X	X
Timetable-2	Real time departure times		?	?	?	X	?	X	X	X	?
Timetable-3	Scheduled trip time	X	X	X	X	X	X	X	X	X	X
Pricing	Structured data on tariffs	1)	1)	1)	1)	1)	1)	X	1)	1)	1)
Service info	Structured data on service	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)

1) only if SocialCar delivers a format that needs to be used and filled by the sites

4.2 Taxi

To add taxi services to the multi-modal journey planner in SocialCar, taxi data needs to be available at the SocialCar site. In the table below the required data is displayed. This list is based upon the Functional Design created in T3.1.2. In the table below the availability of this data is displayed per site:

Table 10 – Availability of essential taxi data per site

Taxi data needed for journey planning		Brescia	Brussels	Canton Ticino	Edinburgh	Lazio Region	Ljubljana	Luxembourg	Skopje	Torino	Zagreb
CompanyID	ID of the taxi operator	?			?		?	X		X	
CompanyName	Name of the taxi operator	?			?		?	X		X	
Working hours	Operating hours per day	?			?		?			?	
Working days	Operating days per week	?			?		?			?	
Region	Like city, 50 km around city etc.	?			?		?			?	
Fares	Like fare/ km, fixed costs etc.	?			?		?			?	
TaxiGPS	Actual position of each taxi	?			?		?	X		?	
Destination	Destination per taxi for sharing	?			?		?			?	
Free seats	Free seats per taxi for sharing	?			?		?			?	
TaxistandID	ID of the taxi stand	?	X				?			?	
TaxistandName	Name of the taxi stand	?	X				?		X	?	
TaxistandGPS	Actual position of taxi stand	?	X		X		X	X	X	X	
TaxistandPlaces	Number of taxi places in stand	?	X				?		X	?	

4.3 Car-sharing

To add car-sharing services to the multi-modal journey planner in SocialCar, car-sharing data needs to be available at the SocialCar site. In the table below the required data is displayed. This list is based upon the Functional Design created in T3.1.2. In the table below the availability of this data is displayed per site:

Table 11 – Availability of essential car-sharing data per site

Car-sharing data needed for journey planning		Brescia	Brussels	Canton Ticino	Edinburgh	Lazio Region	Ljubljana	Luxembourg	Skopje	Torino	Zagreb
CompanyID	ID of the car provider	?	?	X	?			X		X	
CompanyName	Name of the car provider	?	?	X	?			X		X	
ParkingID	ID of parking	?	?	X	?			X		X	
ParkingName	Name of the parking	?	?	X	?			X		X	
ParkingGPS	GPS coordinates of the parking	?	X	X	?			X		X	
Availability M	Max number of cars in parking	?	?		?					X	
Availability A	Actual nmbr of cars in parking		?	X	?					X	
CarGPS	Actual position of each car				?						
Pricing	Structured data on tariffs	X	?	X	?			X		X	

4.4 Bike-sharing

To add bike-sharing services to the multi-modal journey planner in SocialCar, bike-sharing data needs to be available at the SocialCar site. In the table below the required data is displayed. This list is based upon the Functional Design created in T3.1.2. In the table below the availability of this data is displayed per site:

Table 12 – Availability of essential bike-sharing data per site

Bike sharing data needed for journey planning		Brescia	Brussels	Canton Ticino	Edinburgh	Lazio Region	Ljubljana	Luxembourg	Skopje	Torino	Zagreb
CompanyID	ID of the bike provider	?	?		?		X	X		X	
CompanyName	Name of the bike provider	?	?		?		X	X		X	
StallID	ID of the bike stall	X	X		?		X	X		X	
StallName	Name of the bike stall	X	X	X	?		X	X		X	
Position	GPS coordinates of bike stall	X	X	X	?		X	X		X	
Availability M	Max number of bikes in stall	X	X	X	?		?	?		X	
Availability A	Actual number of bikes in stall	X	?	X	?		X	X		X	
Pricing	Structured data on tariffs	?	?		?		X	?		X	

5 Annexes

5.1 Survey on availability of public transport data – example Brussels

5.2 Survey on availability of public transport data – answers from all sites

5.3 Questionnaire on data formats and accessibility – example Torino

5.4 Example GTFS feed

Below an example GTFS feed is shown. It is comma-delimited for each file in a transit feed. The sample data files shown here aren't all related to each other (source: Google Developers).

Table 13 – Example of a GTFS feed

agency.txt	agency_id, agency_name,agency_url,agency_timezone,agency_phone,agency_lang FunBus,The Fun Bus,http://www.thefunbus.org,America/Los_Angeles,(310) 555-0222,en
stops.txt	stop_id,stop_name,stop_desc,stop_lat,stop_lon,stop_url,location_type,parent_station S1,Mission St. & Silver Ave.,The stop is located at the southwest corner of the intersection.,37.728631,-122.431282,,, S2,Mission St. & Cortland Ave.,The stop is located 20 feet south of Mission St.,37.74103,-122.422482,,, S3,Mission St. & 24th St.,The stop is located at the southwest corner of the intersection.,37.75223,-122.418581,,, S4,Mission St. & 21st St.,The stop is located at the northwest corner of the intersection.,37.75713,-122.418982,,, S5,Mission St. & 18th St.,The stop is located 25 feet west of 18th St.,37.761829,-122.419382,,, S6,Mission St. & 15th St.,The stop is located 10 feet north of Mission St.,37.766629,-122.419782,,, S7,24th St. Mission Station,,37.752240,-122.418450,,,S8 S8,24th St. Mission Station,,37.752240,-122.418450,http://www.bart.gov/stations/stationguide/stationoverview_24st.asp,1,
routes.txt	route_id,route_short_name,route_long_name,route_desc,route_type A,17,Mission,"The ""A"" route travels from lower Mission to Downtown.",3
trips.txt	route_id,service_id,trip_id,trip_headsign,block_id A,WE,AWE1,Downtown,1 A,WE,AWE2,Downtown,2
stop_times.txt	trip_id,arrival_time,departure_time,stop_id,stop_sequence,pickup_type,drop_off_type AWE1,0:06:10,0:06:10,S1,1,0,0 AWE1,,,S2,2,1,3 AWE1,0:06:20,0:06:30,S3,3,0,0 AWE1,,,S5,4,0,0 AWE1,0:06:45,0:06:45,S6,5,0,0 AWD1,0:06:10,0:06:10,S1,1,0,0 AWD1,,,S2,2,0,0 AWD1,0:06:20,0:06:20,S3,3,0,0 AWD1,,,S4,4,0,0 AWD1,,,S5,5,0,0 AWD1,0:06:45,0:06:45,S6,6,0,0
calendar.txt	service_id,monday,tuesday,wednesday,thursday,friday,saturday,sunday,start_date,end_date WE,0,0,0,0,0,1,1,20060701,20060731 WD,1,1,1,1,1,0,0,20060701,20060731
calendar_dates.txt	service_id,date,exception_type WD,20060703,2 WE,20060703,1 WD,20060704,2 WE,20060704,1 Example shows service exceptions for the Independence Day holiday in 2006. On Monday July 3, 2006, regular weekday service (service_id=WD) is interrupted (exception_type=2). Instead, weekend service (service_id=WE) runs on that date (exception_type=1). The same change applies on Tuesday July 4, as well.
fare_attributes.txt	fare_id,price,currency_type,payment_method,transfers,transfer_duration 1,0.00,USD,0,0,0 2,0.50,USD,0,0,0 3,1.50,USD,0,0,0 4,2.00,USD,0,0,0 5,2.50,USD,0,0,0
fare_rules.txt	fare_id,route_id,origin_id,destination_id,contains_id a,TSW,1,1, a,TSE,1,1, a,GRT,1,1, a,GRJ,1,1, a,SVJ,1,1, a,JSV,1,1, a,GRT,2,4, a,GRJ,4,2, b,GRT,3,3, c,GRT,,,6
shapes.txt	shape_id,shape_pt_lat,shape_pt_lon,shape_pt_sequence,shape_dist_traveled A_shp,37.61956,-122.48161,1,0 A_shp,37.64430,-122.41070,2,6.8310 A_shp,37.65863,-122.30839,3,15.8765
frequencies.txt	trip_id,start_time,end_time,headway_secs AWE1,05:30:00,06:30:00,300 AWE1,06:30:00,20:30:00,180 AWE1,20:30:00,28:00:00,420
transfers.txt	from_stop_id,to_stop_id,transfer_type,min_transfer_time S6,S7,2,300 S7,S6,3, S23,S7,1,