

ELIPTIC User Forum Survey Gdynia

Integration and optimisation of electric public transport infrastructure and involved actors

Welcome to the ELIPTIC User Forum survey in preparation for our meeting in Gdynia in just over a month. This survey should take approximately 25 minutes to complete. Please note it is a required part of your participation in the User Forum and take the time you need to complete it carefully. It is also an excellent way to learn from each other's experience and knowledge.

The survey must be completed by 23 May 2016 so that we have time to process the results before we meet.

Survey rules:

- The survey results will be presented in Gdynia during the User Forum meeting.
- Results of the survey will be aggregated; individual data will be kept confidential.
- Each member of the ELIPTIC User Forum is to complete the survey, irrespective of their participation to the Gdynia meeting.
- If you have more than one representative of your organisation attending the User Forum, please combine efforts and submit only ONE survey per User Forum member organisation.

For further information, please contact Yannick Bousse, yannick.bousse@uitp.org

Local context and background

1. Name of your organisation:

Open text box

2. Select the type of organisation that you represent:

- Public transport operator
- Local authority
- Regional authority
- Public transport authority
- Other (please specify)

3. What is the size of your operational area?

- Fewer than 100,000 inhabitants
- 100,000 - 500,000 inhabitants
- 500,000 - 1 million inhabitants
- More than 1 million inhabitants

4. What public transport fleets are operated in your city? Please provide the number of vehicles per type of fleet.

- Diesel Buses 12m
- Diesel Buses 18m
- Electric buses 12m
- Electric buses 18m
- Hybrid buses 12m
- Hybrid buses 18m
- Trolleybuses 12m



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- Trolleybuses 18m
- Trolley-hybrid buses 12m
- Trolley-hybrid buses 18m
- Trams/light rail
- Metro
- Regional and suburban railway
- Other (please specify what and how many)

Infrastructure

Making connections with domains that have not traditionally been involved in public transport is a key element of ELIPTIC. A particular challenge is to optimise the existing infrastructure. The next three questions relate to actors potentially involved in optimising the existing infrastructure in your city/service area.

- Rank from 0 to 5 the importance of your cooperation with each actor during each of these three stages of implementing new electric public transport concepts (with 0 being not important at all and 5 being very important). Please leave do not rate your own type of organisation.

	1. Planning (obtain agreements and permits)	2. Procurement (vehicle and charging infrastructure)	3. Installation
Public transport operator			
Local authority			
Regional authority			
Public transport authority			
Vehicle manufacturer			
Charging infrastructure manufacturer			
Electricity provider			

Please specify if there are other actors of importance, and provide the stage (planning, procurement, installation) in which you cooperate.

Open text box

6. Complete in the text box the main barriers when working with the following actors (leave the space next to your own organisation type blank):

Actor	Barrier
Actors within your own organisation	
PT operator	
Local authority	
Regional authority	
PT authority	
Electricity provider	

7. Are you aware of the impact of charging an e-bus fleet with the existing electricity grid in your city once integrated, and how much electricity will be required?
- Yes, we are in contact with the electricity provider and we can describe the impact at each stage of the charging

If yes, then tick boxes to provide the impacts for each stage of charging:

	Very positive impact	Positive impact	No impact	Negative impact	Very negative impact
Slow charge at the depot					
Fast charge at the depot					
At the sub-station					
Opportunity charging on					

route					
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- Yes, we are in contact with the electricity provider and we can that describe the total impact

If yes, then tick box for the total impacts on the grid:

<input type="checkbox"/>	Very positive
<input type="checkbox"/>	Positive
<input type="checkbox"/>	Neutral
<input type="checkbox"/>	Negative
<input type="checkbox"/>	Very negative

- Yes, we are in contact with the electricity provider but do not have oversight of the impact
- No, we are not in contact with the electricity provider
- I am not sure

Energy provider

Energy provider plays an important role in the goals of ELIPTIC. The next four questions are related to the relationship with the energy provider and where possible cost savings can occur.

8. Do you currently have a contract with an electricity provider for electric public transport?

- Yes
- No
- Currently in negotiation

9. What are the main challenges of obtaining a contract with an electricity provider for electric public transport in your city/region?

Open text box

10. What are the main cost categories of your contract with an energy provider for electric public transport? E.g. Electricity generation, electricity transmission, infrastructure, fixed charges, renewable energy, administration, tax.

Open text box

11. How much renewable energy is included in the energy purchased from your energy provider?

- We do not purchase energy
- 0%
- 1% - 20%



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- 21% - 40%
- 41% - 60%
- 61% - 80%
- 81% - 100%

Key performance indicators

ELIPTIC will evaluate the costs, benefits and operating efficiency of its use cases. Currently the ELIPTIC evaluation group is defining a set of core evaluation criteria and KPIs for impact assessment of the use cases related to contexts and operational profiles of ELIPTIC cities incl., operational, economy, energy, environment and social aspects. We would like to validate the core KPIs to implement new electric public transport projects with the experience in your city.

12. Please briefly describe your electric transport project, e.g. testing an electric bus, testing fast-charging infrastructure for electric buses, implementing an energy storage system for recuperation of braking energy in metro/tram/trolleybus system etc:

Open text box

13. What are in your opinion the most relevant KPI's for integrating an electric public transport solution in the energy network? **Tick a maximum of 10.**

KPI Name	KPI Definition	Unit of measurement	Reference period	
Driving staff	Staff involved in driving activities	man/vehicle	day	
Drivers workload	Workload required to drive a vehicle	man-month/vehicle	month	

Maintenance staff	Amount of personnel with maintenance duties divided by the amount of vehicles composing the fleet	man/vehicle	day	
Passenger capacity (line)	Passengers volume that can be carried past a single point on a fixed route, in a given period of time	pass/h	peak time	
Service coverage	Consistency of the service	km/veh	day	
Peak vehicles requirement	The maximum number of vehicles required to operate a transport service at peak periods	vehicles/route km	peak time	
Vehicles failures	Monthly events recorded per vehicle and per travelled km	events/travelled km	month (possibly year to improve accuracy)	
Durability of charging infrastructure	Lifetime of charging infrastructure	years	Eliptic demo timeframe	
Durability of traction battery	Lifetime of the traction battery (E-Bus or Hybrid-Bus)	years	Eliptic demo timeframe	
Durability of vehicles	Lifetime of a vehicle	years	Eliptic demo timeframe	
Commercial speed	Speed of operational vehicles	km/h	peak time in working day	
Bus frequency	Arrivals recorded at a given stop	events/h	peak time in working day	
Dwell time	Time spent for boarding/alighting passengers at a bus stop	minutes	peak time in working day	
Journey time	Time spent for a single journey	min	peak time in working day	

Round trip time	Time between two subsequent passages of the same vehicle at a given point	min	peak time in working day	
Operation time	Vehicles operational time	h/vehicle	month	
Charging time	Amount of time due to fuel/recharging operations	% per vehicle	month	
External effect	Compatibility of the electric surcharge imposed by hybrid or electric bus on the already operational electric traction system	#	Eliptic demo timeframe	
Passenger demand	Amount of passenger-kilometres travelled every month per line	passkm	monthly	
Operating cost (general)	Monthly expenditure due to staff, energy, maintenance management, to purchase external goods and services, to financial costs, depreciation, and taxes	kEURO/vehicle	month	
Investment for the network	Annual expenditure due to investments in infrastructures, vehicles and other items	kEURO/vehicle	year	
Vehicle capital costs (for all different vehicles: E-bus / diesel bus, 12m / 18m version etc.)	Capital costs for vehicle owned	kEURO/vehicle		
Recharging infrastructure	Costs for the use of the recharging infrastructure	kEURO/per charging operation	Eliptic demo timeframe	

Electricity costs for vehicles	Total costs for electricity	kEURO/vehicle	month	
Electricity costs for traction	Total costs for electricity due to traction operations	kEURO/vehicle	month	
Electricity costs for non traction	Total costs for electricity to operate non traction equipments (auxiliaries, etc).	kEURO/vehicle	month	
Fuel costs	Total costs for fuel purchase	kEURO/MJ	month	
Grid connection	Cost of the use of the grid per recharging facility	kEURO/per charging equipment	Eliptic demo timeframe	
Electricity consumption	Total amount of electricity consumed	MJ/vehicle	day	
Electricity from renewable sources consumption	Total amount of electricity from renewable sources consumed	MJ/vehicle	day	
Recharging capacity	Amount of e-vehicles recharged per charging facility	vehicles/day	recharging facility	
Noise exposure	Amount of population exposed to traffic noise (day/night)	%	Eliptic demo timeframe	
CO ₂ emissions	Average emissions due to the Eliptic demos, distinguishing per vehicle category	g/vkm	Eliptic demo timeframe	
CO average emission	Average emissions due to the Eliptic demos, distinguishing per vehicle category	g/vkm	Eliptic demo timeframe	
NOx average emission	Average emissions due to the Eliptic demos,	g/vkm	Eliptic demo timeframe	

	distinguishing per vehicle category			
PM ₁₀ average emission	Average emissions due to the Eliptic demos, distinguishing per vehicle category	g/vkm	Eliptic demo timeframe	
Awareness	Assessment of the passengers' awareness of the need to implement a given Eliptic measure	%	Eliptic demo focus groups	
Acceptance	Assessment of the passengers' acceptance of a given Eliptic measure	%	Eliptic demo focus groups	
Attractiveness	Passengers' perception of attractiveness of a given Eliptic measure	%	Eliptic demo focus groups	

Additional important KPIs not included in the list:



Any further comments not yet covered?

Open text box



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THANK YOU FOR COMPLETING THE SURVEY

We look forward to meeting you in Gdynia next month and to discussing the results.

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