STARTING SOON!!!
1st ELIPTIC webinar:

Optimised braking energy recovery in electric public transport systems

29 April 2016, 10.00 to 11.30 AM CEST

eLIPTIC
electrification of
public transport in cities

2020 CiViTAS
Cleaner and better transport in cities

Horizon 2020
Programme

Who is present

Moderator:

Wolfgang Backhaus, Rupprecht Consult GmbH
Project Manager of the Horizon 2020 ELIPTIC project

Presenter:

Daniela Carbone & Veronica Usai, ASSTRA
Introduction Pillar B - objectives and use cases

Ricardo Barrero, STIB Brussels
Optimised braking energy recovery in metro & light rail systems

Mikolaj Bartlomiejczyk, PKT Gdynia
Optimised braking energy recovery in trolleybus systems

Agenda

10:00 - 10:15	Welcome message and brief introduction to ELIPTIC, Wolfgang Backhaus, Rupprecht Consult
10:15 - 10:30	Introduction Pillar B "Innovative energy storage systems to increase operational efficiency" - objectives and use cases, Daniela Carbone and Veronica Usai, ASSTRA- Associazione Trasporti
10:30 - 10:50	Optimised braking energy recovery in metro and light rail systems - Ricardo Barrero, STIB Brussels
10:50 - 11:00	Question and answer - round I
11:00 - 11:20	Optimised braking energy recovery in trolleybus systems - Mikolaj Bartlomiejczyk, PKT Gdynia
11:20 - 11:30	Question and answer - round II
11:30	End of webinar

ELIPTIC in a nutshell

- Research and Demonstration project in EU Program „Horizon 2020“ (Mobility for Growth 5.1)
- Funding primarily for research and promotion (only small share for hardware)
- 33 partner in 8 Countries
- Duration: 01.06.2015 – 30.05.2018
- Coordinator: Freie Hansestadt Bremen
- Budget: 5,9 Million Euro (100% funding)

ELIPTIC – project objectives

Safe integration of electric vehicles into existing electric PT infrastructure:

- (re)charging ebuses “en route” (e.g. trolleybus operated on tram infrastructure) or on the spot (battery buses/ hybrids charged from trolleybus, tram, metro network);
- upgrading trolleybus networks with battery buses or trolley hybrids (diesel bus substitution);
- upgrading and/or regenerating electric public transport systems (flywheel, reversible substations)

Multi-purpose use of electric public transport infrastructure:

- safe (re)charging of non-public transport vehicles (pedelecs, electric cars/ taxis, utility trucks);
- analyse the potential of existing electric public transport infrastructure to become a backbone for smart electromobility

Three research and innovation pillars

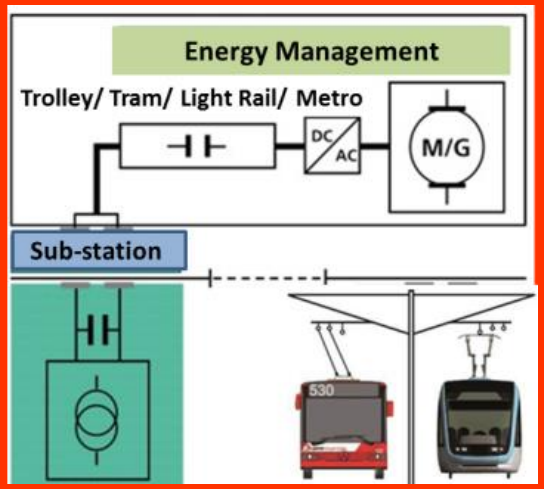
A

E-buses

Safe integration into existing electric PT infrastructure

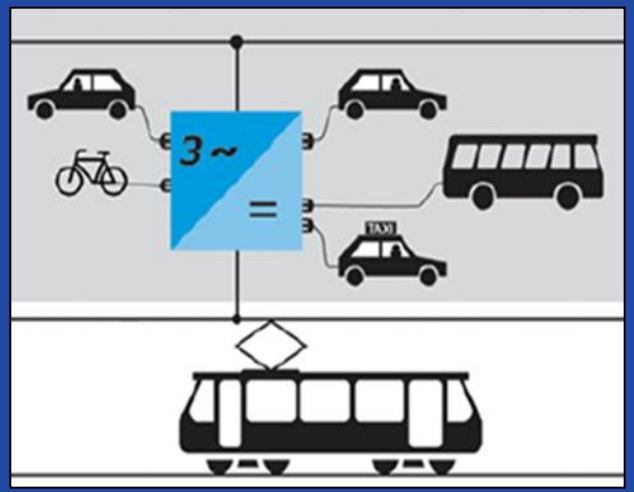
B

Energy efficient electric PT system



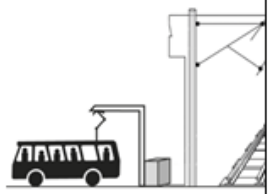
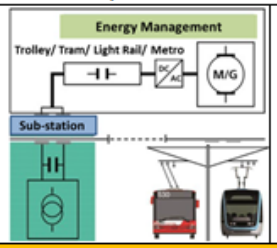
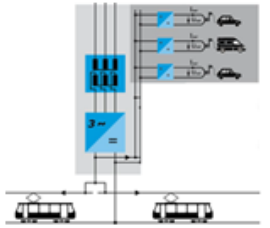
C

Multi-purpose use of electric PT infrastructure

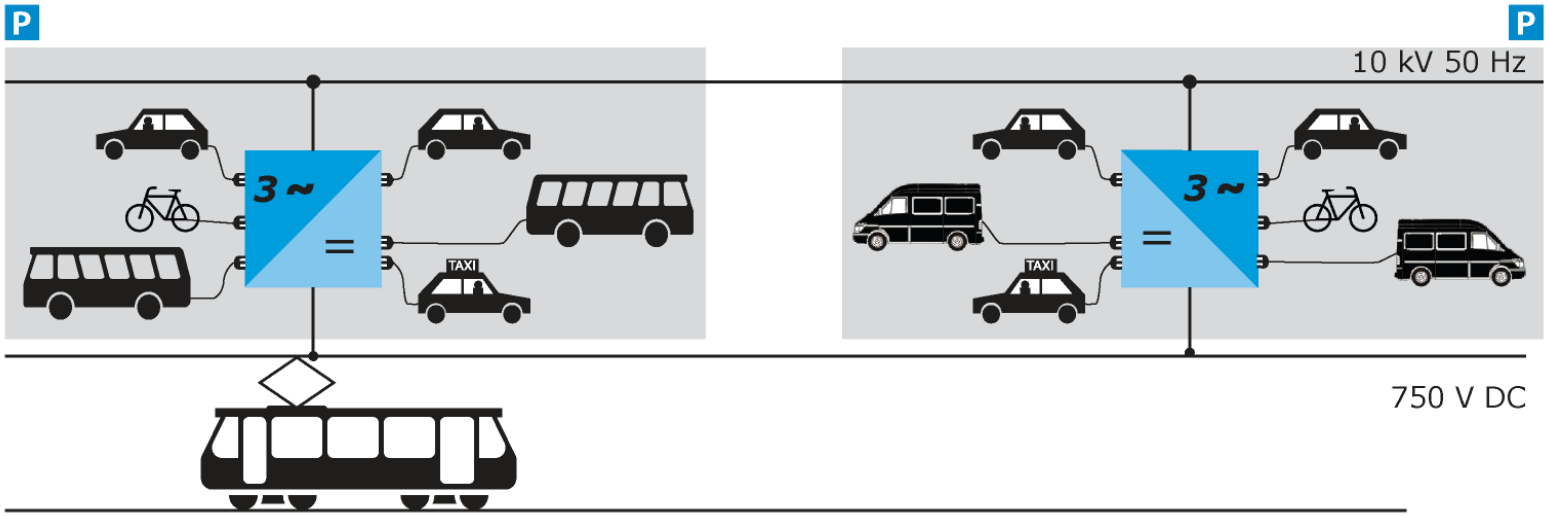


The ELIPTIC use cases

Table 2: ELIPTIC use cases: = feasibility study / technological concept / = demonstration in operational environment

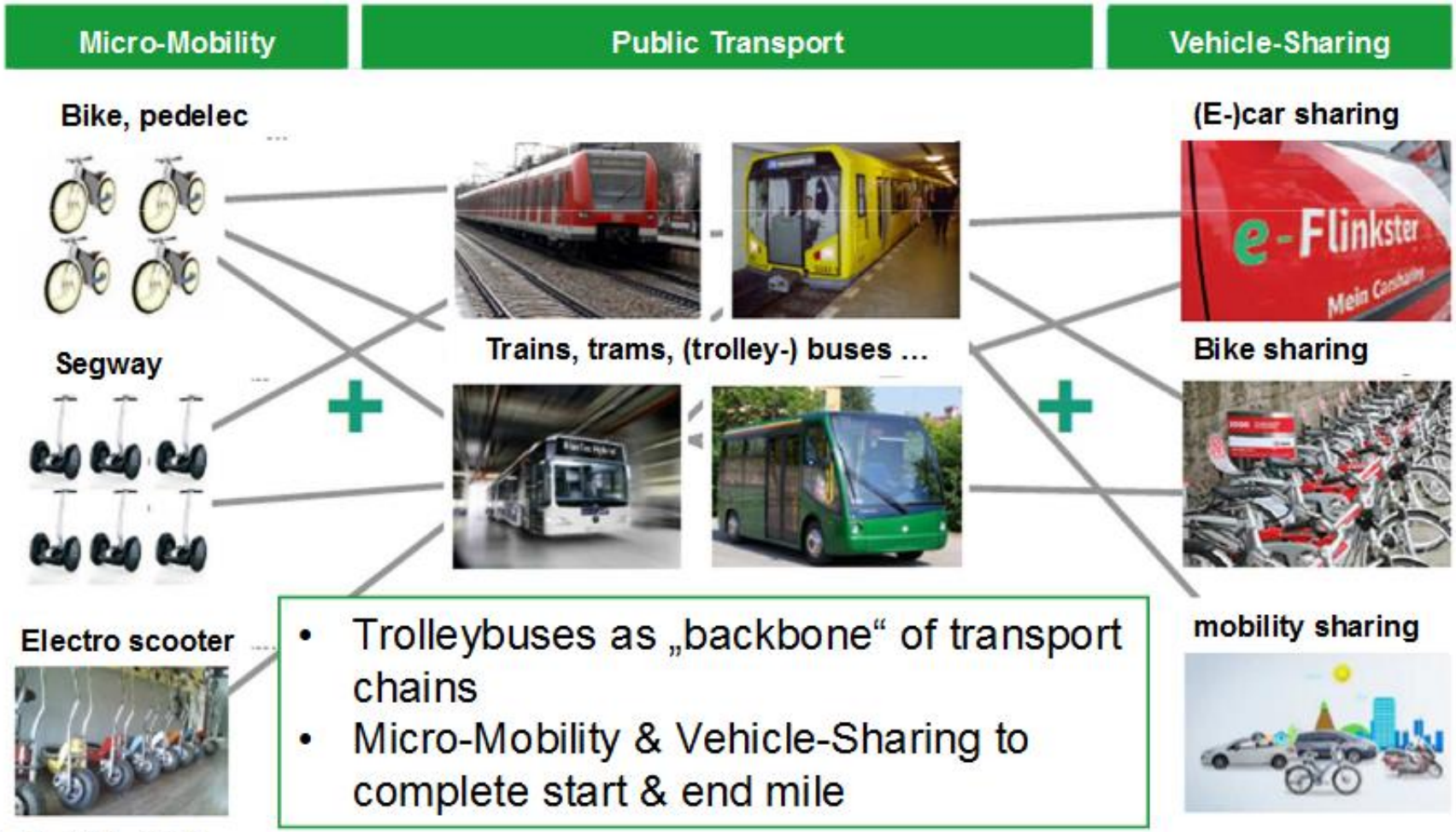
Thematic pillar / Partner city		**Safe integration of ebuses using existing electric public transport infrastructure** (A)		**Innovative energy storage systems to increase operational efficiency** (B)		**(C) Multi – purpose use of electric public transport infrastructure** (C)
Bremen (DE)	A.1: Operation-optimized system of opportunity charging at bus depots		B.1: Recuperation of braking energy from trams: Refurbishment of a flywheel energy storage system		C.1: From uniqueness to system: Extension of existing multimodal mobility hub station	
London (UK)	A.2: Opportunity (re)charging of ebuses and/or plug-in hybrid buses (using metro infrastructure)				C.2: Use of metro sub-station for (re)charging TfL fleet vehicles (e-cars & e-vans) and zero-emission capable taxis	
Brussels (BE)	A.3: Progressive electrification of hybrid bus network, using existing tram and metro infrastructure		B.2: Optimised braking energy recovery in light rail network			
Barcelona (ES)	A.4: Opportunity fast (re)charging and slow overnight charging of electric buses based on metro infrastructure				C.3: Use of metro/tram infrastructure for recharging e-cars (municipal fleet and private e-cars)	
Warsaw (PL)	A.5: Use of /tram infrastructure for recharging e-buses					
Leipzig (DE)	A.6: Opportunity (re)charging of ebuses (using tram infrastructure)				C.4: Use of tram network sub-station for (re)charging e-vehicles	
Oberhausen (DE)	A.7: Opportunity (re)charging of ebuses (tram catenaries and sub-stations)				C.5: Fast-charging stations for e-cars powered from the tram network	
Gdynia (PL)	A.9: Opportunity (re)charging of ebuses connecting Tri-city agglomeration based on trolleybus infrastructure A.10: Replacing of diesel bus lines by extending trolleybus network with trolley-hybrids					
Eberswalde (DE)	A.11: Replacing diesel bus lines by extending trolleybus network with trolley-hybrids (incl. demo of automatic (de)wiring)					
Szeged (HU)	A.12: Replacing diesel bus lines by extending trolleybus network with trolley-hybrids				C.7: Multipurpose use of infrastructure for (re)charging trolley-hybrids & e-vehicles	
Lanciano (IT)			B.4: Light rail (tram) operation for rural rail track			

The concept/idea



Source: Müller-Hellmann

Potential of using existing public transport infrastructure



Source: Spath, IAO, 2011

Thematic pillar C: Multi-purpose use of electric public transport infrastructure

Use case London (TfL)

- A feasibility study will investigate the potential for using the London Underground (LU) power network for charging electric cars & commercial vehicles, such as TfL's own vehicles kept at common locations

- This study will complement the Mayor's proposals for newly-licensed taxis from 2018 to be zero-emissions capable. TfL is investigating how a charging network could support this and where possible network locations with sufficient capacity could exist

Factor 100

Passenger car		Bus (18m)
< 1 hour	Daily usage	12 - 16 hours
Small (- medium)	Engine size	big
50 - 60% Diesel	Fuel	95 – 98 % Diesel
Diesel: PM_{10} + NO_2 Gasoline: low	local pollutants	Diesel: PM_{10} + NO_2
500 l gasoline/ Diesel	Annual fuel consumption	40,000 l Diesel
~ 1,2 to	CO_2 emission p.a.	~ 100 to
	Total impact	Equals to app. 100 electric passenger cars

Thank you for your attention!

http://www.eliptic-project.eu/

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Horizon 2020 Programme

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