

European R&D activities on electric urban bus systems

Viajeo PLUS City Showcase
16-17 November 2015,
Singapore

Michele Tozzi
UITP

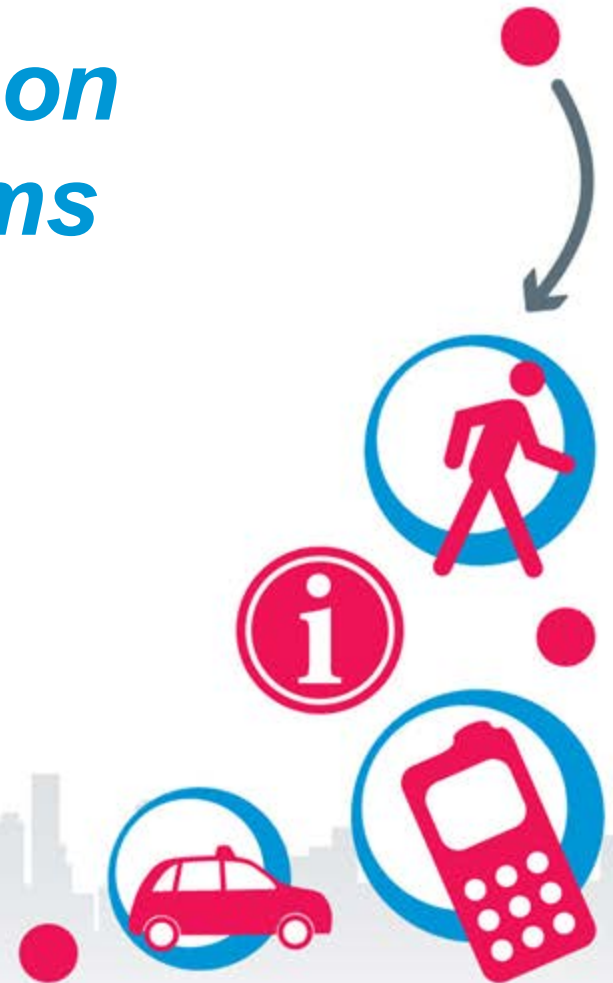


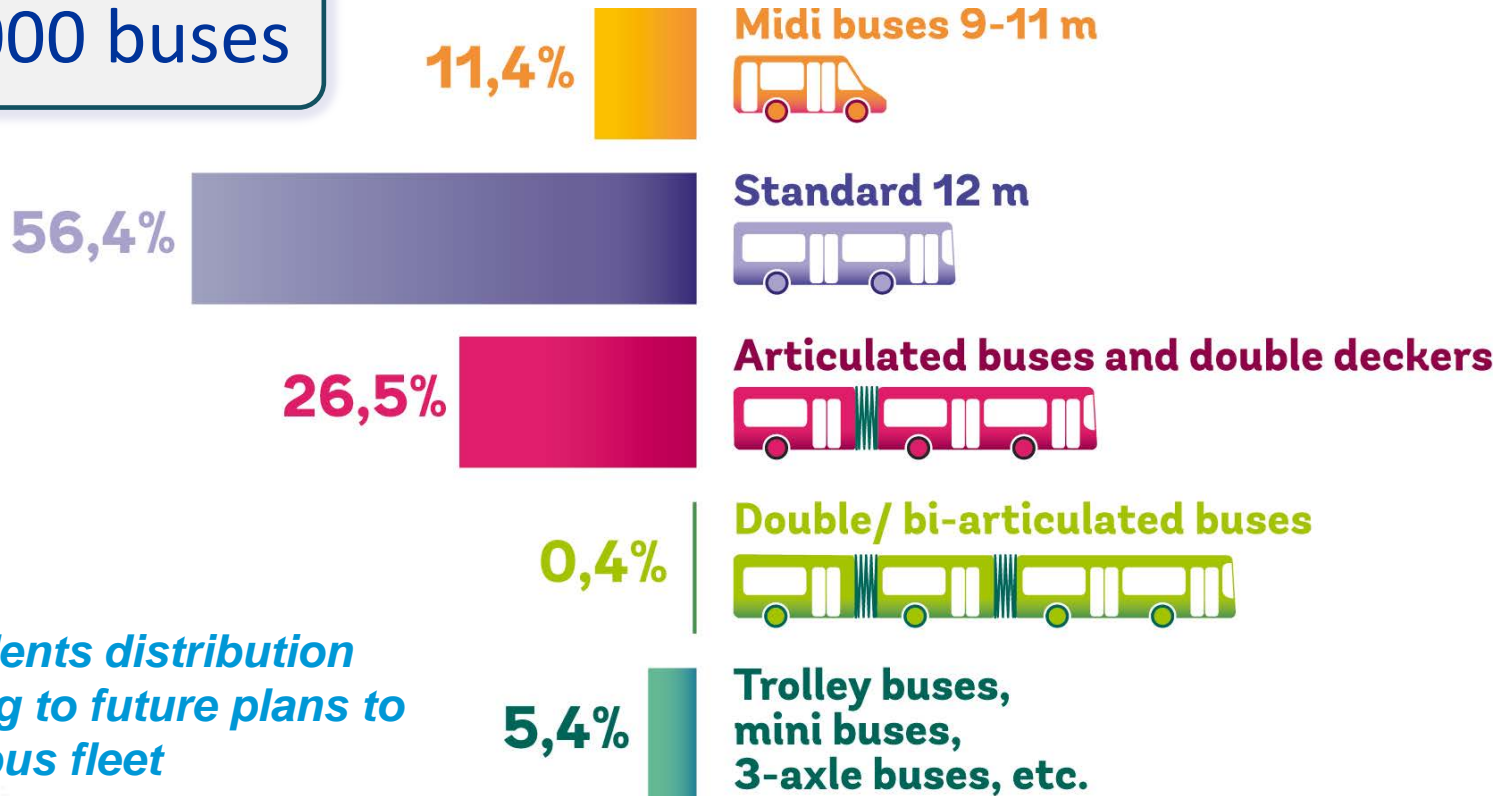
Table of contents

- Electric propulsion in EU bus fleets
- R&D next steps:
 - EBSF_2 Project



Fleet Composition: today scenario

70.000 buses



Respondents distribution according to future plans to change bus fleet



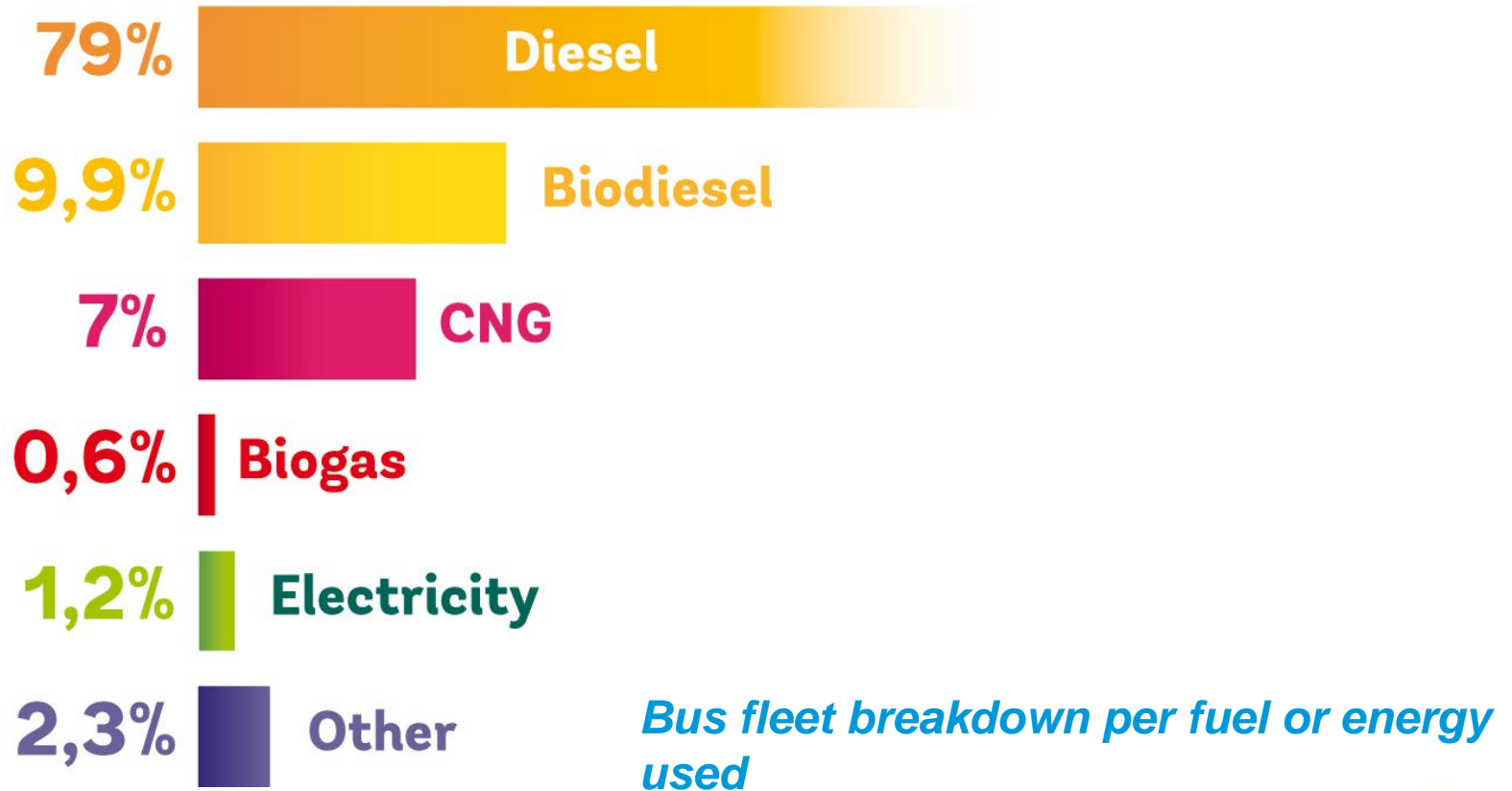
Fleet Composition: future trends



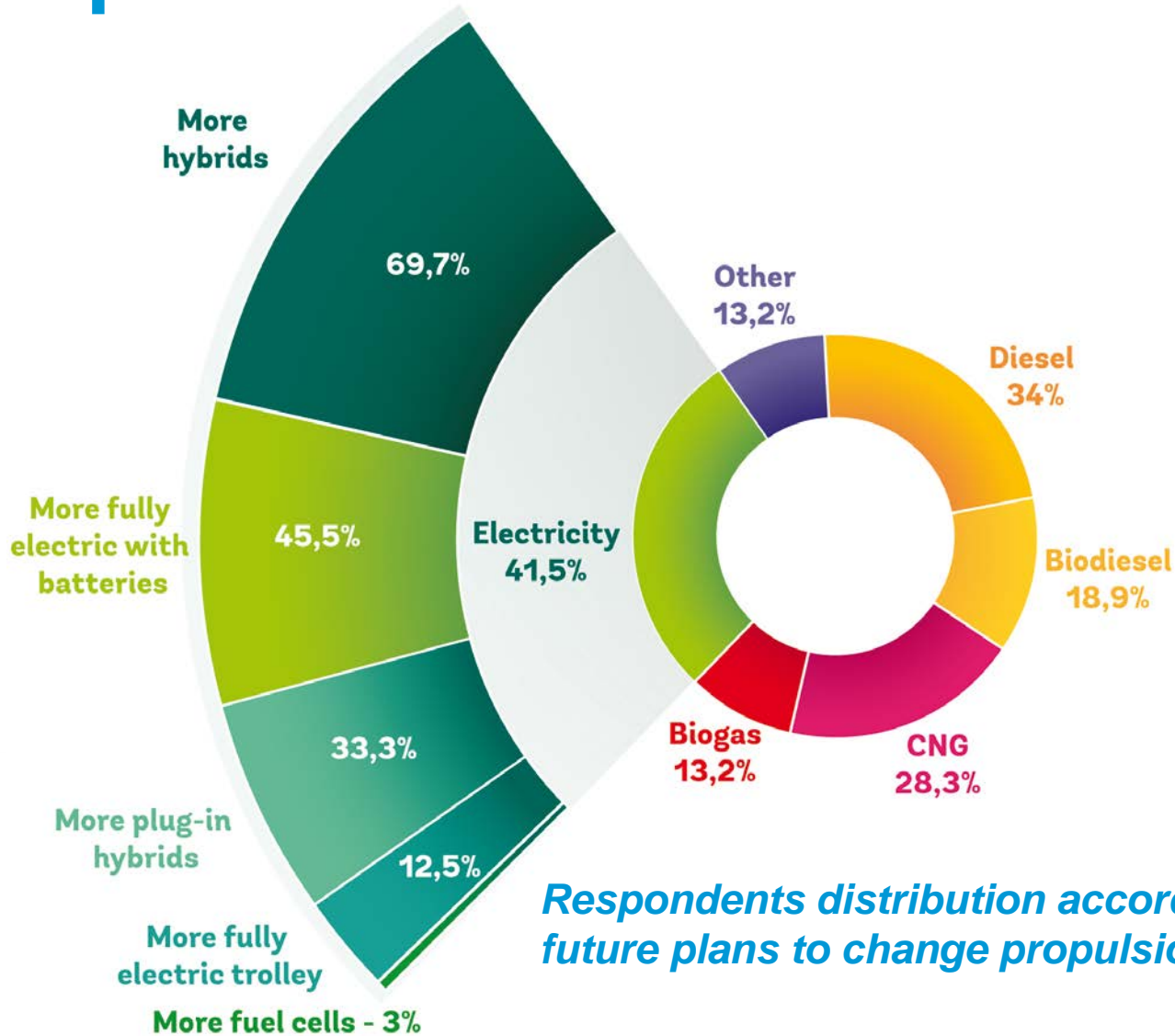
Respondents distribution according to future plans to change bus fleet



Propulsion: today scenario



Propulsion: future trends



Respondents distribution according to future plans to change propulsion system ratio

Electric buses: next challenges

Consolidated solutions for electric bus systems are already in the streets.

Full-size trolley-buses

Full electric battery mini/midi vehicles

Full-size diesel-hybrid buses

The market for these solutions has been already developed



- Buses of larger capacity (12m and more / double deckers)
- Urban-optimised mobility concepts and infrastructure
- From plug in hybrid to full electric





**EUROPEAN BUS SYSTEM
of the FUTURE 2**





EUROPEAN BUS SYSTEM
of the FUTURE 2

Advanced solutions for improved efficiency and attractiveness of bus systems



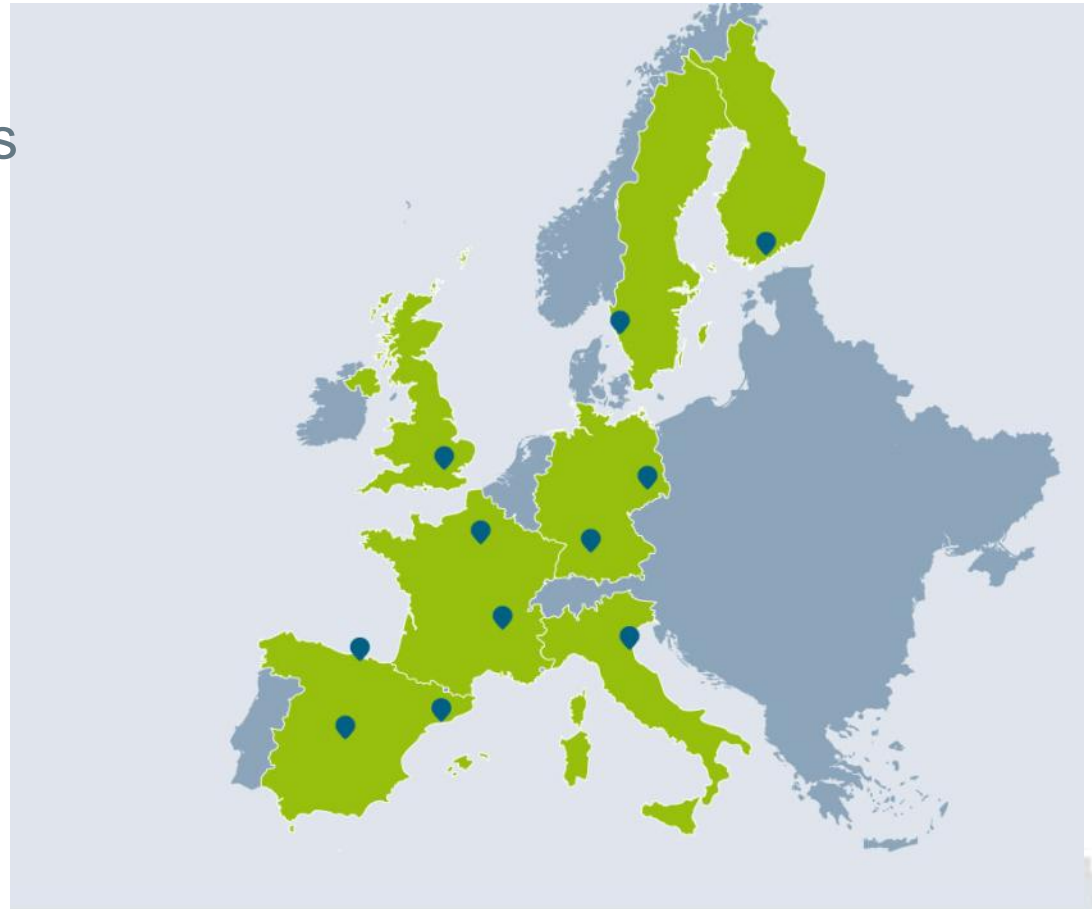
- H2020 Innovation Action
- 36 months (May 2015 – April 2018)
- 42 partners
- €10 mln EU funding



Sharing Innovation in Transport between Europe and Singapore

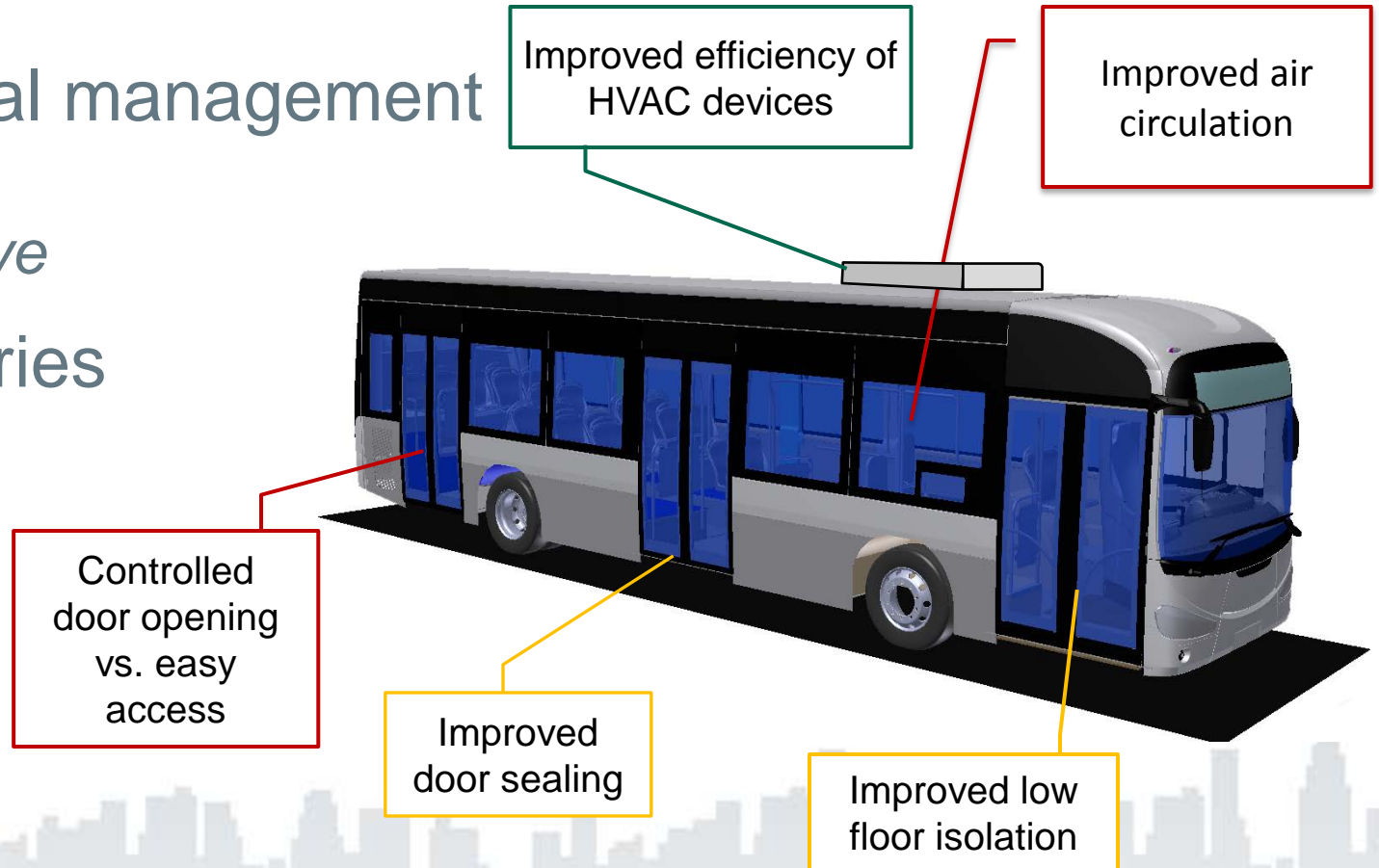
12 DEMONSTRATIONS

- 7 European Countries
- **Technologies:**
ICE, Hybrid, Electric
- **BS Solutions**
BRT to local lines
- **>500 buses**



Energy Strategy and Auxiliaries

- Thermal management
 - *active*
 - *passive*
- Auxiliaries



Barcelona

➤ Intelligent energy management

- learn / predict energy demands
- optimize the energy flows between the auxiliary systems and the energy storage unit.



➔ - 20%



Interface bus / infrastructures

- EV can “stay closer “ to humans
 - low noise
 - zero emissions
 - attractive design
- new ecosystem of services to passengers and other inhabitants.



Gothenburg



Sharing Innovation in Transport between Europe and Singapore

And more...

- Driving assistance systems and HMI solutions for EV (**Helsinki, Lyon**)
- Design opportunities offered by EV, e.g. in terms of weight distribution and internal spaces (**San Sebastian, Gothenburg**)
- Design Charter for new electric buses by a team of designers.



Thank you!

michele.tozzi@uitp.org

www.viajeoplus.eu

