



**CIVITAS**  
Cleaner and better transport in cities



# Electric mobility in CIVITAS

**Tariq van Rooijen - TNO**



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# What is CIVITAS ?



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CIVITAS is an EU initiative for supporting and evaluating the implementation of integrated *sustainable and energy efficient urban transport* strategies in European cities that should make a real difference to the welfare of the European citizen.



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72% of Europe's citizens live in cities



40% of CO<sub>2</sub> from road transport  
70% of other pollutants from urban traffic  
Millions of hours are spent in urban and regional congestion





# CIVITAS: A network of cities for cities to achieve sustainable urban mobility

## 10 years CIVITAS:

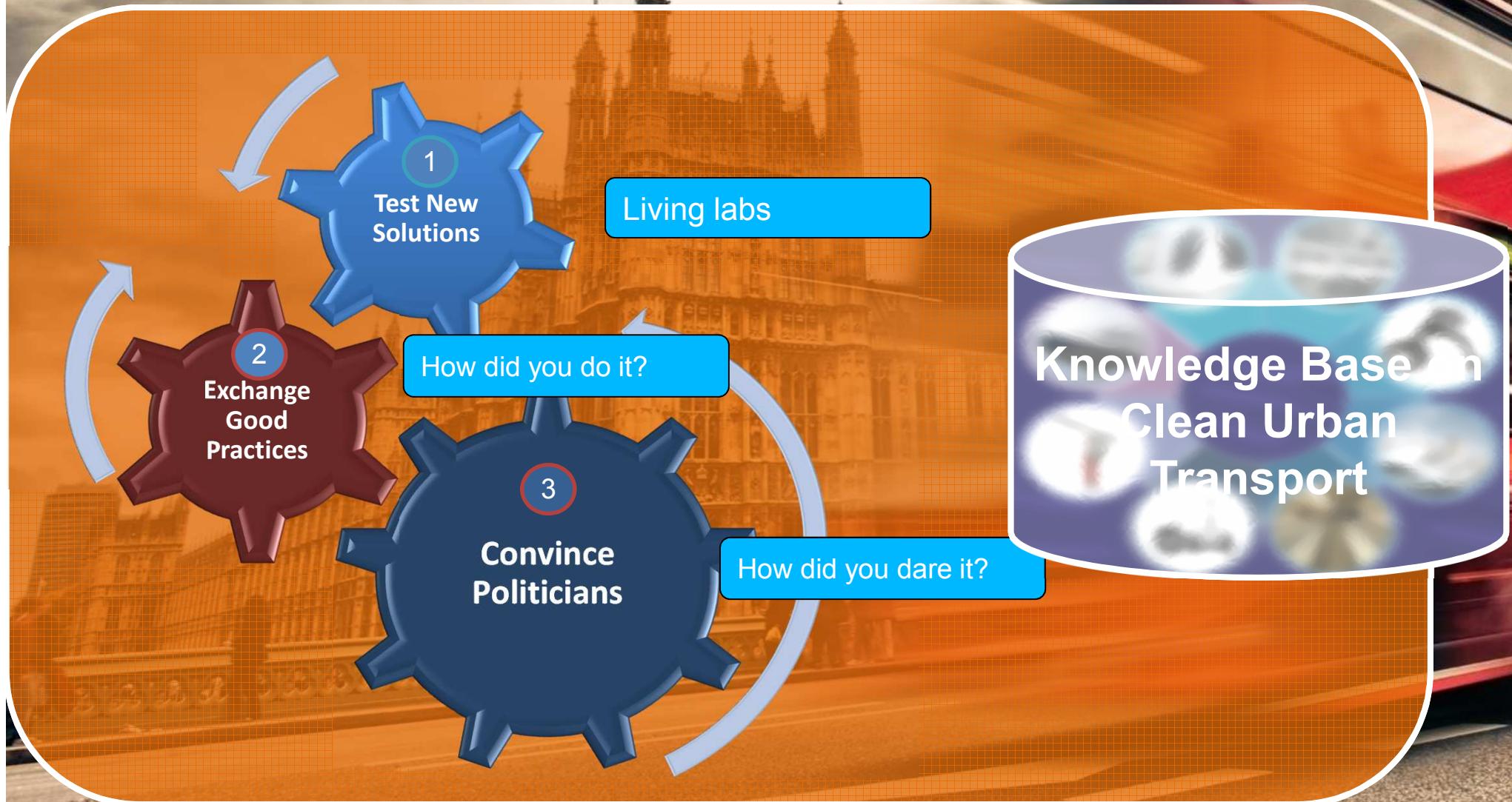
- 69 demonstration cities
- 700 measures tested
- 220 cities member of the Forum Network
- > 200 M€ EC investment





## CIVITAS Demonstration cities

# CIVITAS in action



# Key domains of intervention



Cities have demonstrated  
700 measures in 10 years



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# Examples of Electric Mobility Measures



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Example of Measures: Aachen

A photograph of a green and white hybrid bus in Aachen, Germany. The bus is angled towards the viewer, showing its side and front. The word "CITAS" is written in large, gold-colored letters on the side of the bus, with "Düsseldorf" written below it in a smaller font. The bus is parked on a street with a stone wall and a building in the background.

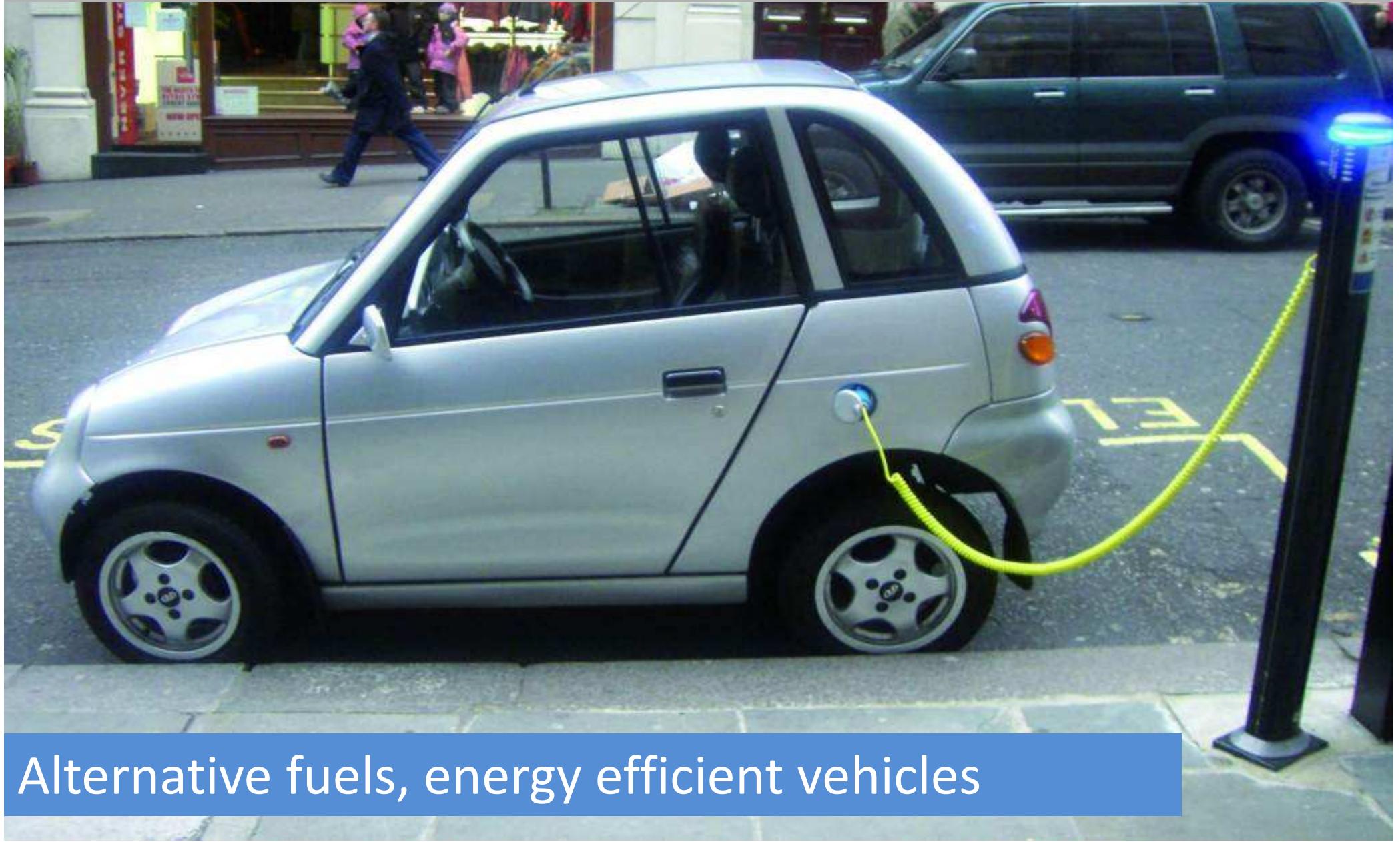
Hybrid buses

Example of Measures: Utrecht

Electric City Hopper



## Example of Measures: Tallin



Alternative fuels, energy efficient vehicles

## Example of Measures: Utrecht



New concepts for goods distribution



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# Main outcomes CiViTAS so far on electric mobility

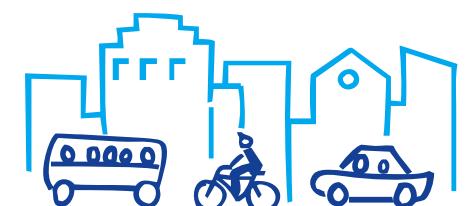


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## Implementation in CIVITAS Plus (2008-2012)



- Buses with hybrid electric/diesel or electric/other fuel systems were trialled in: Gent (20 buses), Ljubljana (5 buses), Aalborg (1 shuttlebus), Donostia-San Sebastián (1 bus), Monza (1 bus), Bologna (2 buses) and Bath (1 bus).
- Cars: 8 electric in Gent and surroundings, San Sebastian 7 electric+13 hybrids, Ljubljana 12 hybrids and Funchal 3 hybrids.
- Infrastructure: Charging points in Brighton.
- Electric boat and Cargo hopper for city logistics in Utrecht.



## Outcomes of CIVITAS Plus (2008-2012)



- Successful applications of alternative fuels depend on issues of taxation, legislation and regulation, supply reliability, and general technical and operational competency.
- Fuel consumption and emissions were generally reduced for hybrid vehicles.
- Costs of hybrid vehicles (in particular, buses) were higher than for the diesel equivalent, which may restrict any future growth in the public transport market, but there are no costs implications for adapting the current infrastructure.
- Most Hybrid vehicle measures gave negative NPV.





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# What is currently happening?



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## CIVITAS PLUS II (2012-2017)



Recently started the fourth edition of CIVITAS (PLUS II) with the following electric mobility measures:

- **Stuttgart**: implementing an e-car sharing scheme and an e-bike sharing scheme.
- **Aachen**: implementing electric vehicles, ranging from pedelecs, scooters, cars, freight vehicles, high quality public transport vehicles and energy efficient trams,
- **Gdynia**: Implementation of innovative Li-Ion hybrid trolleybuses.
- **Brno**: Introduction of electric minibuses in the public transport system and implementation of charging points for individual cars.
- **Mallorca**: Implementation of hybrid/electric vehicles in public transport and electric vehicles in public services.





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# Thanks you for your attention.

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