Intelligent mobility here and now

Sustainable urban mobility through integrating usage schemes for electric light vehicles with the transport system and road infrastructure

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Electric L-category Vehicles (EL-Vs) in urban areas: Why?

- L-category vehicles are popular for personal and light goods transport in many cities.
- But they typically have Internal Combustion Engines (pollution and noise).
- Shift to electro-mobility has so far focused on cars, public transport and city logistics.
- EL-Vs have potential to replace cars and ICE L-Vs and to complement public transport.
- But adoption so far has been slow:
  - Low awareness
  - Lack of charging facilities, sharing schemes, etc.

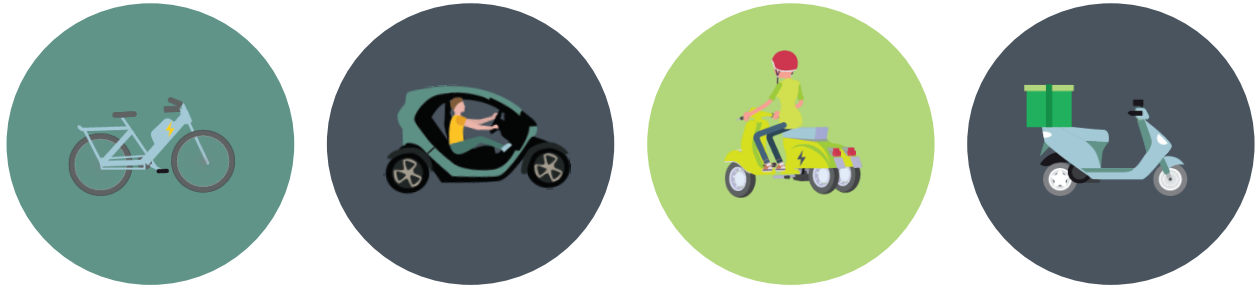
two-wheeler	three-wheeler	four-wheeler
		
		

The ELVITEN demonstration project

ELVITEN

"*Electrified L-category Vehicles Integrated into Transport and Electricity Networks*"

- 3-year EU project (2017-2020)
- Seeks to realise the potential of EL-Vs by:
  - Establishing usage schemes in six pilot cities (for personal transport and light deliveries)
  - Evaluating their impacts on travel and charging patterns, on the overall effects on transport networks and city liveability.
- Aim is to integrate EL-Vs with existing transport networks.



ELVITEN demonstration cities


Berlin


Bari


Rome *(Municipo IX)*


Genoa


Trikala


Malaga

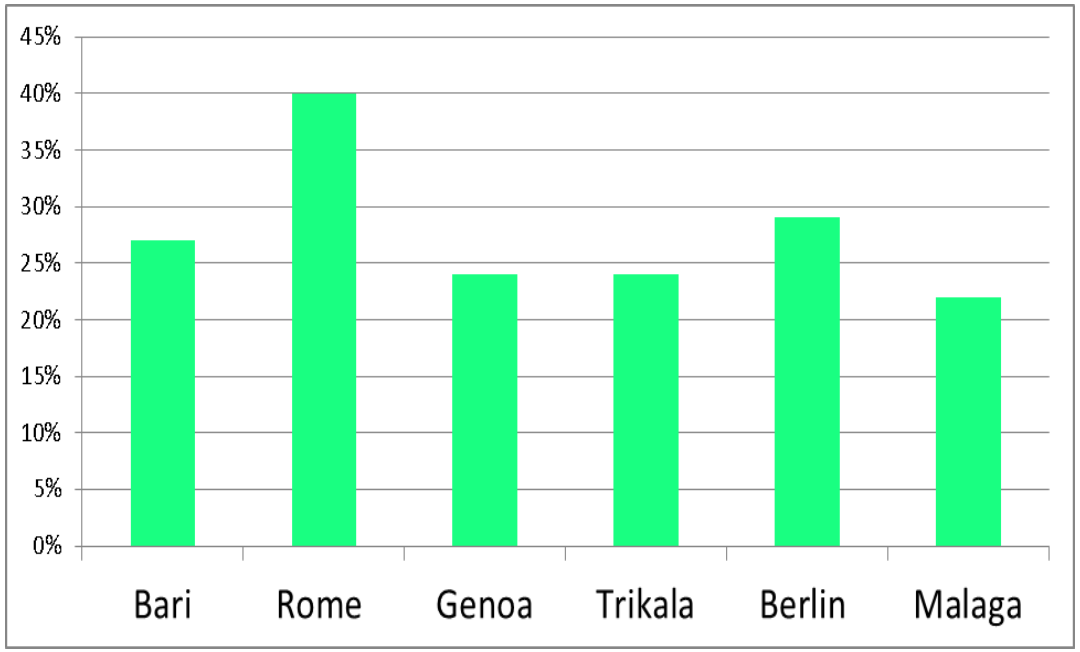
City profiles

- City data collection
  - General city characteristics
  - Transport characteristics
  - Travel characteristics
  - L-V / EL-V use
- Public perception survey
  - Online survey in 5 languages
  - 7390 valid responses, of which 6988 were from one of the 6 demo cities
- Fleet operator interviews
  - 60 interviews with fleet managers and drivers (6 to 14 per city)
  - 31 companies: deliveries (post, parcels, food, flowers..), car and bike sharing

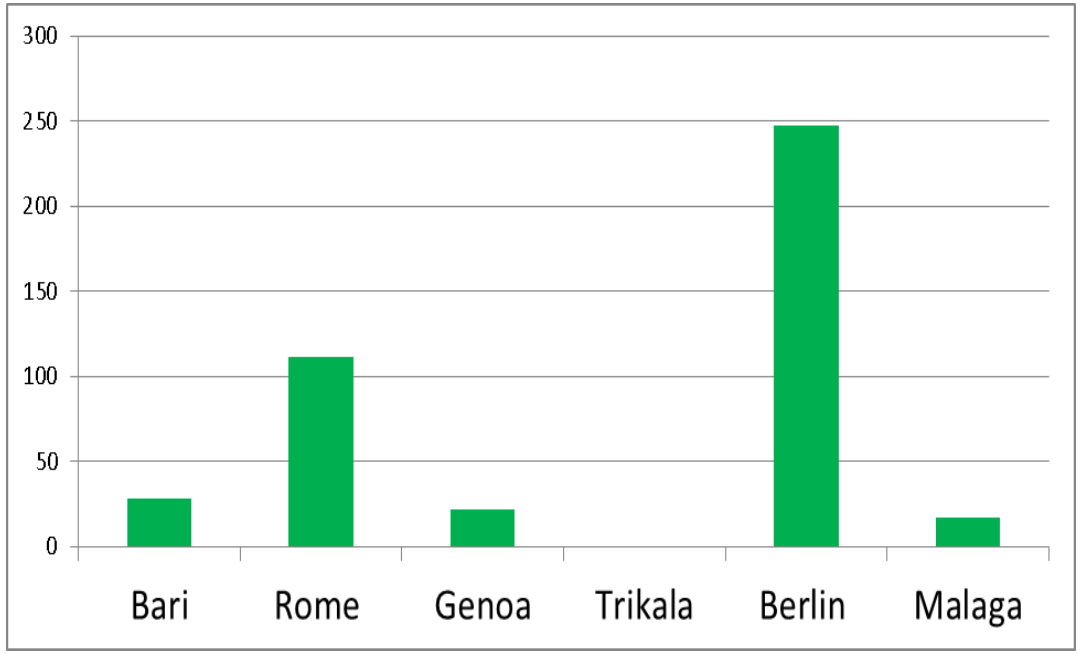
City profiles: City data collection

Congestion level

(percentage extra time for peak hour journey to city centre compared to free-flow traffic)

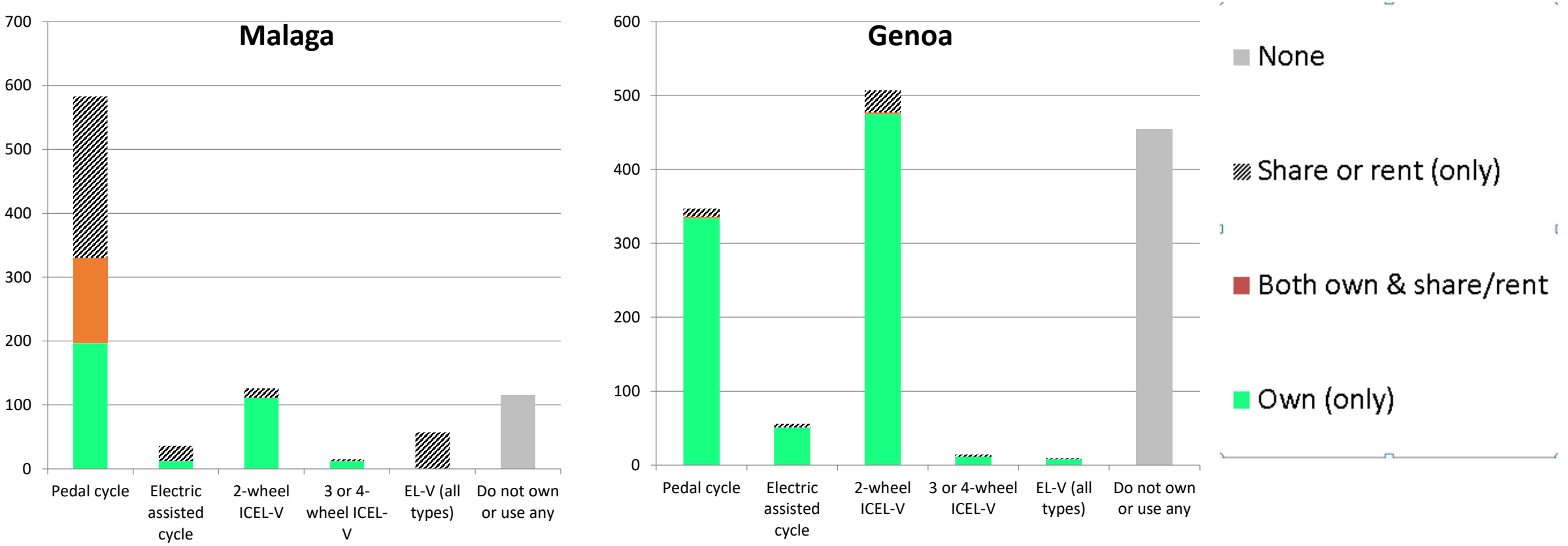


Number of public electric vehicle charging stations



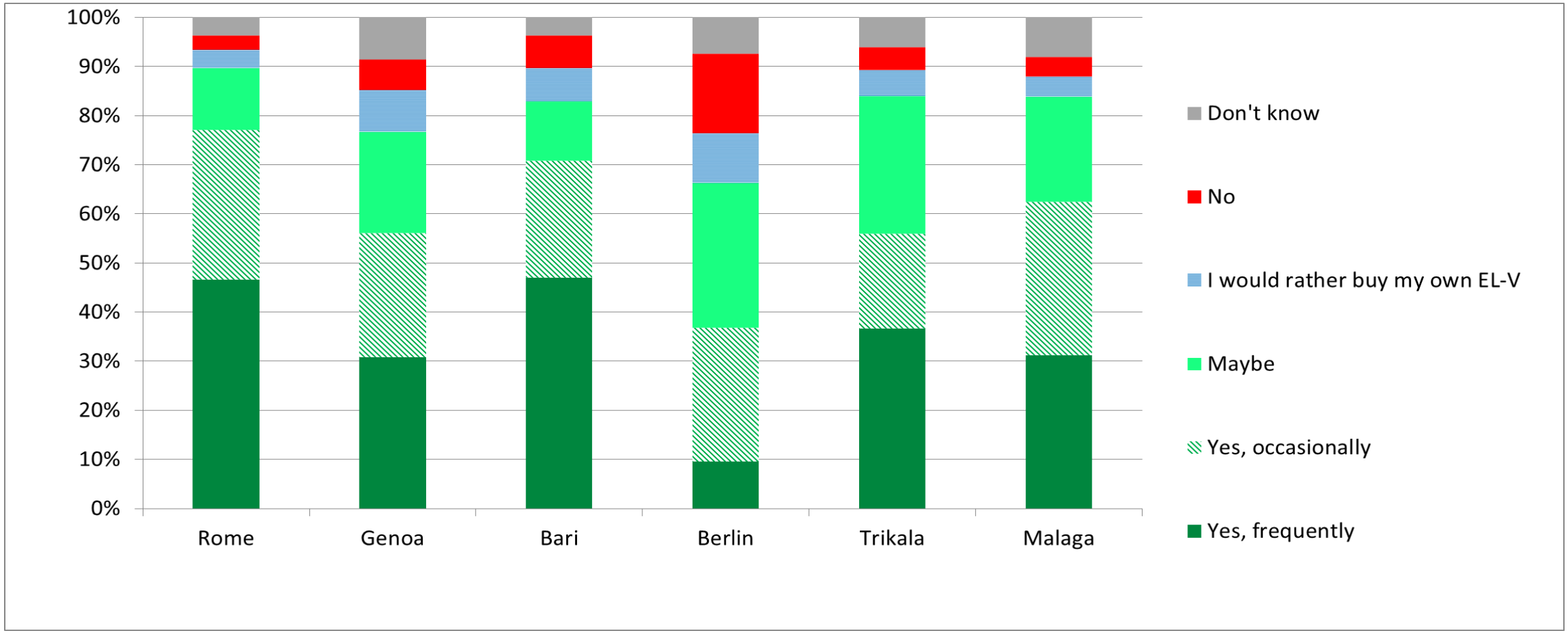
City profiles: Public perception survey

- Ownership and use of bicycles and L-Vs (Malaga and Genoa)



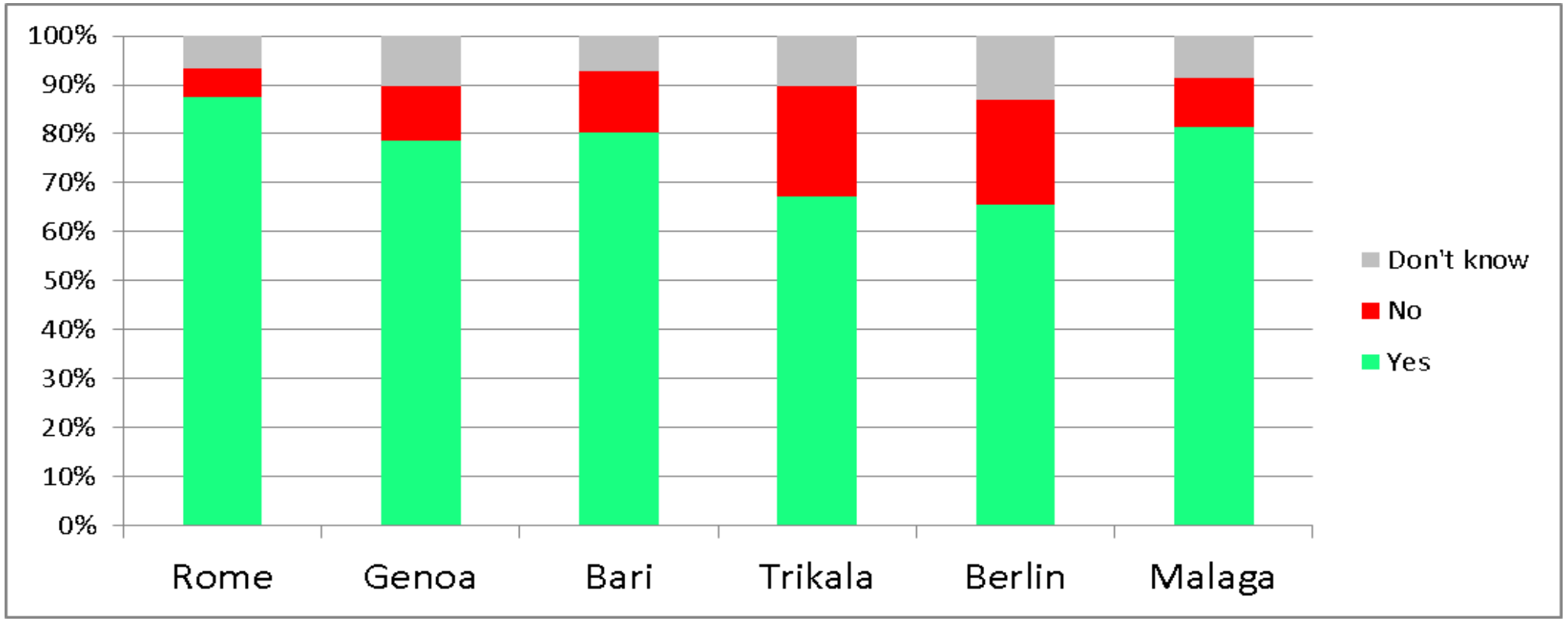
City profiles: Public perception survey

- Would you use an EL-V sharing scheme if there was one in your city?



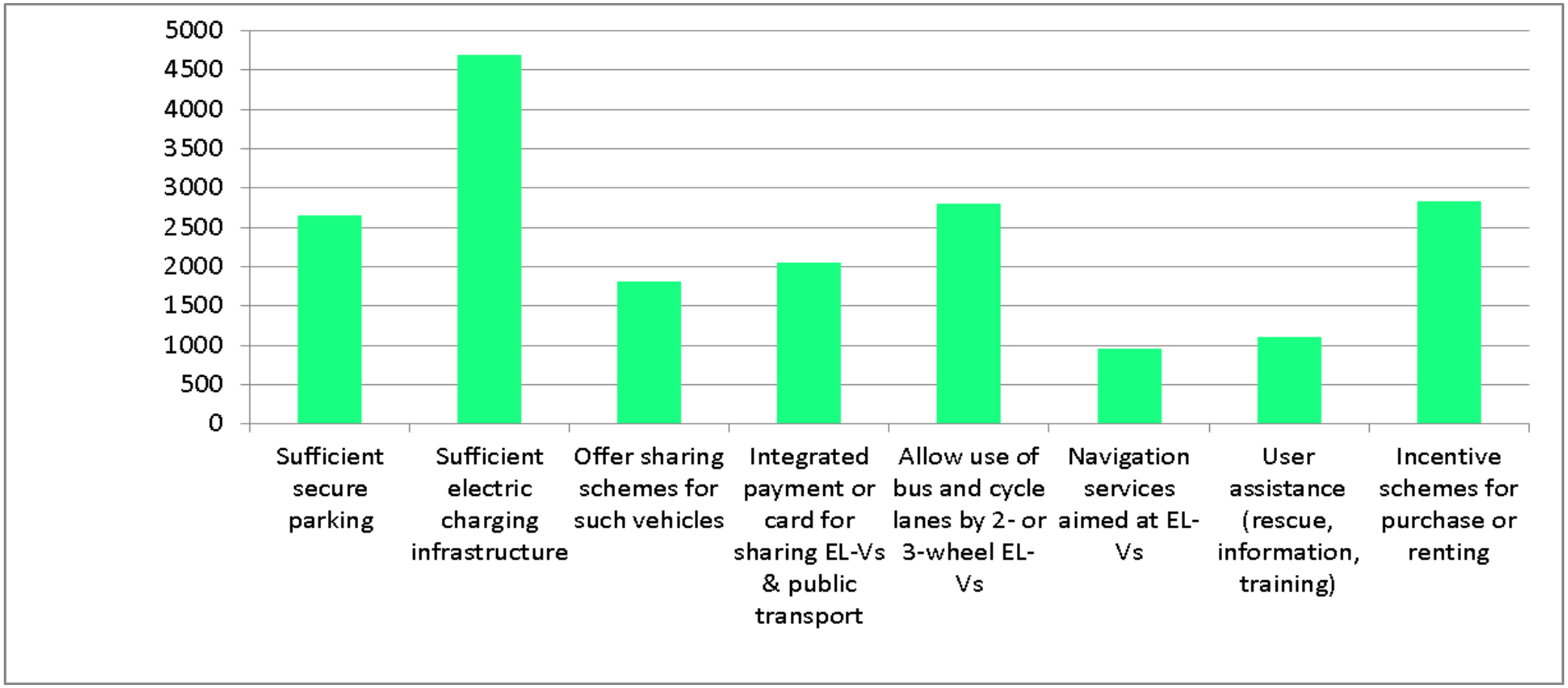
City profiles: Public perception survey

- Would consider using a light electric vehicles as a part of multi-modal journey, with for instance public transport?



City profiles: Public perception survey

- Most popular measures to facilitate EL-V use (all cities)



City profiles: Fleet operator interviews

- 49 respondents by fleet managers:
  - 20 currently use L-Vs (3 of them using EL-Vs)
  - 7 currently use EVs (cars or vans)
  - 22 do not use any

Question: Would you consider changing to Electric L-category vehicles (at least for part of your fleet)?

  - 15 either already planning to use EL-Vs or looking at this option
  - 25 would consider EL-Vs
  - 3 would consider EVs but not EL-Vs
  - 6 would not consider any electric vehicles

Usage schemes

Type of user		EL-V ownership	EL-V sharing (free)
	Commuters	●	●
	Leisure / Shopping	●	●
	Visitors (tourists, business)		●
	Deliveries	●	Possibly – for occasional use

Development of EL-V usage schemes: Infrastructure requirements

- Charge points with e-roaming capability
- Charging hubs for shared EL-Vs (e-hubs)
  - Example: e-HUB 360 (illustrated)

- Specific or shared EL-V paths or lanes
- Access to restricted traffic zones
- EL-V parking (places of work and education, public transport hubs, etc.)
  - Example: Genoa proposes free city centre parking which can be reserved for EL-Vs

Development of EL-V usage schemes: ICT requirements

- EL-V location finding app (hubs or free floating)
- Booking app
- Brokering service for shared EL-Vs
- Parking finder
- Charging station finder
- Real-time navigation app
- Fleet monitoring application and digital coach app
- Serious game app
- Incentive management smartcard / app

Development of EL-V usage schemes: Communication requirements

- Web and social media towards the public
- Promotion campaigns towards fleet owners
- Free EL-Vs testing by citizens and deliverers
- Exhibition allowing EL-V providers to present their products and inform visitors about EL-Vs (Genoa)
- Regional Support Groups in each City to provide feedback and advise, with 2 workshops in each city

Next steps: 2018

- Finalisation of usages schemes and functional requirements: April
- Demonstration methodology and preparation: summer
- Demonstrations to start in autumn 2018 and last for 18 months:
  - Trip data from the demonstrations will be logged
  - Analysis of this will show real driving patterns of EL-Vs in each city and the most used locations for parking and charging

Next steps: 2019-2020

- Evaluation of real usage and acceptance via user surveys to:
  - Analyse users' experiences during the trips will identify any issues regarding EL-V use, and users' needs, acceptance, attitudes and expectations
  - Gather information on mode used if the EL-V had not been available
  - Evaluate the attractiveness of the services and ICT tools
- Scaling up of impacts to city level (personal mobility, economic, environmental)
- Analysis of potential market uptake
- Cost-Benefit analysis and business modelling
- Distribution grid implications
- Guidelines (to manufacturers, service providers and planning authorities)

Thank you – Merci – Gracias

For more information

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