

# Active and shared: new challenges for urban mobility

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# Structure

- I. Background
- II. Research question
- III. Methodology (i.e. the survey & the sample)
- IV. Results
- V. Conclusions and further research questions

# Background



# Shared electric scooters: environmental impact

- Materials and manufacturing:  
50% of the total emissions
- **Collection and distribution:**  
**43% of the total emissions**



# Critical issues

- No rules on which type of vehicles to carry out operational services (collecting, charging and distributing)
- No specific stations to stop electric scooters



# Research question

# Research questions

- Users are willing to use e-scooters/bikes whose logistics is performed by green vehicles (i.e., cargo-bikes or electric vehicles)
- Users are willing to improve the logistics operations of e-scooters/bikes by stopping at a predefined central station and under which conditions



# Methodology





# Survey and model

- 200 participants
- 20 interviewer
- May 2022
- Rome (free floating, several operators, ongoing regulation)
- Questionnaire in 3 parts:
  - Demographics
  - Sharing habits
  - Core questions
- Discrete choice experiment

# Core Questions

- Are users interested in more sustainable sharing logistics (cargo bikes/electric trucks)?
- Are users willing to return the vehicle to a location other than their final destination? (Specific stations)
- Is this possible and how much can the per-minute rate reduction be to compensate for the detour?
- Is it possible and how much can a bonus on the release of the medium correspond to compensate for the detour of users?

# Attribute levels\_\_13 blocks, 3 questions each

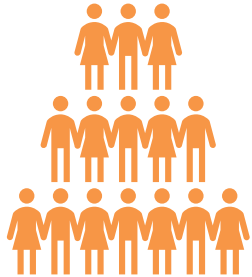
Attributi	Livelli
Prezzo (€/min)	0.20, 0.25, 0.30
Distanza della stazione di consegna (metri)	0-99,100-200,200-300
Bonus (numero di sblocchi gratuiti, 1 sblocco= 1€)	0,1,2
Riposizionamento batterie (mezzo utilizzato)	furgone diesel, furgone elettrico, cargo bike

# Choice experiment example

Domanda 1		
Caratteristiche	Alternativa A	Alternativa B
Prezzo (€/min)	0,20 €	0,30 €
Distanza della stazione di consegna (metri)	100-199 m	0-99 m
Bonus (numero di sblocchi gratuiti, 1 sblocco= 1€)	0	1
Riposizionamento batterie (mezzo utilizzato)	furgone elettrico	furgone diesel

# Characteristics Of The Sample

## Age



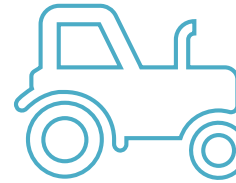
80% 18-29 years

## Gender



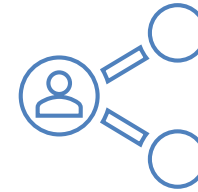
Male 55%

## Most used vehicle



1. 51% car
2. 20% tram/bus/train
3. 8% walking

## Most used sharing vehicle



1. 56% none
2. 20% electric scooter
3. 14% bike



# Frequency of usage sharing services

Not usual: 70%



Not often: 17%



Usual: 17%



# Average travel time



35 minutes

# Results





# Econometric results

Variables	Coefficients	Std. Error	Pr(> z )
Intercept	0.062	0.046	0.176
Price( €/min)	-5.740	1.484	0.000***
Average detour 100/200 metres	-0.065	0.142	0.645
Average detour 200/300 metres	-0.457	0.135	0.000***
Bonus free unlock	0.319	0.073	0.000***
Batteries logistics (electric van)	0.937	0.167	0.000***
Batteries logistics (cargo bike)	0.833	0.140	0.000***
<b>McFadden R<sup>2</sup></b>	<b>0.104</b>		

# Partworth utilities analysis

Logistics (collection and distribution) has an average weight of 36% in users' choice of the service offered



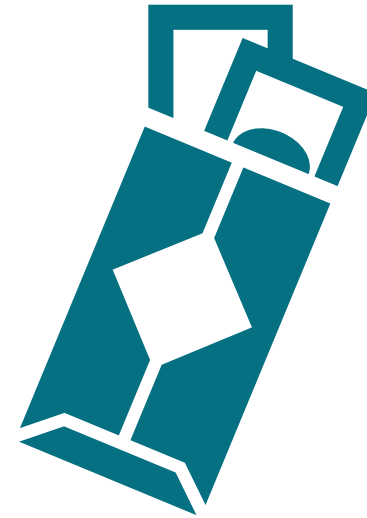
# Fees

At a discount of 0.08€ per minute, users are willing to take a detour of 100-300 meters to reposition the vehicle



# Bonus

With a bonus of 1.5 free unlocks, users are willing to take a detour of 100-300 meters to reposition the vehicle



# Conclusions



# Users' interests

- Perceived economic benefit
- Environmental care



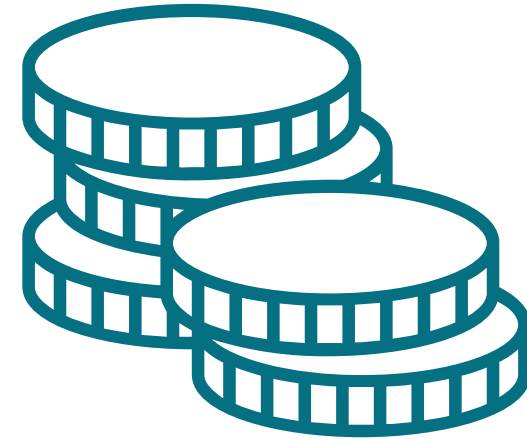
# Expected results

Modifying user behavior through:

- Pricing benefits
- Promoting green actions

To reach:

- Economic benefit for businesses
- Lower environmental impact



# Considerations and next steps



# In-depth analysis

Understand user preferences by performing targeted analysis for specific targets



# Supply and Demand Balancing

Establish the link between:

- Users' detour
- Price change
- Logistics cost



# Environmental impact

Analysis of the environmental impact of the sharing sector



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Thank you for  
your attention!  
Questions?