

Newcastle
University

5th webinar: Communication strategy – How to reach identify end users?

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OVERVIEW

Part 1

- Definition of an 'eHUB'
- Identifying potential target groups

Part 2

- Comparing actual and intended use of shared (electric) vehicles



PART I - DEFINITION OF AN eHUB

A mobility hub with at least two different shared electric vehicle types (e.g., any combination of shared electric bikes, cargobikes, cars, and/or scooters)





PART I

Identifying potential
eHUB user groups
via cluster analysis

WHO DO WE WANT TO USE SHARED MOBILITY HUBS?



Everyone,
but especially
frequent car users

But who does
actually want to
use eHUBS?

PART I – NON-USER QUESTIONNAIRE (N = 2493)

- **What?** → Attitudes, Demographics, General travel behaviour
- **Who?** → Survey of the general population across 7 European cities
- **Why?** → Identify likely target groups, estimate mode shift and emissions
- **When?** → Before implementation of the mobility hubs (March 2020)
- **How?** → Survey administered online and distributed via cities/polling agencies



IDENTIFYING POTENTIAL eHUB USER SEGMENTS

Method

- Measure attitudes towards the **environment**, **shared mobility**, and **car use**, using 20 Likert-scale items
- Factor-analyse items to derive common factors and use these factors to cluster
- Compare clusters based on demographic information and other variables of interest

Step 1 - Categorical Principal Component Analysis (CATPCA)



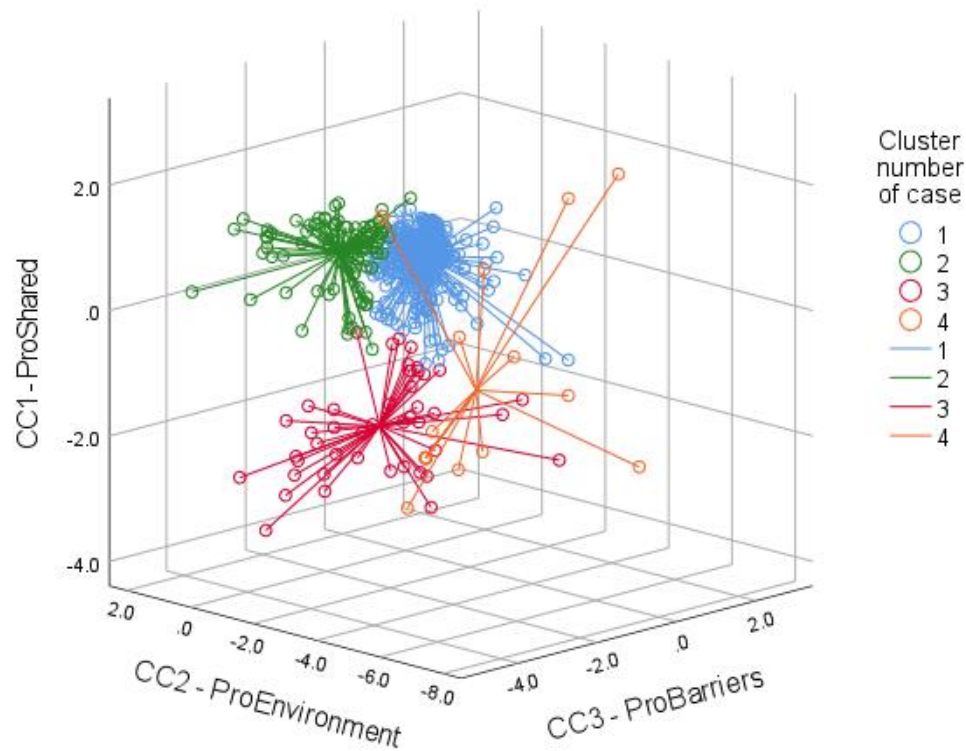
Step 2 - Cluster analysis



Step 3 - Comparison of clusters

IDENTIFYING POTENTIAL eHUB USER SEGMENTS (N = 505)

3d scatterplot of clusters



Final cluster centres

	1	2	3	4	Total
Component means / standard deviations					
Positive attitude towards shared mobility	0.2 / 0.4	0.5 / 0.6	-2.5 / 0.7	-1.0 / 1.7	0 / 1
Pro-environmental attitude	-0.0 / 0.5	0.5 / 0.5	0.8 / 0.9	-4.2 / 1.0	0 / 1
Barriers towards shared mobility use	0.5 / 0.4	-1.3 / 0.9	-0.0 / 1.2	-1.6 / 1.6	0 / 1
Number of respondents (N)	346	97	44	18	505
% of sample	69%	19%	9%	3%	100%

CLUSTERS 1 (N = 346) AND 2 (N = 97)

- Both score **positive** on pro-shared mobility attitude
- C2 also scores **positive** on pro-environmental attitude
- Age between 18 to 44 years (C1: 65%, C2: 57%) / Children in household (C1: 57%)
- Highest car ownership (C1: 73%) / Highest proportion of frequent cyclists (C2: 57%)
- Greatest intention to use shared electric vehicles (especially C2: Int e-car = 69/100)

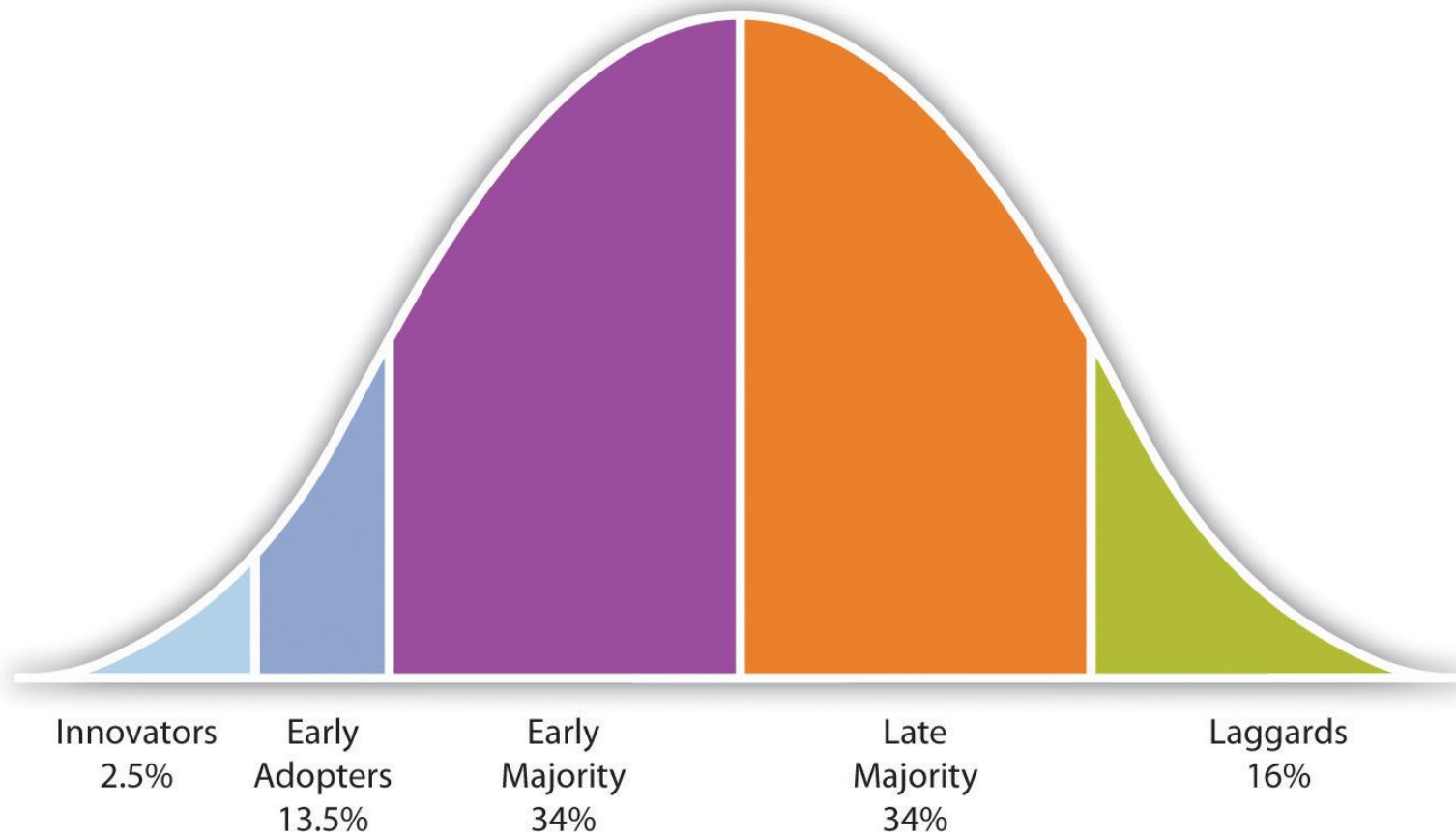
C1 - Car-dependent family C2 - Multimodal Maas-ready

CLUSTERS 3 (N = 44) AND 4 (N = 18)

- Both score **negative** on pro-shared mobility attitude
- 73% of respondents in C3 are 45 or older (61% in C4)
- 83% of respondents in C4 have no children in household (68% in C3)
- 48% of respondents in C3 and 44% in C4 are not working / employed
- Lowest intention to use shared vehicles **BUT** C3 also most satisfied, while C4 least

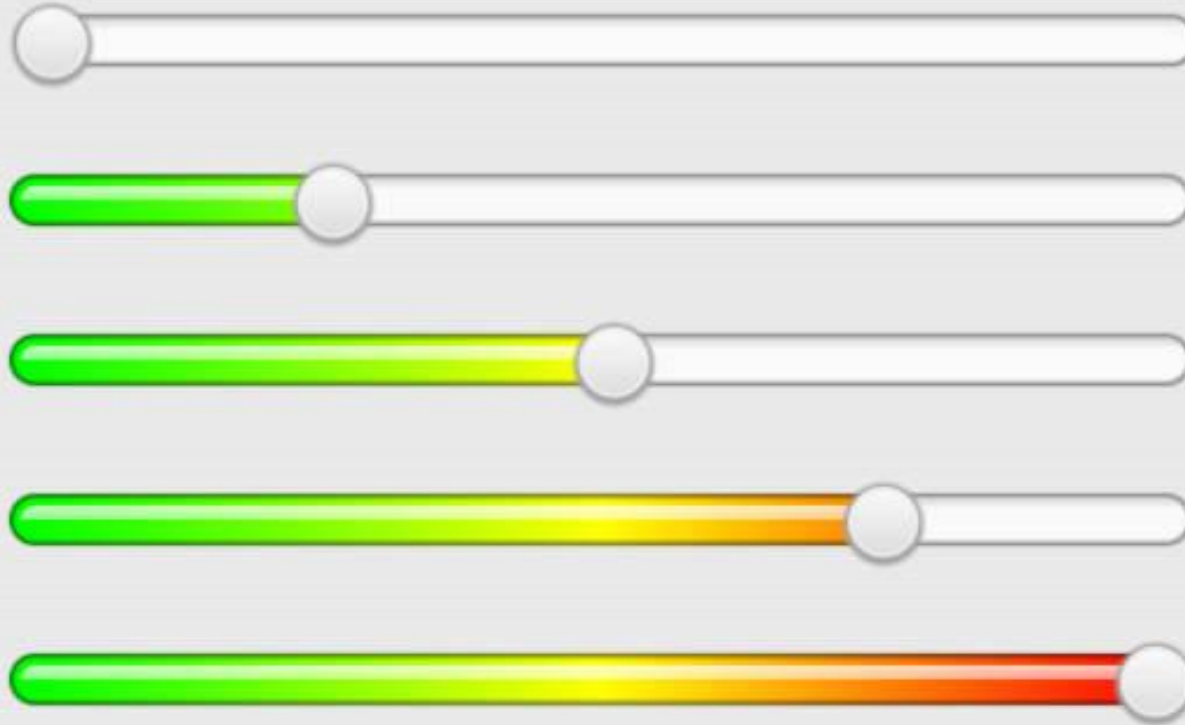
C3 - Anti-Maas individuals

C4 - Cautious Captives



CLUSTERS ACCORDING TO DIFFUSION OF INNOVATION THEORY

0 – Extremely unlikely



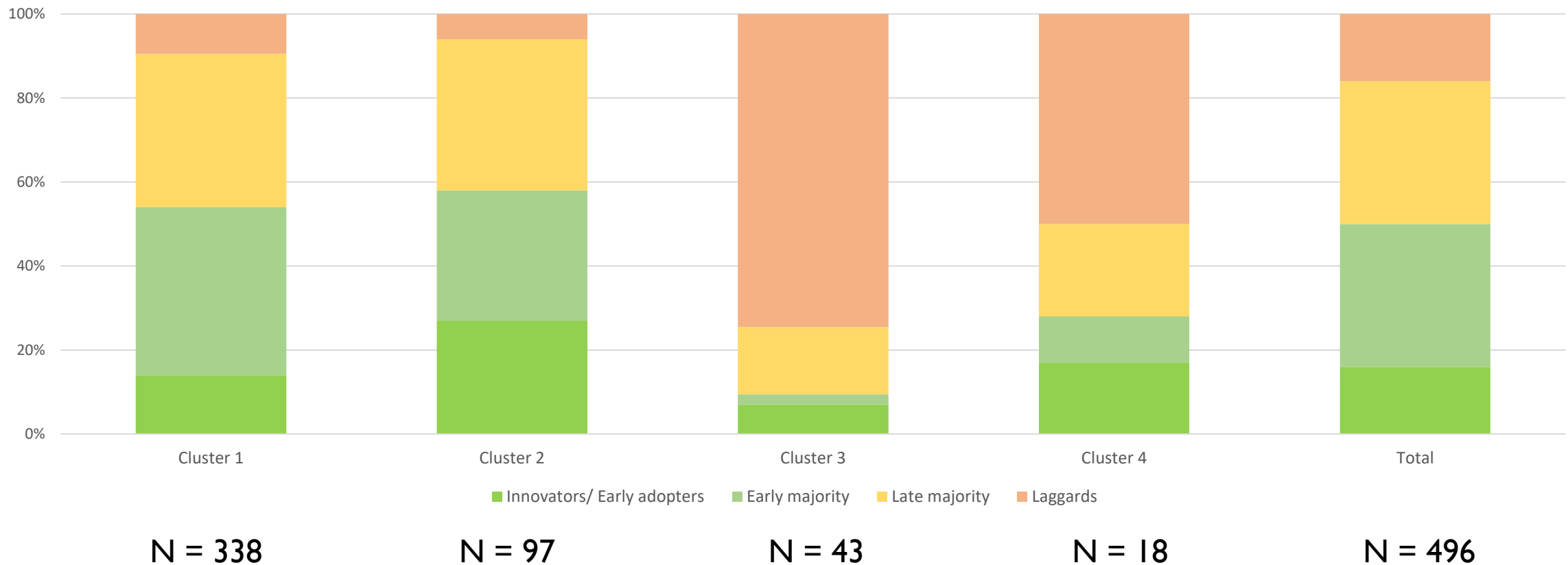
100 – Extremely likely

INTENTION TO
USE SHARED
ELECTRIC
VEHICLES

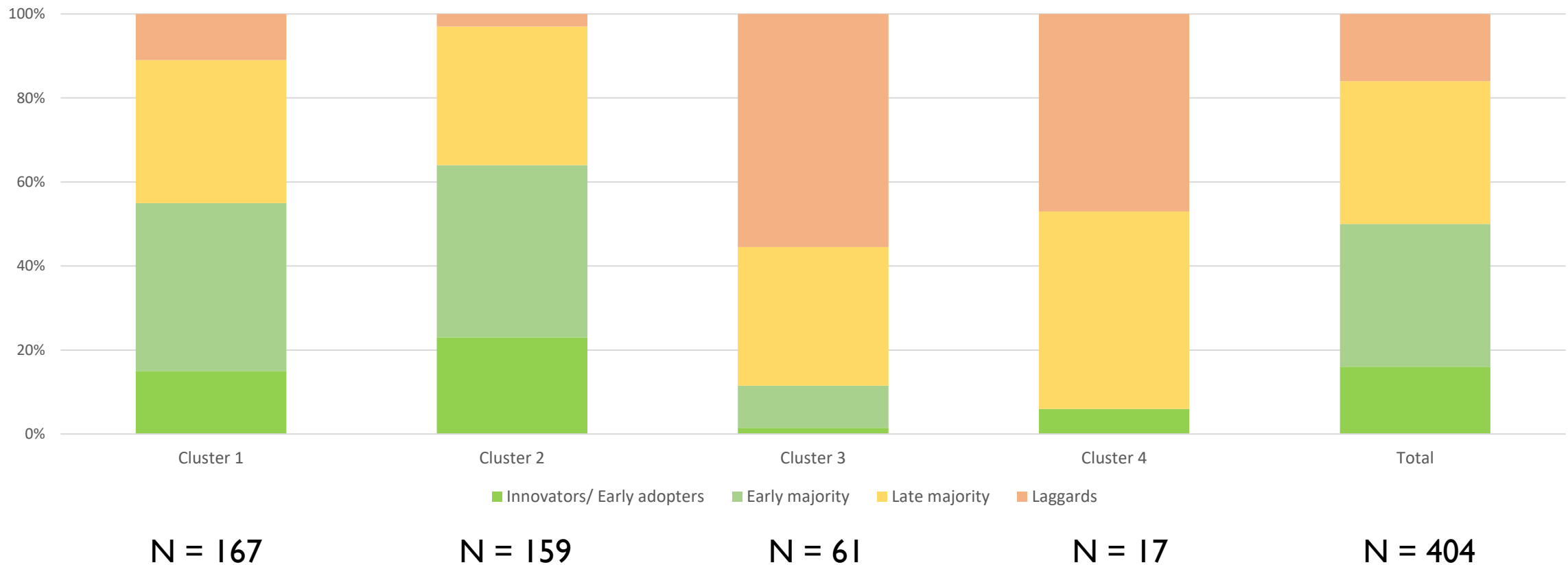
ASSIGNING RESPONDENTS TO DOI CATEGORIES

e-bike Intention	e-car Intention	Total Score	Cluster	DOI Category
100	100	200	1	Innovators and early adopters (top 16%)
...	
83	86	169	2	
86	82	168	2	Early majority (next 34% of scores)
...	
67	53	120	1	
30	90	120	1	Late majority (next 34% of scores)
...	
18	30	48	2	
31	15	46	1	Laggards (bottom 16%)
...	
0	0	0	3	

CLUSTERS ACCORDING TO DOI ADOPTER CATEGORIES (AMS)



CLUSTERS ACCORDING TO DOI ADOPTER CATEGORIES (MAN)

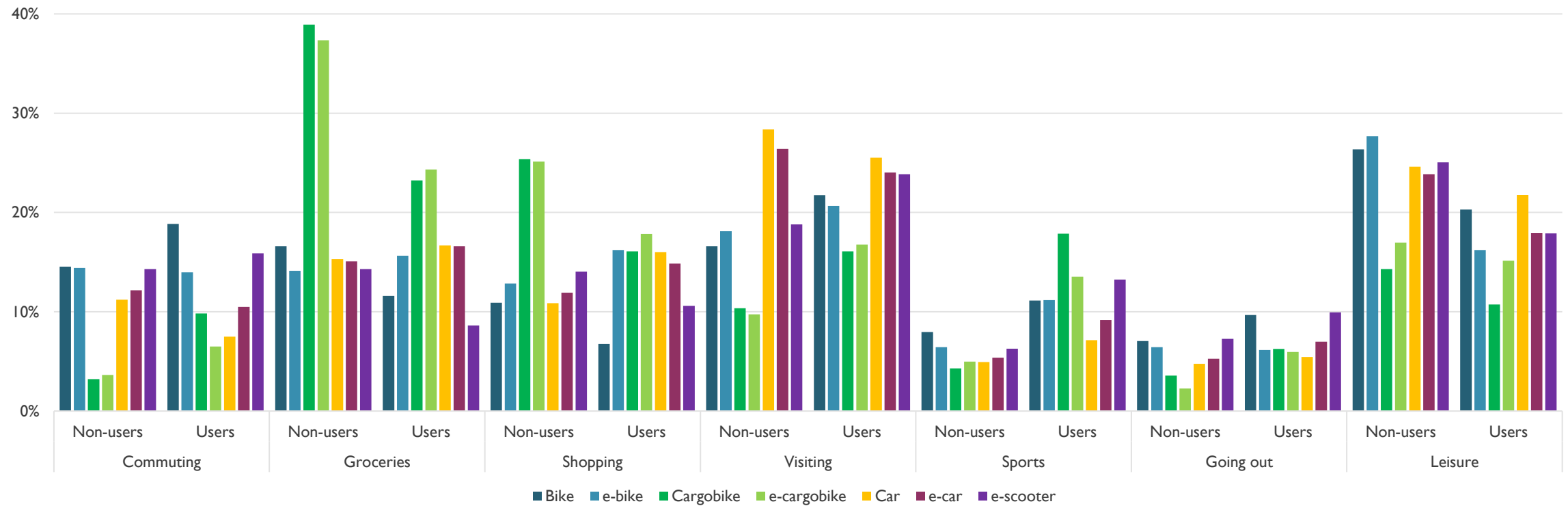


PART 2 – SHARED MOBILITY USER QUESTIONNAIRE (N = 980)

- **What?** → Attitudes, Demographics, Shared mobility intentions / use
- **Who?** → Shared mobility users (N = 247) and non-users (N = 733)
- **Why?** → Explore attitudes, estimate mode shift and emission savings
- **When?** → After implementation of the mobility hubs (Sep 2021- Jan 2022)
- **How?** → Survey administered online and distributed via cities/polling agencies



ACTUAL AND INTENDED USE OF SHARED (ELECTRIC) VEHICLES



LAST TRIP MODE SUBSTITUTION BY SHARED MOBILITY USERS

Substituted mode	Shared car	Shared bike	Shared cargo-bike	Shared e-car	Shared e-bike	Shared e-cargo-bike	Shared e-scooter	Total
Walking	1 1%	8 16%	1 5%	1 3%	4 13%	2 11%	1 7%	18 7%
Cycling	12 17%	12 24%	5 25%	2 5%	11 35%	4 21%	2 13%	48 19%
Motorbike	1 1%	1 2%	1 5%	1 3%	0 0%	0 0%	0 0%	4 2%
Private car	14 19%	6 12%	4 20%	14 36%	6 19%	11 58%	3 20%	58 23%
Carpooling/lift	5 7%	4 8%	3 15%	2 5%	2 6%	0 0%	1 7%	17 7%
Public transport	25 35%	15 29%	2 10%	12 31%	5 16%	1 5%	7 47%	67 27%
Ride hailing (e.g., Uber, taxi)	3 4%	1 2%	0 0%	0 0%	0 0%	0 0%	0 0%	4 2%
I would not have made the trip	11 15%	4 8%	4 20%	7 18%	3 10%	1 5%	1 7%	31 13%
Total	72	51	20	39	31	19	15	247

SUMMARY AND CONCLUSIONS

- **Maas-ready individuals** do not need convincing shared mobility hubs
- **Car-dependent families** are the primary target group if car use reduction is targeted
- Some **older people with fewer transport options** may benefit from shared options
- **Actual and intended use** of shared vehicles is **very similar** for most shared modes
- Shared vehicles are **just as likely** to replace PT & Cycling as private car use

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In this article

Abstract

1. Introduction

2. Method

3. Results

4. Discussion

Abstract

Shared electric mobility hubs, or eHUBs, offer users access to a range of shared electric vehicles on demand. However, little is currently known about what the characteristics of potential users of this novel type of shared mobility are. This makes it difficult to plan the location of hubs and to provide facilities, which ultimately will determine their success. This paper therefore seeks to identify potential users based on an in-depth case study of a representative sample of the Municipality of Amsterdam population. The analysis employed an attitudinal market segmentation approach supported by the Theory of Diffusion of Innovations (DOI). The analysis identified four specific target groups, each with a

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THANK YOU!

QUESTIONS?

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