

SmartHubs Equity Assessment

BARRIERS AND INTENTION TO USE MOBILITY HUBS OF
VULNERABLE-TO-EXCLUSION GROUPS



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INTRODUCTION

Smart mobility hubs have the potential to be gamechangers in urban mobility and accessibility for all citizens, but only when the modes and services are adapted to the needs of all groups¹. During the development of smart mobility hubs, it is therefore important to be aware of the barriers and preferences of different vulnerable-to-exclusion (V2E) groups. These vulnerabilities are potentially determined by a range of socio-demographic, economic, geographical or cultural factors. As found in earlier research, especially these vulnerable users encounter specific barriers when using transport services². However, it is not particularly clear if these vulnerable-to-exclusion groups are willing to travel using shared modes at mobility hubs, and which specific barriers they face. Assessing these barriers and the acceptance of mobility hubs is important to be able to determine if and how mobility hubs can be a gamechanger for all.

The goal of the **SmartHubs Equity Assessment** is to *examine the barriers of vulnerable-to-exclusion groups to access and use shared mobility modes and preferences for facilities potentially available at mobility hubs*. To do so, six V2E-groups are determined based on earlier work of the SmartHubs project³, namely: females, people with low digital mobility skills, low-income citizens, migrants, older people and mobility impaired citizens.

METHODOLOGY

The results presented in the SmartHubs Equity Assessment are primarily based on the large scale SmartHubs survey. The overall goal of this survey was to get more understanding of the current and potential use of mobility hubs, and the importance of physical and digital integration elements in hub design strategies. The survey consists of multiple parts, starting with questions on the *individual* characteristics of the respondents, e.g., residence area, socio-demographics, and digital mobility skills, followed by a section on *mobility characteristics* (e.g., travel behaviour) and *mobility hubs*⁴.

The survey was distributed – using online panels, social media, and face-to-face assisted surveys – in the four living labs of the SmartHubs project: the metropolitan region of Rotterdam-The Hague, Brussels, Vienna and Lower Austria, and Munich. After data cleaning, a total of 2515 valid respondents have been collected. Additionally to the survey, the interviews performed with V2E-groups in SmartHubs Deliverable 3.2³ are used to underline and validate the results of the survey.

FINDINGS

From the analysis of the travel behaviour of the six V2E-groups, it can be concluded that their **travel behaviour** is, in most cases, significantly different from their non-vulnerable counterparts. For instance, low-income citizens have a lower use of the car and are more frequent users of public transportation, older people show higher infrequent use of public transportation, and citizens with mobility impairments are less likely to use a car or bike. Citizens with low digital mobility skills – who do not use a mobile phone with internet connection to plan their trips – are less frequent travellers in general. Their lack of digital mobility skills, which are needed to use shared modes at mobility hubs, is

¹ e.g. Lucas, K. (2012). Transport and social exclusion: Where are we now? *Transport Policy*, 20, 105-113. <https://doi.org/10.1016/j.tranpol.2012.01.013>

² e.g., De Paepe, L., Van Acker, V., & Witlox, F. (2023). To share or not to share, by whom is the question. Acceptability and acceptance of shared transport services by vulnerable groups. *Transport Reviews*, 43(5), 935-969. <https://doi.org/10.1080/01441647.2023.2185314>

³ Martinez, L., Pappers, J., & Keserü, I. (2022). *SmartHubs Deliverable D3.2. Needs of users and digitally excluded citizens*. https://www.smartmobilityhubs.eu/files/ugd/c54b12_e1c66f737c2a46ef85f64edb5f60f8d1.pdf

⁴ A full description of the methodology and setup of the SmartHubs survey can be found in SmartHubs Deliverable D5.1.

partially correlated with a higher age, lower levels of education, not owning a driver's license and being currently unemployed or retired.

All socio-demographics that determine the V2E-groups are significantly related to the **current use** of shared modes⁵. Especially older people and low digitally skilled have a low use of shared vehicles, e.g., 6% and 17% of them have used a shared bike, respectively, compared to 24% of the full sample. Mobility impaired citizens also have a lower use, but are generally more interested in powered shared vehicles such as the shared moped. When focussing on mobility hubs in general, it is found that travelling via a hub is correlated with V2E factors such as age, income, digital mobility skills, gender and educational level, but also with the current use of public transport, which has a positive effect.

V2E-groups face specific **barriers** when it comes to using shared modes and mobility hubs. The barriers of the V2E-groups for the shared modes are more diverse compared to the general public: low digitally skilled people have a higher share of not feeling safe or not having the knowledge on how to use the services, while older people prefer using their own vehicle. Additional barriers on the use of mobility and non-mobility services at hubs³, are primarily related to three main topics: safety & security, economic resources and lack of information, knowledge and skills.

Taking the barriers and lower current use into account for older people, citizens with low digital mobility skills or mobility impairments, it should be no surprise that these groups have a relatively low **intention to use** shared modes at mobility hubs, while (especially student-) migrants are relative early adopters of these modes. Also low-income citizens who are non-students have a relatively lower intention to use shared modes. Amongst the most popular modes are the shared e-bike and car, but still only 14% of low digitally skilled is positive on using the former (compared to 22% of the full sample). Experience with using shared vehicles, a higher frequency of using public transport and digital mobility skills are important predictors of the intention to use shared mobility hubs, emphasizing the importance of certain capabilities (e.g. digital & physical skills) in the acceptance of mobility hubs.

CONCLUSIONS

A selection of V2E-groups has a significant different (intention to) use (of) shared modes and mobility hubs. Older people, people with lower digital mobility skills and mobility impaired persons “stay behind” in the adaptation and acceptance of mobility hubs, potentially causing an equity issue in urban mobility when their specific barriers are not addressed. These barriers can be summarised into three main categories: safety & security, economic resources and knowledge & skills. However, it should be noted that the current use of shared vehicles for these particular groups is already significant lower, emphasising the need for additional mobility options alongside shared modes at mobility hubs.

POLICY IMPLICATIONS

- ▶ Within the implementation of mobility hubs, focus is needed on the inclusivity of the hubs for V2E-groups, to address the barriers and needs of those groups. It is therefore important to determine the local target group of the hub. In addition, the creation of inclusive mobility hubs will likely have implications for the cost of mobility hub developments, raising questions on the governance and business model of the services provided at the hubs.
- ▶ Digital mobility skills are found as an important predictor of using shared modes at mobility hubs. Additional training and guidance (e.g., provided by the municipality) could therefore increase the uptake of these modes. However, analogue planning and booking options should not be forgotten.

⁵ Current use and intention to use is higher for low-income and migrant groups, partially caused by the large share of students in the survey sample. More on this can be found in the full deliverable D5.3, Section 6.1.3.

COLOPHON

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WEBSITE

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FULL DELIVERABLE:

This text summarizes the most important findings of the SmartHubs Equity Assessment.

For the full deliverable D5.3, please refer to:

Garritsen, K.É., Grigolon, A.B., Geurs, K.T., 2024. SmartHubs Equity Assessment. SmartHubs Deliverable D5.3. Available at:

https://www.smartmobilityhubs.eu/files/uqdc54b12_ad08aedca18246e0be9f7f0d65cbf6f8.pdf



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