

Integration of shared mobility hubs and public transport



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INTRODUCTION

Shared mobility hubs can become game-changers in urban mobility and accessibility if the modes and services are adapted to the needs of all groups. Shared mobility hubs are defined as “physical locations where different shared transport options are offered at a dedicated, non-temporary and recognisable location, and public transport is available within walking distance” (Geurs et. al., 2024, p.7).

A typology, named the “SmartHubs Integration Ladder” Geurs et. al., (2024)¹, can be used to categorise shared mobility hubs and is based on three integration dimensions: physical, digital and democratic. The physical dimension describes integrating mobility and non-mobility services in the public space. In addition, the digital dimension describes the effort of integrating information from different mobility providers into one digital platform (i.e., a Mobility-as-a-Service, MaaS app) for planning, booking, and/or paying public transport and/or shared mobility trips. The third dimension is democratic integration based on principles of participatory governance, encompassing integration of citizens in the development of hubs to create more inclusive hubs catering for the needs of a wide variety of different users.

However, it is not clear which hub elements (being them mobility-related or not directly) improve the physical and digital integration at mobility hubs, and for which elements users and non-users of mobility hubs are willing to pay. In addition, it is not yet clear how shared mobility hubs could be better integrated with existing transport networks. The goal of Deliverable 5.5 is to assess the relative importance of different shared mobility hub design elements.

METHODOLOGY

A large-scale survey (N=2515) was conducted among citizens of four living lab areas of the SmartHubs project: Metropolitan region Rotterdam-The Hague, in the Netherlands (MRDH), Eastern Austria (Austria), Brussels (Belgium), and Munich (Germany). Based on the responses of a stated preference experiment, we derived respondents’ willingness-to-pay (WTP) from a discrete choice model including different mobility hub elements and compared WTP across different respondent profiles.

A stated choice experiment was developed, with two alternatives of mobility hubs and an opt-out alternative, which indicates neither of the two mobility hubs was preferred by the respondent. Five attributes were considered, being three on the physical component (as this is the most obvious component from a hub design point of view), one digital component and one cost component:

1. **Walking distance** between the public transport sport and shared modes,
2. **Information** (the presence of), such as signage for different modes and/or a digital board
3. **Placemaking** strategies, which focused on different services (e.g., café, package locker, information kiosk) or landscaping elements (e.g., trees, benches, art).
4. **Digital integration**, which relates to the level of integration between the mobile applications of different mobility providers.
5. **Monthly cost additional to municipal taxes** was added to the experiment to allow for the derivation of willingness to pay.

¹ Geurs, K., Grigolon, A., Münzel, K., Gkiotsalitis, K., Duran-Rodas, D., Büttner, B., Kirchberger, C., Pappers, J., Ramirez, L. M., Graf, A., Hansel, J., Gkrava, R. & Klementschtz, R. (2024). The Smarthubs integration ladder: a conceptual model for the categorisation of shared mobility hubs, *Transport Reviews*, 44(1), 112-139.

FINDINGS

Respondents in all sub-samples are willing to pay the most for walking distance and the least for digital integration and information. As discussed previously, the MRDH sample contains the largest share of older persons, and these are less willing to pay for all attributes when compared to the other groups. The Brussels sample has the highest willingness to pay for all attributes, except for digital integration, which may be due to the higher share of low digital mobility skilled respondents in this sample (Figure 1).

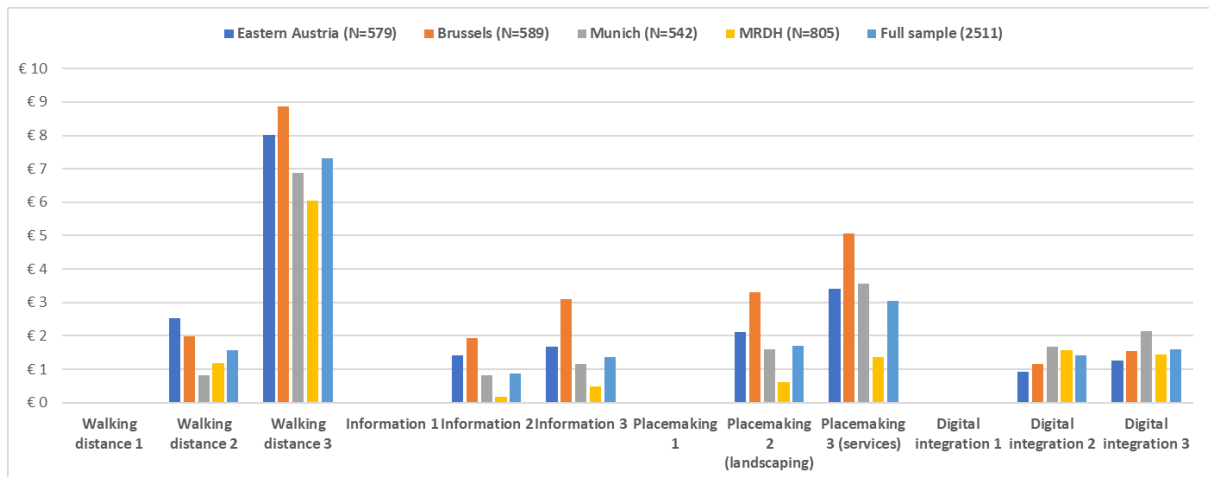


Figure 1: WTP for hub design elements by different living lab locations

When a cost trade-off is not considered, which was measured with a Likert-scale question on the importance of hub elements, results indicate that respondents of the full sample consider the presence of information and digital integration as the two most important shared mobility hub elements. However, the differences are not large enough between the first and fifth-ranked elements. This means that without a cost trade-off, all elements are considered almost equally important. However, when there is a cost trade-off, i.e., with the addition of the cost attribute in the stated preference experiment, respondents of the full sample are willing to pay the most for a shared mobility hub with different shared modes provided within walking distance to a public transport stop. The differences in WTP are much larger than compared with the Likert-scale question (Figure 1).

The results for information and walking distance are reversed when comparing both analyses. The same holds for digital integration, which is the second most important element without considering a cost trade-off, while when there is a trade-off, respondents are not willing to pay for such a feature. Placemaking strategies are ranked in middle positions, indicating that these are “good to have” but not “need to have” elements of shared mobility hubs.

CONCLUSIONS

The results underscore a disparity between the attributes most valued by respondents and their WTP, which holds significance in the planning and functioning of mobility hubs. Although elements such as information and digital integration were considered prerequisites for a successful shared mobility hub, respondents are not willing to pay for it, indicating that these would have to be arranged by the government and/or transport operators. Respondents are more willing to pay for shared mobility and public transport within walking distance from one another or for placemaking strategies (such as services or landscaping), which are more evident elements related to the physical integration (and design) of hubs.

POLICY IMPLICATIONS

- ▶ Focus on physical integration of transport modes at shared mobility hubs.
Our findings highlight the importance of integrating shared mobility as a first/last mile in combination with public transport systems, which is classified as Level 1 in the integration ladder.
- ▶ Willingness to pay for SmartHubs is low.
Based on the Integration Ladder, SmartHubs score Level 2 in all integration dimensions. Even though the presence of information increases the visibility of hubs, and MaaS is seen as an enabler of digital integration of multimodal transport offered at the hub contributing to the smartness of a hub, the WTP assessment indicates that respondents are less willing to pay for higher levels of integration. Placemaking strategies are on Level 3 of the Integration Ladder (physical integration), contributing to the attractiveness of the hub. However, its importance should not be overestimated based on the results of our study.

COLOPHON

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Version 0.4

WEBSITE

www.smartmobilityhubs.eu

FULL DELIVERABLE:

This text describes the SmartHubs Deliverable D5.5 on the integration of shared mobility hubs and public transport. For the full deliverable D5.5, please refer to:

Grigolon, A.B., Garritsen, K.É., Geurs, K.T., 2024. Integration between shared mobility hubs and public transport. SmartHubs Deliverable 5.5. Available at:

https://www.smartmobilityhubs.eu/files/ugd/c54b12_ba8bd2f2ff114ed0b43416d7560bd8c0.pdf



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