Building Transportation for Older adults: The importance of Inclusive and Participatory Design

This policy brief sheds light on the importance of having universal designs in transportation sector. Involving everyone from early stages of design and not leave anyone behind.

Importance of Age-Friendly Transport:

The number of people over 65 years old will doubled by 2050 worldwide (United Nations, 2019). In response to this growth, the World Health Organization (WHO) put emphasis on the importance of supporting the active aging "optimizing opportunities for health, participation and security in order to enhance quality of life as people age" (World Health Organization, 2002). Good ageing is associated with both mental and physical well-being. To promote active ageing and to support governments around the world in making their communities more age-friendly, WHO launched Age-Friendly Cities Project (World Health Organization, 2007). Transportation is one of the eight domains of age-friendliness. Independent access to transportation is essential to participate in society and the inability to access transports is one of the most important factors leading to the social exclusion and isolation (e.g. Currie & Delbosc, 2010). Ageing-related health limitations (e.g. changes in vision, hearing, physical strength and cognition) and environmental barriers may limit older adults' possibilities for independent mobility or using active transport modes. Nevertheless, transport services and transport systems are rarely designed with older adults' needs in mind and co-design with older adults is almost non-existent. Furthermore, research has not taken the heterogeneity of older adults much into consideration (Greenhalgh et al., 2013).

Key messages:

Transportation infrastructure is typically designed for the "average" user, which typically means focusing on the physical capabilities and preferences of younger individuals. Often overlooking the unique needs of older adults.

Even when older adults are considered, their needs are often shaped by the opinions of others rather than their own voices. Unfortunately, these perspectives are sometimes influenced by stereotypes.

Furthermore, older adults are not viewed as a heterogeneous group, and many individuals within this diverse population are excluded from both research and design processes.

This policy brief is for everyone who is in transportation sectors, e.g. policymakers, stakeholders, business owners, researchers, and designers of transportation services for older adults.

The missing link in transportation

Analysing social media content posted by people in seven European cities revealed that people with limited abilities perceive the current public transportation services not flexible enough (König et al., 2021) or in a study done by Duboz et al. it was highlighted that the design of AVs and the supporting smartphone application is complex for some people (Duboz et al., 2025). But the difficulties

> **This policy brief has been written based on a literature review on older adults' needs in terms of transportation, available options and their acceptance toward using them.**

encountered by people with limited abilities with transportation are not limited to physical access and use of the transport itself but begin as soon as they leave their home (Park & Chowdhury, 2022). In the study by König et al., many individuals with access needs noted that most of the assisting services needed to be booked several days in advance or work only for specific hours during the day, and outside the specific hours, choices are limited, and the journey usually takes longer than expected. Furthermore, the barriers are not only physical. Social barriers are also equally important. Lack of perceived safety, rude behaviour of staff members and other passengers towards passengers with limited abilities which still occur, may prevent people from commuting freely. Social barriers are not always obvious and addressing them require open and accessible communication, training and changing staff attitudes, and modification of structures, and not all service providers are aware of these issues or either willing to implement them (König et al., 2021).

Role of assumptions, stereotypes and older adults, themselves, in design

While research has addressed older adults' acceptance of certain transportation services or the willingness to use them (Classen et al., 2021; Dudziak et al., 2021; Kadylak et al., 2021; Zeng et al., 2023), the perspective of older adults is rarely integrated into the process at the early stages of designing new services (Heinz & Kelly, 2015; Li et al., 2019; Marx et al., 2010). Especially when it comes to technology, older adults are often stereotypically described as a homogeneous group with cognitive decline, frailty and needs. These negative stereotypes often affect designers in the design process (Neven, 2010).
As a result, many of the services developed for the use of older adults focus on care and not empowering to them, or services that are based on what older adults want. Obtaining older adults' perspectives directly is very important, as older adults often have different perspectives than other stakeholders (Van Boekel et al., 2019).

> *"We usually think that older adults have negative opinion toward technology but when we were piloting our service (automated shuttle), and we couldn't accept passengers ..., because you know, we were just testing the car, but many older adults were waving at the shuttle asking to stop so they can test it." (Expert active in automated vehicle industry)*

> *"But actually, you will find, especially among older people, a number of people who do have different types of needs. So, if you do not try to meet most of them, if not all, some people will be outside anyway." (Accessibility expert cited in (Duboz et al., 2025))*

The Silent Voice: Missing Perspectives of People with Dementia in Transportation Research and Design

Despite the diversity among older adults, research has often overlooked their heterogeneity (Greenhalgh et al., 2013). People with dementia are often excluded from transportation research as researchers often struggle with concerns related to informed consent, reliability of responses, and the potential vulnerability of participants and in many cases, their exclusion is justified by strict participant criteria requiring individuals to be "fully competent," "reliable," or "without cognitive impairment" (Bayer, 2000). This approach significantly limits and complicate research on older adults with dementia. While these concerns are valid, they should not serve as justification for entirely excluding individuals with dementia from research. However, there are some research on people with dementia but it is often through the perspectives of caregivers or professionals (Van Boekel et al., 2019) or it is around driving fitness (Adler et al., 2005). Caregivers play an important role in supporting people with dementia, but their perspectives cannot fully substitute the voices of those experiencing dementia and there is evidence that valuable information can be obtained from people with dementia, emphasizing the importance of their inclusion in research (Devos et al., 2023). Furthermore, including people with dementia only in areas related to driving fitness and driving safety while there is not much research on their perspective of other modes of transport will result in their isolation as after driving cessation, there may not be any other means of transport for them. Not surprisingly, policies and interventions are not based on a deep understanding of how dementia affects mobility, decision-making, and interactions with transportation systems and without their direct input, there is a risk that solutions will be misaligned with their actual needs, leading to ineffective or even counterproductive outcomes. A shift towards more inclusive research practices is essential to ensure that the perspectives of individuals with dementia are not only acknowledged but actively integrated into the decision-making and designing process. By doing so, researchers can help create more effective, user-centered solutions that genuinely enhance the quality of life for those living with dementia.

Conclusions and next steps

Involving Users from the Start

Users (regardless of physical or mental abilities) should be actively involved in the designing process from the very beginning, having universal design in mind. This would ensure that everyone's requirements are considered. Furthermore, universal design can help achieving better designs without stereotypes associated with older adults, designing a service usable by a wider range of people, benefiting everyone.

Piloting and testing

Through piloting, developers can assess whether the features of the service work as intended and whether they meet the needs of users. Once a service is launched, it becomes much more challenging and costly to modify. Testing will ensure that features work effectively, give space for collecting feedback and provide time for further improvements.

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