Sustainable, Predictive and Self-organising E-Mobility Infrastructure and Ecosystems

Towards a User-Centric and Inclusive Technology for the Mobility Transition

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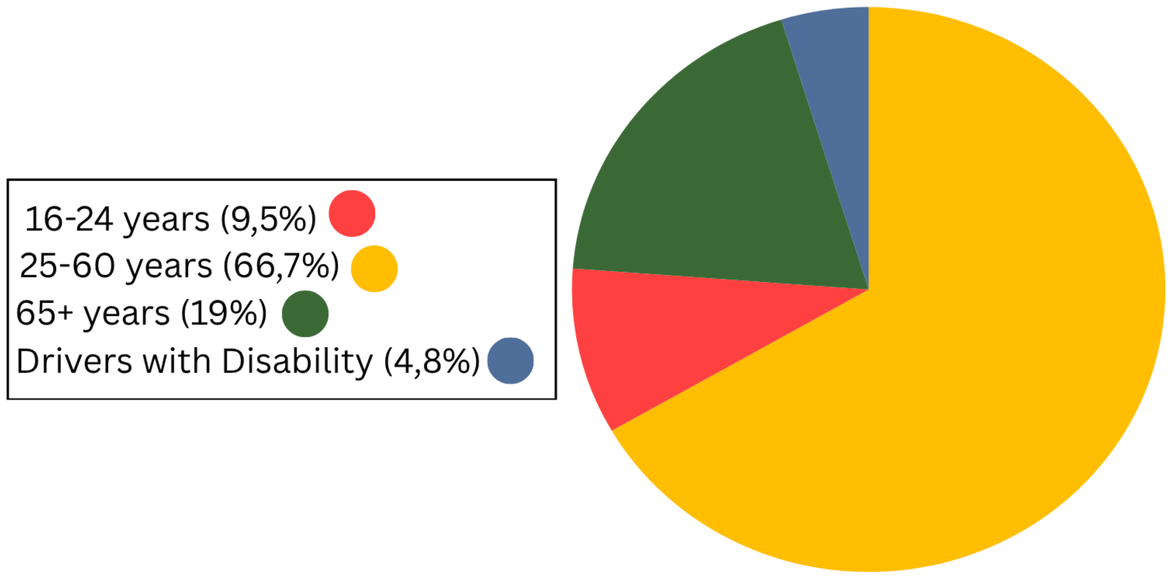
1. Objective

Our research within the Shared Charging project focuses on designing inclusive and user-friendly charging experiences. The main objectives are to identify real-world accessibility barriers, develop PERSONAs that represent diverse users, and derive design guidelines for ergonomic, barrier-free and intuitive charging systems. Through field studies and user observations across multiple charging sites, we aim to ensure that everyone – regardless of age, ability, or digital skills – can charge independently and comfortably.

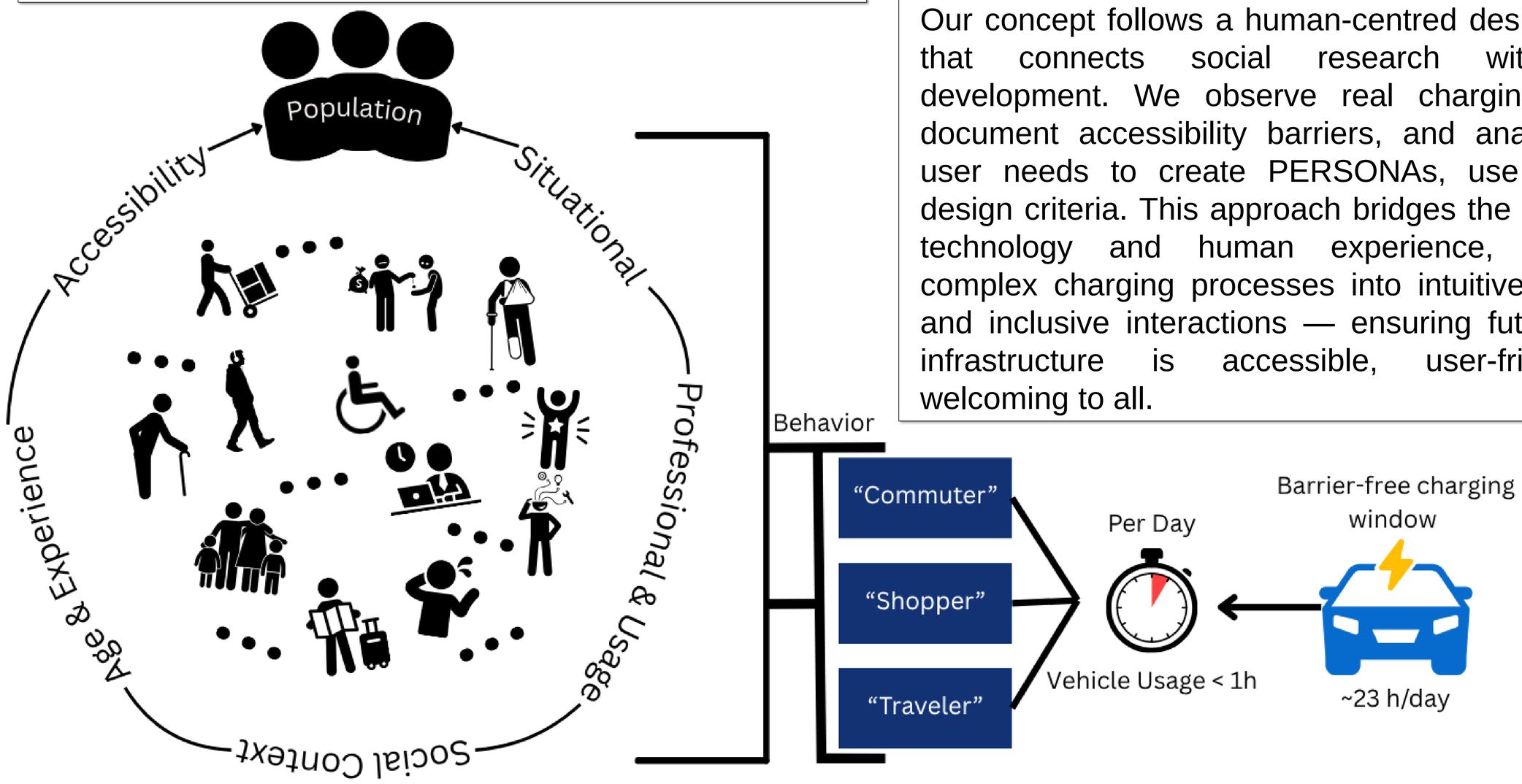
2. Background

As electric mobility grows across Europe, charging infrastructure is a key driver of this transition. Austria now has over 5.2 million passenger cars, including more than 230,000 fully electric vehicles, and 17.5 % of new cars in Europe are already electric — a number that continues to rise each year. Yet many charging systems still neglect accessibility and inclusion, creating barriers for older adults, people with disabilities, and families. Designing infrastructure that is intuitive, barrier-free, and user-friendly is therefore essential for a sustainable and socially just mobility future.



3. Concept

Our concept follows a human-centred design approach that connects social research with practical development. We observe real charging situations, document accessibility barriers, and analyse diverse user needs to create PERSONAs, use cases, and design criteria. This approach bridges the gap between technology and human experience, transforming complex charging processes into intuitive, ergonomic, and inclusive interactions — ensuring future charging infrastructure is accessible, user-friendly, and welcoming to all.



5. Next Steps

So far, we have conducted an extensive literature review and analysed more than 52 existing charging stations. From this, we identified key pain points as well as positive design aspects that shape the user experience. The next step is to translate these insights into guidelines for barrier-free charging infrastructure — ranging from ideal best-case scenarios to realistic, scalable solutions. These guidelines will serve as a foundation for future design concepts, prototypes, and validation phases within the project.

Dieses Projekt wird unterstützt durch das Programm „Zero Emission Mobility plus“ des Klima & Energiefonds aus dem Bundesministerium für Innovation, Mobilität und Infrastruktur.