PASSAge - *P*ersonalized Mobility, *A*ssistance and *S*ervice *S*ystems in an *Age*ing Society

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PASSAge
Personalisierte Mobilität, Assistenz und Service Systeme in einer alternden Gesellschaft

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1 Motivation

In order to ensure the self-determined mobility of elderly people, it is essential to create seamless mobility chains that can be used at any time. A broad variety of technical products and solutions already exist. However, isolated usage of single aids cannot create a seamless mobility chain. An integral approach is necessary that combines existing aids with information and communication services as well as with health services and mobility services. A special focus has to be on intermodality, i.e. changing between mobility devices has to be ensured. The project "PASSAge" addresses this fact and develops a system for ensuring seamless mobility chains, public transportation, and added value in society as a whole.

2 Intermodality, Mobility and AAL

The project PASSAge (Fig. 1) focuses on ensuring the mobility for elderly people by extending existing mobility means with user oriented components. Core of the project is to develop an interconnected flexible socio-technical infrastructure, where the individual elements do not compete but create synergy effects. An important goal of the approach is the development of business models, which allow for and ensure the allocation and coordination of mobility services. The PASSAge system's modularity shall allow for adapting the available components to the individual needs of the users. The modularity enables an inexpensive solution which can be smoothly extended in the future.

2.1 Mobility Means

The development focus is the combination of existing mobility means (Fig. 2), modularity and interconnectability between mobility means. The project PASSAge wants to exploit electric mobility for the elderly population in order to strengthen their individual mobility.

2.3 Information and Communication Technology

For promoting the activity of the users and creating synergy effect in the PASSAge mobility chains, the different means of mobility will be interconnected by integrating information and communication technology (ICT) into them [1]. That way, PASSAge users can not only access a broad range of means of mobility, but can also access online services.

2.4 Augmented Reality

Augmented reality (AR) is, in general, a view of the real-world environment augmented with virtual data. As a basic technology, AR can be used wherever 3-dimensional and/or additional information could be added. In order to allow individual shaping of one's life, the user needs support for accessing and comprehending the necessary information AR scenarios that will be examined by the PASSAge project team are intuitive AR supported instruction manuals, AR shopping lists, and an AR navigation system for the elderly users.
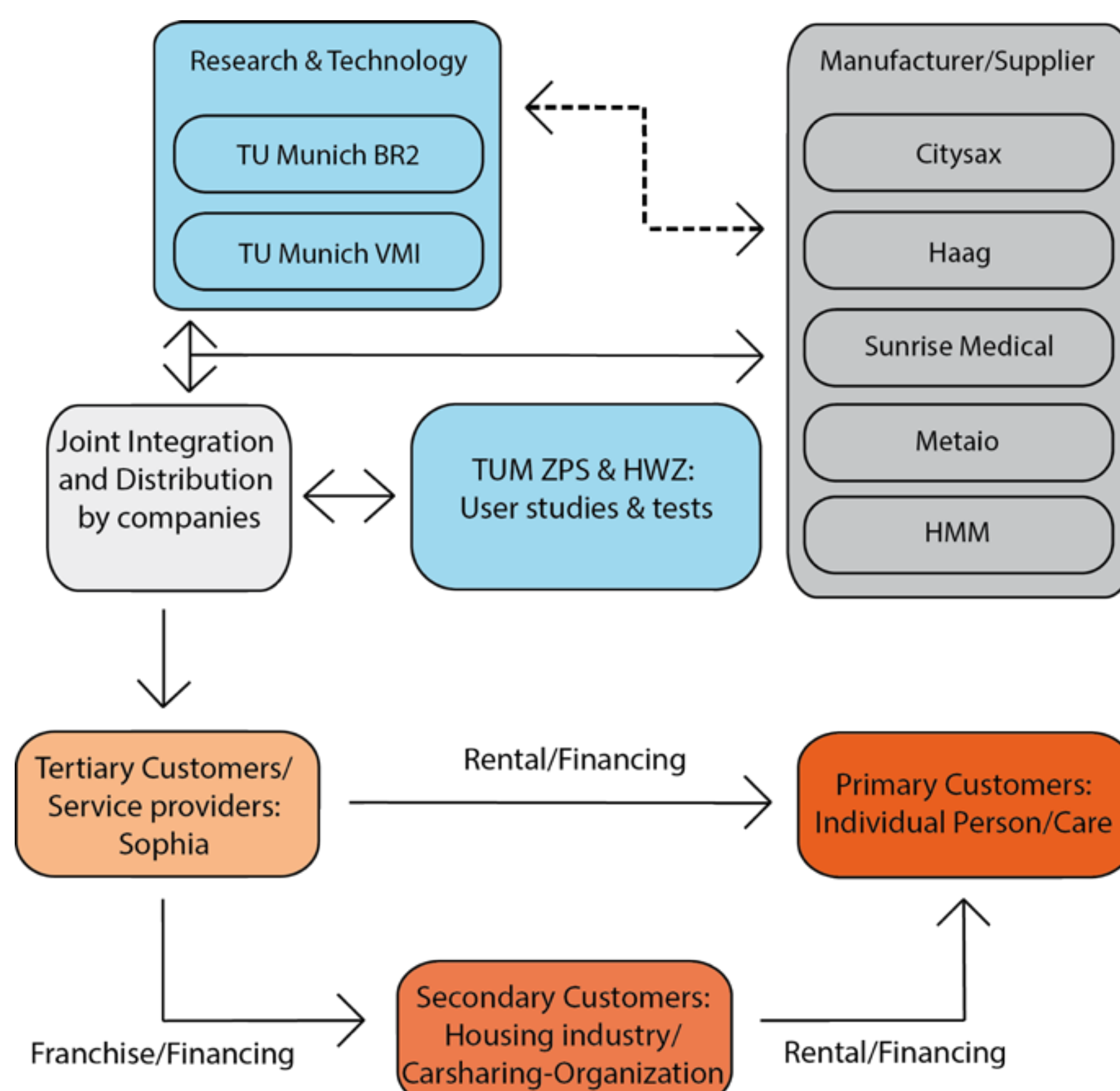

Fig. 1 The project partners cover the sectors research, development, production, deployment and service.
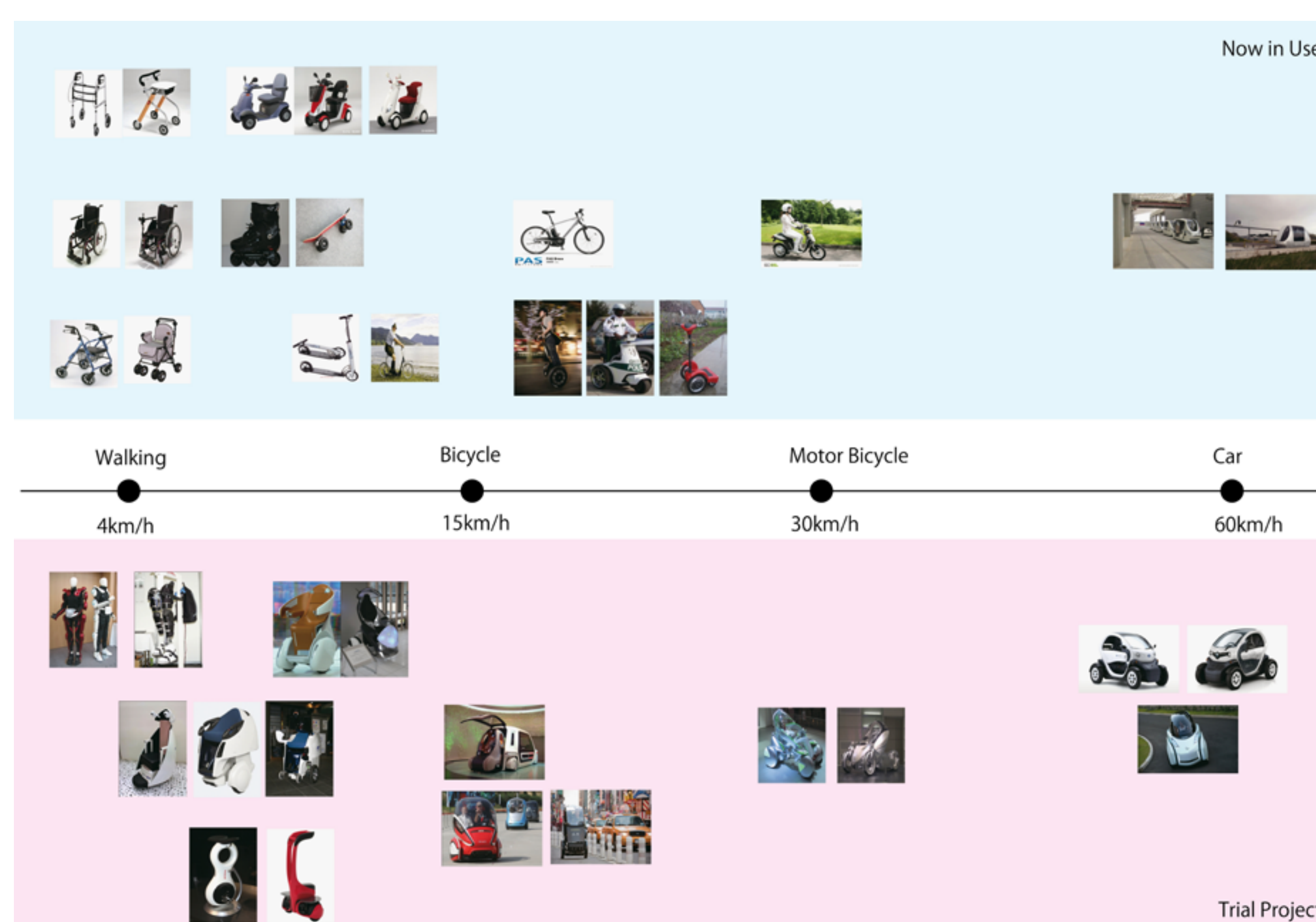

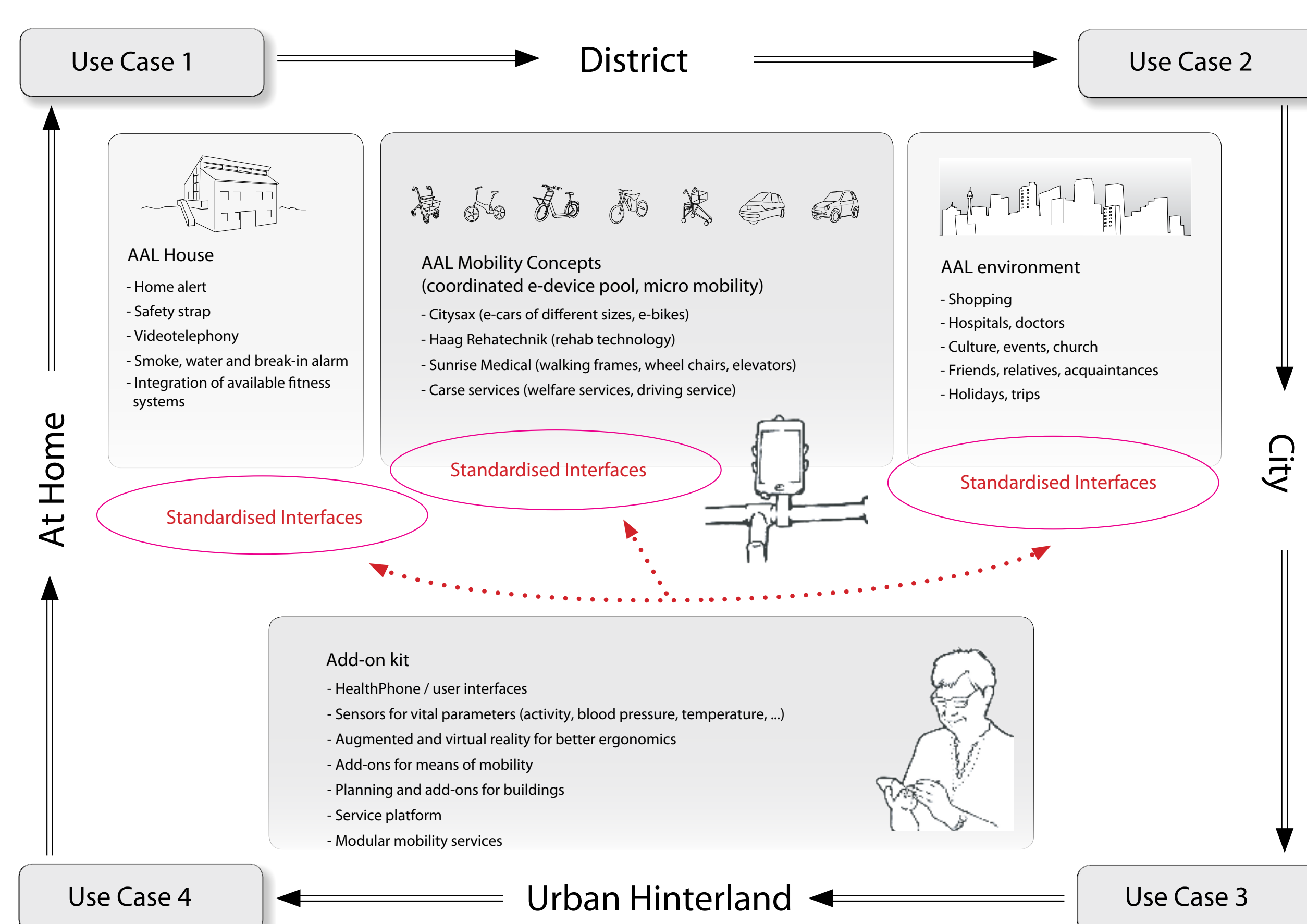Fig. 2 A comparison of currently available mobility devices and future mobility devices.

Fig. 3 Four use cases are considered in the PASSAge project. They refer to different scales: mobility at home, in the district, and in the surrounding areas. Standardized physical and information technology interfaces shall enable a seamless mobilty chain.

2.5 HealthPhone

The HealthPhone will be the mobile interaction device which allows using the navigation and health system anywhere anytime. It will help monitor the health status, provide AR services, other services, and interfaces to mobility means. Advantages of using mass market smartphones over dedicated hardware as hardware basis for the HealthPhone are lower prices, easier integration and many extension possibilities.

2.6 Car Sharing Concept

The integration of mobile devices allows users to control the in-vehicle infotainment systems with their mobile devices' interaction paradigms they are used to [2]. Especially when the means of mobility are changed frequently, as it is the case with car sharing, this can enormously simplify the operation for the user, since the users are more familiar with the handling of their mobile devices than with handling changing systems.

3 Methodical Approach

Four use cases are considered for covering all relevant urban and small-town mobility chains: mobility at home, in the district, in the city, and in the surrounding area. An overview of the use cases is depicted in Fig. 3. After a detailed analysis of existing means of mobility and users' demand, possible solutions for bridging identified gaps are compiled, investigated and implemented. Three field studies will be conducted to support target group oriented development. In order to establish standardized laboratory conditions, parts of the field studies will be conducted in and around an experimental flat.

4 Conclusion

The project PASSAge aims at safeguarding seamless mobility chains, safeguarding public transportation, as well as safeguarding of the added value related to society as a whole. Mobility shall be ensured by the extension of existing means of mobility with user-oriented components. The project follows the approach to complement the barrier-free access and usage of public transportation with mostly electrically powered compact vehicles and micro vehicles. Core of the project is to develop a flexible socio-technical infrastructure with a multitude of mobility means and modular buildings, thus creating synergy effects.

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For more information, please visit: www.passage-projekt.de