PART II
Digital Technologies and Business Model Innovations
for Urban Mobility

8 Part II: Introduction

8.1 Objectives

Cities have long been at the forefront of sustainable, multimodal mobility due to the transportation demands placed on a city by a large, densely located population. There is a considerable movement towards a more advanced and intelligent approach to urban mobility. Cities are moving toward a model of on-demand mobility in which citizens can take advantage of clean transportation options that meet their immediate needs, increase accessibility and contribute to much higher quality of life in urban areas.

Recent socio-economic trends such as the growing internationalization and pluralization of governance or individualized lifestyle patterns are leading to remarkable consequences in the field of transportation and mobility. Travel patterns are becoming much more complex, individualized and flexible. Also a few key technology developments over the last decade underpin this movement. Chiefly the fast rise of the availability of mobile digital devices (such as smartphones), their omnipresent connectivity to the Internet, the rise of plug-in electric vehicles (PEVs) and the ability to connect vehicles, infrastructure, transportation managers, and end-users have led to the emergence of new and more flexible forms of mobility supply and demand. These technological innovations extend not only the possibilities of transport planning (transparent information availability) but they enable additional travel mode alternatives and their flexible combination to get the highest value. These developments have started touching upon the surface of the private car usage especially in urban areas. The automobility system seems to be on the verge of transformation, even though many mobility rationalists claim that the future mobility system will still be based on automobiles. The author of this thesis is of the opinion that this transition can be as spectacular as it was in the case of the carriage and the automobile in the 19th century.

In that respect the author aims at fostering the understanding of the recent advancements in the arena of digital technologies and the value proposition of digital business models
for new mobility concepts. His focus lies on strategies that could eliminate radical inefficiency in automobility.

Based on the Factor 10 scenario described in Part I further research questions have arisen that relate to the following aspects:

1. What are the technological platforms that enable new mobility services? The main field of interest: ‘Digital Technologies’.
2. What are the organizational and managerial approaches that make it possible to offer shared automobility services to the users? The main field of interest: ‘Business Models’.
3. How do these models look? How are they different to traditional approaches? What are the possible business model innovations through digitization? The main field of interest: ‘Digital Business Model Innovation’.

The author has recognized that in these three areas in particular there has been a substantial gap in academic research thus far. Current contributions chiefly represent the applied research stream and give fresh and new ideas. However, they are often characterized by limited academic rigor and methodological discipline. Therefore, the motivation of the researcher is to conduct a systematic desk research followed by a structured primary research approach. In doing that he aims at closing the identified gap in research and contributing to the overall academic body of knowledge in the mobility sector.

8.2 Research Design and Methodology in Part II

Centered on these important questions the author sets up an exploratory research design to gain familiarity with the phenomenon of digital technology and to develop the understanding of the recent developments in technology-enabled mobility innovations and associated business models. He aims at acquiring and synthetizing new insights into these areas and creating a comprehensive body of knowledge for interested academic peers and mobility experts. The research approach will be separated into two main phases: desk research and primary research. Figure 11 shows the overview of the research work flow.

Firstly, the author applies a systematic literature review. The aim of the literature review is to collect knowledge about mobility technologies and innovative mobility services as well as to build up a general understanding of latest advancements in the arena of digital technologies. Based on the examination of the literature the researcher develops knowledge clusters to systematize and present the results. These clusters encompass: mobility value chain, mobility innovations, state-of-the-art digital technologies, relevant actors in mobility, and business model archetypes.