

Chapter 11

Increased Value Through Sharing in Multi-Sided Markets: Sustainability With Ridesharing

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ABSTRACT

The demand for more sustainable business models is increasing the need for current businesses to develop their business processes and value creation mechanisms. One way to improve sustainability is sharing resources and services in a new sharing economy paradigm. This chapter builds a conceptual model for taxi ridesharing to describe the value potential that is born by increasing the efficiency of taxi businesses. First, a framework for multisided markets is built to understand the different value elements of taxi ridesharing. Then, a conceptual mathematical model is introduced to understand the value symmetries including the cost saving potential and allocation from the perspectives of the customer and the supplier. The model shows that it is possible to have a system that creates value for both the taxi driver and the passenger, while simultaneously leading to significant reduction in CO2 emissions.

INTRODUCTION

The increasing awareness and interest in sustainable innovation (Boons et al., 2013) have led companies to start looking for opportunities beyond their traditional business areas. Global demand (see, e.g., United Nations, 2015), changing customer behavior and market conditions, together with the development of digital technologies have resulted in the birth of interesting new business models. One example is the emergence of the sharing economy where people have started to look for options for the consumption and ownership of resources. Shared services and so called peer-to-peer (P2P) rental markets are growing fast –their value reached \$26 billion already in 2013 (Botsman, 2013). Today, sharing business models include a wide range of examples of sharing goods (eBay), services, transportation (Uber), accommodation (AirBnB), and money (crowdfunding) (Owyang, Samuel, & Grenville, 2014; Cohen & Kietzmann, 2014).

This relatively new business field has recently attracted the attention of both academic and managerial audiences (Botsman, 2013; Schor & Fitzmaurice, 2015; Cohen & Kietzmann, 2014; Belk, 2014). Due to urbanization challenges, people have started to look for options for non-satisfactory public transport and technologies, and digitalization has enabled new sharing mobility services to expand (Firnkrorn & Mueller, 2011). The main characteristics of the sharing economy include the ability to facilitate sharing between strangers and rely upon impersonal trust. Especially ridesharing has grown in popularity as people want to travel fast, efficiently and at low cost (Kriston, Szabo & Inzelt, 2010).

One interesting sharing application is taxi ridesharing. There are several empirical modeling examples of the potential benefits of taxi ridesharing that show significant cost efficiency potential and positive environmental outcomes. (Santi et al. 2014a; d'Orey, Fernandes & Ferreira, 2012). Santi et al. (2014a; 2014b) have shown that ride combining could result in a 40% cut in cumulative trip length in New York taxi service – a significant benefit in terms of traveled distance versus additional travel time. d'Orey, Fernandes and Ferreira (2012) have estimated a potential of a 48% increase in the average occupancy per traveled kilometer. If passengers accept on average a 5-minute delay, it could be possible to share over 70% of the taxi rides in New York (Shmueli et al. 2015). Despite these examples, so far no many commercially viable services exist for taxi ridesharing.

In this chapter the focus is on understanding the potential for wide market acceptance of taxi ridesharing. There are two sides on the market: taxi drivers and passengers who share rides. In order to build a successful marketplace for sharing taxi rides, both sides of these markets need to have a sufficient number of entities. The second necessary perspective is the perceived value. In order to succeed in significant market penetration, both the buyers and sellers need to accept the new system. The necessary requirement for acceptance is that both sides need to get value from the system - the system needs to create a situation where both the buyers and the sellers feel that they benefit from it.

The challenge is to understand how this system should be built and where the value for the users would be. Introducing a sharing option might increase the level of passengers' discomfort, but as there are other benefits, such as reductions in service costs, the overall utility may rise (Ma, Zheng & Wolfson, 2013). To ensure the implementation of new business in two- and multi-sided markets, the value needs to be addressed from the perspectives of all involved parties (Adner & Kapoor, 2010). The objective of this chapter is to contribute to the literature by offering an analytical framework for understanding the limits for value creation when implementing sharing into an existing taxi company business model. The analysis of this problem requires two significant perspectives: 1) multi-sided markets and 2) value creation for both sides and between the markets. Multi-sided markets describe a business context where value is based on interaction between different types of actors (Adner & Kapoor, 2010; Ethiraj & Posen,

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