

Qualitative Analysis of Critical Success Factors of Electric Carsharing

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1 Introduction

1.1 Motivation and Relevance

In the past few decades, private passenger vehicles have become more important for members of society to reach long distance destinations in a flexible and comfortable manner. Private car use is one of the dominating transportation possibilities, especially in Germany (cf. Delatte et al., 2014, p. 553). 80 % of the journeys contributing to passenger traffic are made with private cars, while, for example, in Ireland only 73 % of passenger traffic consists of private vehicles (cf. Adam and Meyer, 2015, p. 589; Rabbitt and Gosh, 2013, p. 49). The high use of private vehicles negatively effects the environment and thus, results in fair pollution and increased traffic jams. These arguments lead to the necessity of creating and adapting to an effective mobility concept to ensure a sustainable environment (cf. Ohta et al., 2013, p. 449). One successful strategy of the mobility concept is Carsharing, which allows participants to share their vehicle with more than one person. Through this concept, members of a Carsharing organization can use a car without owning one (cf. Andrew and Doum, 2006, p. 2). Hence, Carsharing is a flexible alternative to car ownership and the lack of obligation permits participants to use it for just a short period of time (cf. Clemente et al., 2013, p. 251). Due to an increasing interest in electric vehicles (EV), more and more Carsharing organizations have decided to integrate EVs into their car pool services. It is questionable whether or not implementing EV into the Carsharing program, which is called electric Carsharing (E-Carsharing), will be profitable and tenable in the long run. This question is the result of considering a few obstacles, which are connected to the purchase of an EV. For example, high purchasing prices, limited driving ranges, and the long charging time required are obstacles that need to be considered (cf. Clemente et al., 2013, p. 251). However, the concept of E-Carsharing presents the opportunity to launch the EV into society. People can test the technology without paying the full acquisition costs (cf. Kim, Ko and Park, 2015, p. 97). Currently, the E-Carsharing concept can be found in several cities of different countries such as Germany, France and Austria. Various stakeholders including Daimler (car2go) and Volkswagen (Quicar), as well as BMW (DriveNow) have already implemented E-Carsharing into their mobility program (cf. Hinkeldein, Hoffmann and Schönduwe, 2012, p. 3). However, the critical success factors included in the implementation of EVs in the fleet of a Carsharing organization must be considered, because they play a crucial role in the context of an organization's success (cf. Seign and Bogenberger, 2012, p. 1).

1.2 Objective and Structure of the Thesis

The primary objective of this thesis is to investigate the critical success factors for E-Carsharing and to analyse their optimal usage. While there is much research about the concept of Carsharing, the research on E-Carsharing is still lacking. Nevertheless, in the last few years, E-Carsharing has gained more and more attention, as well as an increased interest. In order to determine the critical success factors for the sustained success of E-Carsharing distribution, this research is based on expert interviews. In this context, the external STEEP factors will be investigated, which include insight into the current political, economic, socio-cultural, technological and environmental components of E-Carsharing. Thereby, the research question of how critical factors contribute to E-Carsharing's success is derived.

The structure of the thesis is divided into two parts, which is essential for the purpose of the thesis: The first section focuses on theoretical knowledge that is found in the literature, while the second part presents the results gleaned from expert interviews. Firstly, a brief introduction on the relevance of the topic, including the

research question, is communicated in chapter 1. Chapter 2 provides the basic background information, which is fundamental for the purpose of the thesis. It includes the state of the current market situation such as the main E-Carsharing providers and the current numbers of E-Carsharing organization members in Germany. The analysis of the market situation is followed by an overview of the current research status of E-Carsharing and its development. Therefore, a particular focus is placed on the customer acceptance of using this concept and the developments in the context of E-Carsharing. In chapter 3, the external STEEP factors are briefly explained in a framework where all relevant factors influencing E-Carsharing are presented. The theoretical foundation is succeeded by the practical part, which is conveyed in chapter 4. For this reason, the research methodology, a qualitative method, is described in detail. The qualitative method consists of the responses from eight interview partners representing different E-Carsharing organizations. Based on the interview results, the thesis provides an analysis and interpretation. Hence, recommendations for further research and praxis are derived (chapter 5) and the limitations of this work are presented. In the end, Chapter 6 summarizes all significant facts of E-Carsharing .

2 Background

2.1 Market Overview

The number of Carsharing organizations has consistently grown over the past 20 years (cf. Rodier and Shaheen, 2003, p. 2). This is due to the fact that, for many people, Carsharing became an attractive alternative to car ownership. The number of registered members in Germany amounts to 1.04 million with a growth of 37.4 % in 2015 (cf. Bundesverband CarSharing, 2015). Figure 1 shows the distribution of the registered members in Carsharing organizations in Germany since 1997 (cf. appendix, p. A41).

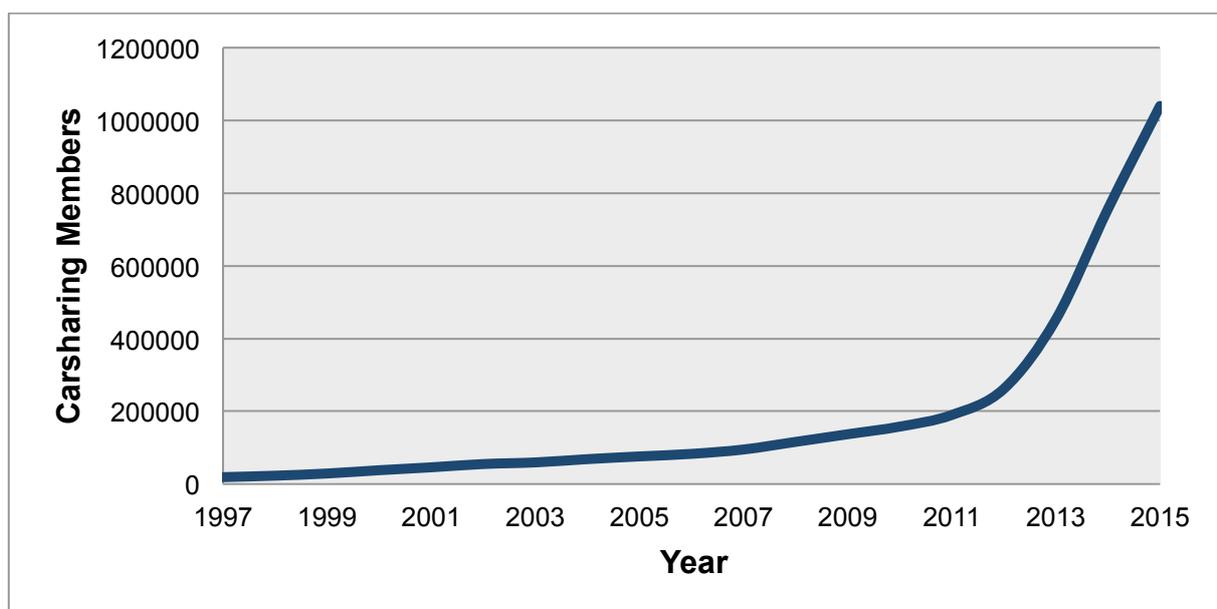


Figure 1: Registered Members in Carsharing Organizations in Germany (personal illustration based on bsc, 2015)

Firstly, the present work deals exclusively with the external and critical success factors of E-Carsharing organizations in Germany, Austria and France. It is recommended that future research, using a similar approach to analyzing external factors related to E-Carsharing organizations, expand its prospects to other countries, as it would be interesting to compare E-Carsharing organizations located across the globe, for example, in Norway or China.

Secondly, due to time and other constraints, the research was conducted using only a small sample of E-Carsharing representatives, particularly those in Austria and France. Because of the small sample size, the results may not be as representative as they would be if a larger sample size had been used. Therefore, it is necessary to conduct additional interviews in order to ensure that the results can be properly generalized for the entire E-Carsharing industry in regard to specific countries.

Thirdly, the analysis prepared for the external impact focuses intensively on the statements made by the interviewees. For instance, a detailed analysis of current political situations was limited to the knowledge of the interviewees on that subject. In order to increase the reliability of information concerning current political situations, one should examine the relevant nation's policies and laws, such as Germany's Elektromobilitätsgesetz (EMoG), as they would be beneficial to obtaining an overview of current in-country regulations related to Carsharing, EVs and, of course, E-Carsharing.

Lastly, the study purely focused on the external influences related to E-Casharing organizations and identifying its critical success factors. In further research, it would be compelling to observe the direct influence these factors have on the success of an E-Carsharing organization. Alternatively, it would also be interesting for future researchers to measure E-Carsharing's success solely on its revenues, whether being derived from its return on investment or its growth in membership.

6 Conclusions and Outlook

The main purpose of the thesis was to investigate the external and critical success factors that have contributed to E-Carsharing's success, with specific reference to Autobleu, Quicar, Stadtmobil, Ford-Werke, E-Carsharing Österreich, IAV and CCUnirent as representatives of the E-Carsharing industry. A qualitative analysis was chosen as the most appropriate form of research methodology that would be used to acquire new knowledge in the field of E-Carsharing. Eight interviews were conducted personally, via telephone or in writing, with industry experts from Germany, Austria and France. During the interviews, industry experts identified and evaluated several external factors, including, political, environmental, socio-cultural, technological and economic, in relation to E-Carsharing. The results exhibit that the political component played the most pivotal role in E-Carsharing's success due to several imposed national regulations and the financial support government agencies provide, such as subsidies that help minimize the costs associated with purchasing EVs. The experts also identified close proximity to E-Carsharing stations, population density, transit-accessible areas, and the amount of limited and costly parking spaces available, as being some of the most essential critical success factors that led to the adaptation and success of E-Carsharing. Moreover, the specific factor, implementation of information systems, is considered obligatory and not as a critical success factor, because it is absolutely necessary for the success of E-Carsharing services.

Nevertheless, despite great efforts, E-Carsharing is still being presented as a niche market as it has yet to receive widespread popularity. E-Carsharing presents a

suitable approach to sustainable mobility and has the potential to gain great popularity, as many individuals are becoming eco-conscious and more informed about the effects of global warming. Consumers are also developing new values related to private ownership and this is another indication of E-Carsharing's potential for success. Therefore, based on the results of the presented work and current trends, it can be concluded that E-Carsharing companies will continue to prosper in the near future.