

Institutionalizing car sharing in Seoul:

Analysis of actors' strategies to protect a niche from regime environments and to enact institutional change

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Supervisors

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Abstract

The sustainability benefits of car sharing have attracted many city governments. The Seoul Metropolitan Government introduced a car sharing (CS) scheme in 2013 and has been hailed as a pioneer metropolitan city in terms of CS diffusion. However, there was limited understanding of how CS advocates engaged in institutionalizing CS in Seoul. Addressing this, the aim of this study is to describe key strategies, and resources that CS advocates employed in Seoul to shield CS from regime environments as well as the mechanisms used in creating, maintaining, and disrupting institutions. Two theoretical frameworks, namely six regime environments and institutional work, were employed for the case analysis. To gather data, literature review and six interviews with a city government official, a municipal district official, and CS corporate managers were conducted. The key results show that government actors play a critical role in changing regulative institutions and establishing infrastructure. On the other hand, there was limited attention given to undermining dominant cultural norms of car ownership among the CS advocates. This study also highlights the importance of policy continuation and policy goal setting. For future research, it is recommended to develop the two theoretical frameworks by exploring how regime dimension becomes a barrier and adopting both deductive and inductive approaches when applying the institutional work framework.

Keywords: car sharing, sharing economy, niche protection, regime environments, institutional work

Executive Summary

Problem definition

Car sharing (CS) draws great attention from many governments due to its potential to bring numerous sustainability benefits. Still, it is a niche practice compared with the current dominant practice-private car ownership. To further develop a sustainable niche and innovate transitioning away from existing unsustainable systems, a niche requires protection. It was known that niche advocates engage in niche protection, however, little empirical evidence supports the claims and explains how niche advocates employ strategies and mobilize resources. Besides, sharing economy researchers are seeking more empirical studies on how urban sharing organizations engage in institutional change from diverse geographical contexts. Focusing on these research gaps, the CS case in Seoul is analyzed in this study. Seoul was chosen because it has been known for the city government-led sharing economy initiative and its success in gaining the supports of key CS advocates to institutionalize CS.

Research questions and methodology

This thesis aims to describe how CS advocates (local governments and CS companies) have engaged in institutionalizing CS in Seoul. To analyze the case, the thesis employed the existing conceptualization of niche protection and propositions. In order to do so, the thesis was guided by two research questions:

RQ1: What key strategies and resources did CS advocates in Seoul employ to shield the CS niche?

RQ2: What mechanisms did CS advocates in Seoul employ to create, maintain, and disrupt institutions?

The two research questions are formed based on two different propositions and concept. The first proposition (linked with the RQ1) is that niche advocates employ strategies and resources to protect the niche from the incumbent regime environments. It is based on the concept of shielding niche, which focuses on the interplay between a niche and regime environments. The second proposition (linked with the RQ2) is that niche advocates engage in changing institutions to promote the niche. It is based on the concept of niche empowerment, which focuses on the interaction between a niche and institutions.

This study employed a descriptive single case study. Two analytical frameworks were applied for the case analysis. The first is the six regime environments framework, which examines how six regime environments (infrastructure, technology, industry, policy and political power, user practice, cultural dimension) interact with a niche. The second framework is the institutional work framework, which explores how institutions are created, maintained, and disrupted. To gather data, literature review and 6 interviews with a city government official, a municipal district official, and CS corporate managers were conducted. The following figure depicts the grounded propositions of this study and two analytical frameworks.



Major findings and conclusions

The research findings highlight the significant role of Seoul Metropolitan Government in CS diffusion. They mostly engaged in infrastructure establishment (i.e. parking policy) and regulatory institutional change. The strong political will to promote sharing activities was another key determinant leading to success. On the other hand, private businesses had a role in expanding the number of shared cars so that more citizens could access them easily.

When it comes to changing the dominant user practice of car ownership, all actors agreed that an increased number of shared cars can undermine car ownership. They cooperated to achieve this common goal. However, in the area where both had fewer interests such as diversifying user age groups and undermining the cultural meaning of car ownership, there was less engagement and cooperation. It highlights the importance of mutual benefits in public-private partnership and the need for a radical change in normative and cultural-cognitive norms.

Policy continuity is important to create and maintain institutions. Institutions created by strategic works of niche advocates need continuous support until they can be reinforced by themselves. In this sense, policy continuation is another key determinant to enable institutional change and ensure its sustainability.

Disassociating cultural norms attached to car ownership is the area where CS advocates need further inputs. It is attributed to the tendency of CS advocates focusing on measurable policy performance such as the increased number of shared cars. It could be achieved by radical goal and performance indicator setting to change the cultural norms.

This study suggests that CS policy in Seoul was successful in establishing necessary CS infrastructure and increasing the number of shared cars. This was due to strong political will and policy continuity over 7 years. However, to achieve more extensive diffusion of CS, conscious efforts to undermine dominant user practice and disassociate cultural meaning of car ownership is needed. The current barrier that CS companies experienced was the lack of CS regulations and legal boundary setting. This can be done by engagement of national-level actors.

The target academic audiences are researchers who have an interest in niche protection and institutional work of sharing organizations. The results of this study support and validate the two propositions 1) CS advocates employ strategies and resources to protect CS from the incumbent regime environments and 2) CS advocates engage in changing institutions to promote CS. Besides, it offers empirical evidence for them. For future research, it is recommended to further develop the two theoretical frameworks by exploring how regime

dimension becomes a barrier and by adopting both deductive and inductive approaches when applying the institutional work framework.

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Abbreviations

B2B Business-to-business

B2C Business-to-consumer

CS Car sharing

EV Electric vehicle

GHG Greenhouse gas

MLP Multi-level perspective

P2P Peer-to-peer

PPP Public-private partnership

SCS Sharing City Seoul

SE Sharing economy

SMG Seoul Metropolitan Government

1 Introduction

The recent decade (2010-2019) was the warmest period on record. Negative impacts on natural and human systems from global warming have already been observed (WMO, 2019). The root cause is increasing greenhouse gas (GHG) emissions caused by human activities (IPCC, 2019). Among various sources contributing to the global warming trend, cars emissions are the major ones. Most car emissions are attributed to private vehicles, which account for 72% of the emissions in the transport sector (Sims R. et al., 2014).

Besides contributing to GHG emissions levels, private car ownership has caused other social and environmental problems in cities, such as air pollutions, traffic congestion and parking difficulties (Firnkorn & Müller, 2011; Guyader & Piscicelli, 2019). As an alternative to the currently unsustainable institution of private car ownership, car sharing has drawn great attention during the last decade.

Car sharing (CS) is defined as a mode of private transport that allows people to access a fleet of shared vehicles on demand (Kent & Dowling, 2013; Münzel, Boon, Frenken, & Vaskelainen, 2018; S. A. Shaheen, Mallery, & Kingsley, 2012). It has become a key vanguard of Sharing Economy (SE), which is an emerging consumption-production concept where strangers access idle or under-utilized goods without ownership (Hamari, Sjöklint, & Ukkonen, 2016; Mont, O., Voytenko Palgan, Y., & Zvolaska, 2019).

CS is deemed as a sustainable private transport mode by many (Kent & Dowling, 2013; S. A. Shaheen et al., 2012). The major benefits of CS are believed to include reductions of greenhouse gas emissions, air pollution and traffic-related problems. These benefits are brought about reduced travel time, easy adoption of more sustainable vehicles such as hybrid and electric vehicles, and forgoing private car ownership (Firnkorn & Müller, 2011; Guyader & Piscicelli, 2019; S. Shaheen, Martin, & Stocker, 2016). Due to these benefits, many city governments adopted CS scheme in their transport plan (Loose, 2010; S. A. Shaheen & Cohen, 2012).

An example of municipal adoption of CS schemes is the Seoul Metropolitan Government (SMG), which introduced a CS scheme, “Nanum (“Sharing” in Korean) car” program in Seoul in 2013. Compared with other cities, it is considered unique because the city government directly supports CS businesses. SMG forms a partnership with private CS businesses and collaborates with them in order to build the necessary infrastructure and diffuse CS practice.

1.1 Problem definition

CS is a niche practice compared with the current dominant practice-private car ownership. Often, there are difficulties in institutionalizing niches due to mainstream conditions that do not support a niche practice and tendency to follow the dominant path (Schot & Geels, 2008). Therefore, to further develop a sustainable niche and innovate existing unsustainable systems, a niche requires protection (Kemp, Schot, & Hoogma, 1998; Schot & Geels, 2008; Smith & Raven, 2012).

According to the conceptualization of niche protection by Smith & Raven (2012), two phases of niche protection exist: shielding a niche from dominant regime environments, and niche empowerment. Shielding a niche means protecting it from various conditions that make people choose the dominant practice (called “regime environments”). Niche empowerment

refers to making a niche competitive by building up favorable environments, such as institutions.

It is known that niche advocates (i.e. local governments and businesses) engage in shielding niche and niche empowerment, however, little empirical evidence supports the claims and explain how niche advocates employ strategies and mobilize resources (Farla, Markard, Raven, & Coenen, 2012; Smith & Raven, 2012).

Concerning institutional change, the SE researchers have asked for more empirical studies on how urban sharing organizations engage in institutional change from diverse geographical contexts (Mont, O., Voytenko Palgan, Y., & Zvolska, 2019; Zvolska, Voytenko Palgan, & Mont, 2019).

Focusing on these research gaps, the CS case in Seoul will be analyzed. In academia, Seoul has been praised as a pioneer metropolitan city in institutionalizing sharing activities in the city (Bernardi & Diamantini, 2018; Johnson, 2013; McLaren & Agyeman, 2017). Among other sharing activities, CS is often referred to as a successful case in terms of bringing up support from the key CS advocates such as local governments (SMG and municipal districts) and CS companies. Besides, it is unique as the local governments directly support CS, unlike other cities. Therefore, the CS case in Seoul was chosen for this thesis.

1.2 Aim and research questions

This thesis aims to describe how CS advocates (local governments and CS companies) have engaged in institutionalizing CS in Seoul. To analyze the case, the thesis employs the existing conceptualization of niche protection and propositions. In order to do so, the thesis was guided by two research questions:

RQ1: What key strategies and resources did CS advocates in Seoul employ to shield the CS niche?

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The two research questions are formed based on two different propositions and concept. The first proposition (linked with the RQ1) is that niche advocates employ strategies and resources to protect the niche from the incumbent regime environments. It is based on the concept of shielding niche, which focuses on the interplay between a niche and regime environments. The second proposition (linked with the RQ2) is that niche advocates engage in changing institutions to promote the niche. It is based on the concept of niche empowerment, which focuses on the interaction between a niche and institutions.

1.3 Scope and delimitations

The topic of this study is CS in Seoul and was chosen for this study because it has been praised as a pioneer metropolitan city in diffusing sharing activities in the city (Bernardi & Diamantini, 2018; Johnson, 2013; McLaren & Agyeman, 2017). Led by the strong leadership of the Mayor in Seoul, CS schemes got political support and enabled CS private companies to join the SMG transport policy. It is considered unique compared to other cities where businesses have initiated and lead sharing initiatives and the government offers a reactive approach (Frenken & Schor, 2017a). The CS scheme in Seoul, Nanum-car program, launched in 2013 and will last until 2021. One phase is comprised of three years and at the time of research, it was the beginning of the third phase.

CS advocates in Seoul are limited to SMG, municipal districts, and six CS companies that were operating at the time of the research. This is because they appear to have the most power in institutionalizing CS. For instance, SMG and municipal districts are all directly engaged in the CS scheme. CS companies refer to both the companies that are part of the SMG scheme and the ones that are not. Non-partner CS companies are included in the research because they are also engaged in CS protection while engaging institutional work in different ways from the partner companies. The third parties other than the abovementioned three actors, such as CS users and academia were excluded because they rarely engaged in CS institutionalization.

1.4 Ethical considerations

This thesis work was conducted independently from any external organizations and funding agency. Meanwhile, the author chose a research topic from the list that was distributed during the course “*Applied Research in Consumption Governance for a Transition to Low-carbon and Resource-efficient Economies*” held at International Institute for Industrial Environmental Economics at Lund University. The research topic of the urban sharing economy and institutionalization was suggested by the researchers working on an ongoing 5-year project titled “*Urban Sharing: Sustainability and Institutionalization Pathways*”. The project included Seoul as geographical scope. Due to the difficulty of scheduling an interview, the author got an affiliation letter requesting support for this thesis work from the principal investigator of the project. This letter not only supported interview scheduling but also informed research participants of the background of this research, the methods that will be used and of personal data management.

All relevant information about the overall plan for the research, the purpose, the methods that will be used, the consequences of the research and interview questions are informed to the potential research participants at the time when requesting an interview. The author employed a snowballing technique (Lewis-Beck, Bryman, & Futing Liao, 2012) by first contacting the SMG governmental official responsible for the Nanum-car program, then asked for introducing the contacts of four partner CS companies and one municipal district official for further interviews. The fact that the city government official encouraged them to take part in the interview might have given pressure to those interviewees. However, the city governmental official got the consent of personal data sharing from the potential interviewees and informed that the interview is voluntary so that each participant can make an independent decision on whether to become part of the study.

The interviews were recorded and transcribed with consent from the participants. These data are securely kept in the author’s personal computer and not revealed to any third persons. Also, the author got permission for contacting the interviewees again for further questions and quotation. So did the interview conducted in written form. This research design was reviewed against the criteria for research requiring an ethics board review at Lund University and was found to not require a statement from the ethics committee.

1.5 Audience

Researchers studying the SE and CS are the primary audience considering this thesis topic area. As identified in the problem definition section, this research aims to fill out the two academic research gaps. One is to answer how local governments and CS businesses shield to mobilize passive protective space and create active protective space. Thus, one of the intended audiences can be scholars who study niche protection or MLP. Secondly, since the other research gap is to understand the dynamic relationship between the niche advocates and the institutions, the researchers who study institutional work can be the audience.

Given the practical perspective, the research participants (SMG, municipal districts, and the CS companies) can get insights of the success factors and barriers of their works to institutionalize CS in the city that has lasted for more than 7 years.

1.6 Disposition

The overall structure of the study takes the form of six chapters, including this introductory chapter. *Chapter 1* presented the background of this research and the academic and practical research gaps identified from the extant knowledge. Also, the research aim, the research questions, and its intended audiences were addressed. The geographical scope and the research subjects were delimited, and few ethical considerations related to the research was identified.

Chapter 2 summarizes the literature on CS and the introduction of CS scheme in Seoul. Then it presents important key concepts from MLP and two descriptive theories of niche protection and institutional works, which become analytical frameworks used for the data analysis in chapter 4.

Chapter 3 describes methodological choices for this study, which are descriptive case study research design as well as qualitative data collection and analysis. Also, the author justifies the methodological choices.

Chapter 4 gives a background of the CS case in Seoul and describes the findings from the literature review and the conducted semi-structured interviews, which are organized by the two analytical frameworks.

Chapter 5 presents the major findings and limitations of the study.

Chapter 6 presents conclusions, suggestions for the intended audiences and future research.

2 Literature review

This chapter is organized to provide background information about the topic, key propositions of this thesis and analytical frameworks for a case analysis. Section 2.1 presents the background of CS, including definitions of the SE and carsharing, and sustainability benefits of CS. Section 2.2 presents the concept and rationale of niche protection. Section 2.3 summarizes the concept of shielding niche as well as presents a first analytical framework, six regime environments that will be used for the case analysis. Section 2.4 introduces the concept of niche empowerment and institutional work that becomes a second framework.

2.1 Car sharing as a sustainable mode of transport

To present the background of the topic, this section defines SE and carsharing and introduces sustainability benefits of carsharing.

2.1.1 Definition of the sharing economy and car sharing

Since the boost of sharing organizations, scholars identified key features of the SE. The object of SE, sharable goods, have excess capacity by nature that can be lent out to others (Benkler, 2012). These goods are often under-utilized, thus, the owners can grant temporary access when they do not use (Frenken & Schor, 2017). Sharing with acquaintances has existed for a long time, however, the novelty of the SE is sharing with strangers through online platforms thanks to technological development (Belk, 2014; Frenken & Schor, 2017a). From this discussion, SE can be defined as an emerging consumption-production mode fueled by technology development, which endorses the sharing of idle or underutilized assets. It enables temporary access to these assets between individuals and organizations (Hamari et al., 2016; Mont, O., Voytenko Palgan, Y., & Zvoltska, 2019).

CS is a key example of the SE (Kent & Dowling, 2013; S. A. Shaheen et al., 2012). Despite the inconveniences of CS, for instance, users need to plan their trips, make a reservation, and travel to get the shared car that may not be located nearby (Burghard & Dütschke, 2019), the number of CS service subscribers has been rapidly increasing globally. There were 32 million CS users in October 2018 sharing 198,000 vehicles, which is a 238% increase in membership of one-way CS compared to 2016 globally (A. Shaheen, 2020). Due to its notable success in diffusing sharing practice, CS is often mentioned as a prominent example of SE.

CS is defined as a mode of private transport that allows people to access a fleet of shared vehicles whenever they need (Kent & Dowling, 2013; Münzel et al., 2018; S. A. Shaheen et al., 2012). As CS is often confused with ride sharing, the author specifies the difference to prevent confusion. The major difference is the object of sharing. Ride sharing shares 'a journey' with a stranger, which is subcategorized into ride-hailing (i.e. Uber) and carpooling (Cohen & Kietzmann, 2014). On the other hand, in CS, 'vehicle' owned by an individual or shared by a company.

The typology of CS is as follows. Peer-to-peer (P2P) CS refers to the case where an individual owns a shared vehicle that rents out when it is idle. Business-to-consumer (B2C) and business-to-business (B2B) is the case when a company owns vehicles and lends them to their customers (could be individuals or companies). Station-based refers to a customer picking up a shared car that is parked at a defined station and dropping it back in the same place. This could be the same parking spot (Roundtrip) or any parking lots that the CS company owns (One-way). Free-

floating is that a user picks up a shared car and drops off the car wherever they want (Cohen & Kietzmann, 2014; Gilibert & Ribas, 2019).

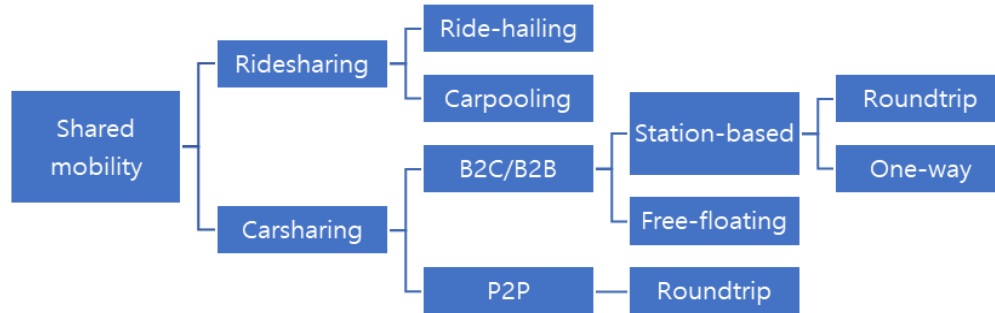


Figure 2-1. Typology of ride sharing and CS

Source: Adapted from Cohen & Kietzmann (2014) and Gilibert & Ribas (2019)

2.1.2 Sustainability benefits of car sharing

CS has potential to bring numerous sustainability benefits mainly, reduction of private car ownership and greenhouse gas (GHG) emissions (Chen, Kockelman, & Schoch, 2016; Firnkorn & Müller, 2011; Jung & Koo, 2018; Kim, Park, & Ko, 2019; E. W. Martin & Shaheen, 2011; Nijland & van Meerkerk, 2017).. This section outlines the impacts of CS and the benefits discussed in various CS literature.

From a societal perspective, increasing private car ownership causes problems such as air pollution, traffic congestion, and parking difficulties. CS becomes an alternative to private vehicle ownership (Jung & Koo, 2018; Kim et al., 2019; E. W. Martin & Shaheen, 2011; Nijland & van Meerkerk, 2017). By accessing shared cars, users can fulfil their mobility demands without car ownership and gain monetary saving such as maintenance and high fixed costs including taxes and insurance, which are often accompanied with car ownership (Firnkorn & Müller, 2011; S. A. Shaheen et al., 2012). As a result, it reduces private vehicle ownership.

Indeed, numerous survey data across the globe showed that CS users responded that they deferred the purchase of a car (Kent & Dowling, 2013; Kim et al., 2019; E. W. Martin & Shaheen, 2011). In North America, CS user survey (the sample size of 6,281 users from ten CS organizations) conducted in 2008 showed that CS can substitute 9 to 13 privately owned vehicles (E. Martin, Shaheen, & Lidicker, 2010). One study conducted in Ulm, Germany predicted based on a survey that CS reduced 2,295 cars between 2009 and 2014, which equals to a net reduction of 1,995 cars in 2014 (Firnkorn & Müller, 2011). In the case of Seoul, two surveys conducted in 2014 (the sample of 5,598 CS users) and 2018 (the sample of 9,498) showed that around 31% of the users abandoned the current and potential car ownership in favor of a shared car. Moreover, the ratio of the users who reduced a private car nearly doubled from 2.3% to 4.3% (Kim et al., 2019).

Another crucial benefit of CS is the reduction of GHG emissions, which is attributed to various impacts of CS. Trips in shared cars usually require a conscious decision of users before they drive because they pay based on the distance of the trip and its duration. This prevents unnecessary travels and reduces the travelled vehicle-kilometers (Firnkorner & Müller, 2011; E. Martin et al., 2010). Besides, CS encourages public and non-motorized transport such as biking and walking (E. Martin & Shaheen, 2011; Nijland & van Meerkerk, 2017), and replaces second or third car (Nijland & van Meerkerk, 2017). Shared cars are often smaller with low-emissions, such as hybrid and electric vehicles (EVs) (Kent & Dowling, 2013; S. A. Shaheen et al., 2012). All these effects mostly contribute to reduction of greenhouse gas (GHG) emissions (Chen et al., 2016; Firnkorn & Müller, 2011; E. W. Martin & Shaheen, 2011; Nijland & van Meerkerk, 2017).

Multiple studies identified the impact of CS in reducing GHG emissions and all the results indicate the GHG emissions reduction effect. One study conducted in North America estimated that on average 0.58t GHG per year per household is reduced only considering measurable emissions data. Including unobserved impact such as modal shift, it becomes 0.84t of GHG per year per household. This study aggregated the collective emissions increase due to CS and the collective reduction from driving less and giving up car ownership. (E. W. Martin & Shaheen, 2011). Another study conducted in the Netherlands calculated the B2C and P2P CS impact caused by changing car ownership and car use. The survey results from 363 CS users showed that one user reduced 236 and 392 kg CO₂ corresponding to 13%-18% CO₂ emissions reduction related to car ownership and car use. One third to half of this reduction is attributed to less car use and the remainder to the lower level of car ownership (Nijland & van Meerkerk, 2017). A life-cycle analysis was conducted to examine CS impact on energy use and GHG emissions. This study included vehicle ownership levels, travel distance, fleet turnover, parking demand and alternative transports modes as variables. The result showed that average CS users save around 51% of transportation energy use and GHG emissions (Chen et al., 2016).

Meanwhile, some researches highlighted that CS might not as beneficial as it is often assumed. First, one argument is that rebound effects might offset the benefits of CS. For instance, the saving from modal shifts, avoided travel, parking infrastructure demands and fuel consumption, might be used for travelling (an indirect effect) (Chen et al., 2016). Reduction of public transportation users due to CS is a direct rebound effect (Budde, Alkemade, & Weber, 2012). Especially, rebound effects tend to be higher if the consumption is shifted to carbon-intensive categories. Second, a study argued that it is less likely that CS users actually dispose of their vehicles or postpone a planned vehicle purchase due to CS. As a result, the increased emissions from the modal shift from public transportation and private vehicles to CS outweighed the reduced emissions of forgoing car ownership. Besides, one-way and delivering car to the door may increase negative environmental impacts. Therefore, it is essential for CS providers to allocate fewer emission vehicles such as EV and efficient vehicles with higher fuel efficiency and longer life cycles (Jung & Koo, 2018).

In summary, CS has a potential to become a prominent sustainable mode of transport considering its numerous sustainability benefits such as a reduction in car ownership and GHG emissions. To prevent the potential negative environmental impacts of CS, it is essential to be equipped with efficient and fewer emissions vehicle fleets and consider compatibility with the existing transportation systems.

2.2 Niche protection

CS is a niche practice compared with the current dominant practice-private car ownership. Several scholars argue that a niche needs protection (Kemp et al., 1998; Schot & Geels, 2008; Smith & Raven, 2012). This section introduces the rationale for niche protection and conceptualization of niche protection.

2.2.1 The rationale for niche protection

Multi-level perspective (MLP) postulates that a transition takes place through the interaction between a niche, socio-technical regime, and a landscape. Niches are the places where innovative activities occur, and regimes refer to the existing socio-technical systems that are consisted of technologies, actors and institutions (Geels, 2002, 2004; Rip & Kemp, 1998). An exogenous environment, landscape put pressure on regimes and niches. Regime shift occurs when interactions between these three multiple levels are evolved together, adapted, and aligned.

Increasing structuration
of activities in local practices

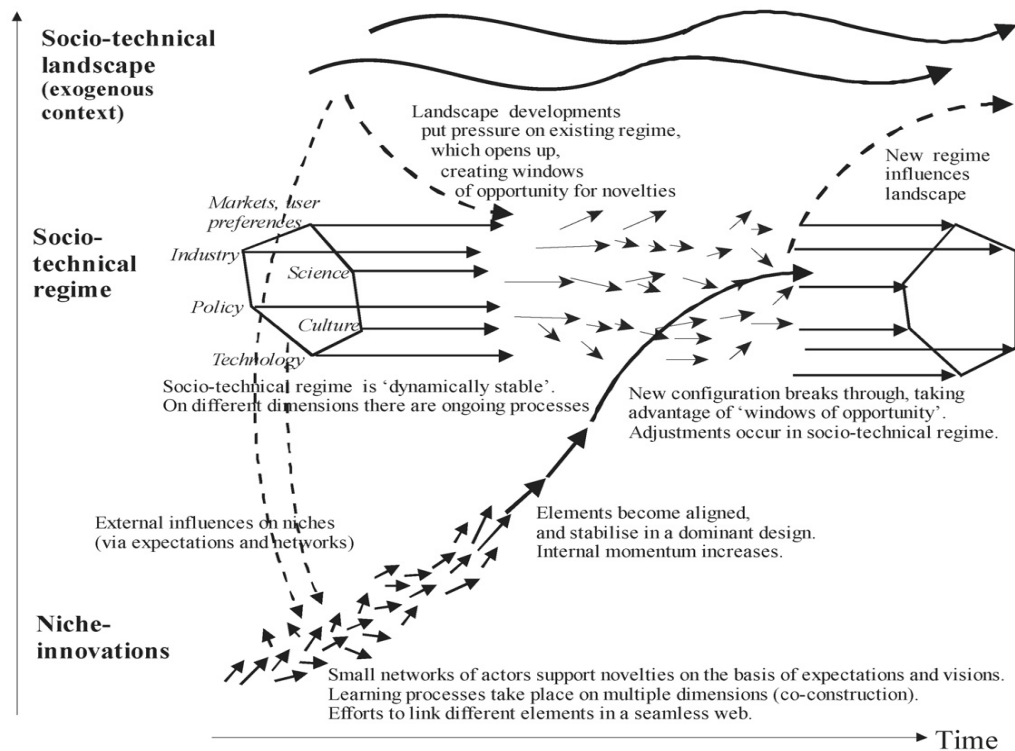


Figure 2-2. Multi-level perspective on transitions

Source: Retrieved from Geels (2002), p. 1263

However, due to systems lock-in and path-dependency effect of the incumbent regimes, it is hard for niches to be further developed and innovate the regimes, therefore niche protection is needed (Schot & Geels, 2008). During protection, niche advocates are essential actors since they shield, nurture and empower sustainable niches to penetrate the dominant unsustainable regimes (Kemp et al., 1998; Smith & Raven, 2012).

Several studies have emphasized the need for niche protection as new technologies have difficulties being adopted in the established market (Kemp et al., 1998). Among others, Smith & Raven (2012) argued that systemically sustainable innovations are disadvantaged because mainstream selection environments are deeply embedded in a society and hinder further development of niches. Therefore, protective space to shield the niche from these selection environments is required. In addition, Schot & Geels (2008) argued that considering the high potential of new technologies in solving sustainability problems, it is important to protect the niche technologies until they become competitive against the existing technological practices. Both studies highlighted that niches face systems lock-in and path-dependency effect of the incumbent regimes, thus needing niche protection.

2.2.2 Niche protection

Niche protection is dynamical and complex activities in terms of its interactions with wider regime level. To capture these dynamics, Smith & Raven (2012) conceptualized phases of niche protection by its functional characteristics, namely shielding and empowerment. Shielding is processes that hold at bay pressures from mainstream regime environments to a niche (Smith & Raven, 2012). For instance, a CS scheme adopted by numerous city governments function as a shield. Empowerment is processes that develop competitiveness to enable widespread diffusion without the protective shield (Smith & Raven, 2012). For instance, to diffusion the SE, sharing organizations change regulations and try to disassociate moral foundations such as the institution of ownership (Zvolska et al., 2019).

This paper follows this niche conceptualization suggested by Smith & Raven (2012). The following section introduces detailed descriptions of the two niche protection phases.

2.3 Shielding niche from regime environments

This section presents key concepts to introduce the first proposition (Proposition 1. CS advocates employ strategies and resources to protect CS from the incumbent regime environments). Then, the first analytical framework will be presented.

2.3.1 Shielding niche

Shielding aims to protect niches from regime environments. These regime environments refer to various conditions that make people choose a certain technology or practice. They belong to six regime dimensions, which are established industry structures, dominant technological standards, socio-cognitive principles, market and user practices, public policies, and mainstream cultural values. The major logic of the need for protective space is that since such environments are shaped in favor of the incumbent ST regimes, a new path-breaking innovation is hard to fit in them, therefore, shielding to protect the innovation from the regime environments is required (Rip & Kemp, 1998; Schot & Geels, 2008).

There are two types of a shield, one is *passive protective space* and the other is *active protective space*. Passive protective space is pre-existing due to limitations in the existing systems, which is exploited by niche advocates. For instance, off-grid systems in remote areas allow early adoption of a solar power system. Active protective spaces are created as a result of strategic activities by niche advocates such as policy, incubator projects or civil society initiatives (Smith & Raven, 2012).

Niche advocates shield passive and active protective spaces from the six regime environments. In the *industry structure dimension*, passive shielding was observed from the case of Solar PV

firms. They targeted actors outside of the incumbent energy regime as their first customers (Oliver & Jackson, 1999). As an example of active shielding, establishing incubator units apart from their mother-firms ensured that niche could have time to develop (Smith & Raven, 2012). In the case of *technologies and infrastructures dimension*, identifying marginalized places outside the incumbent energy systems such as rural areas or developing countries is one way of passive shielding. Solar PV advocates argue temporal exemptions from fulfilling technological standards power quality standards for example (Smith & Raven, 2012). Concerning *knowledge dimension*, securing generic innovation R&D funds can be passive shielding. Implementing a technology-specific R&D scheme can be active shielding. In *user relations and market dimension*, niche advocates mobilize environment-conscious consumers who are willing to pay higher prices and accept lower performance as a customer of building-integrated solar PV (Smith & Stirling, 2007). Support programs of PV cells installation are considered as active shielding. Regarding *public policies and political power dimension*, PV advocates frame PV to make it fit in the political discussion, which is passive shielding. Whereas active shielding refers to lobbying for explicit results such as inclusion solar PV cells in a long-term energy plan. In *cultural dimension*, passive shielding refers to the case when the environmental values of solar PV argued among dedicated environmentalists. On the other hand, active shielding occurs when media discourses cover high-tech PV values in society (Smith & Raven, 2012) .

From niche literature, it was found that niche actors employed strategies and resources to protect the niche from incumbent regime environments. However, this proposition requires more empirical evidence (Farla et al., 2012; Smith & Raven, 2012). Therefore, the CS case in Seoul will be analyzed. For the analysis, an automobility regime and issues related to CS need to be identified. It will be presented in the following section.

Table 2-1. The summary of niche shielding

	Shielding niche
Definition	Processes that hold at bay certain regime environments from mainstream selection environments
Category	<p>Passive protective spaces as generic space that pre-exist deliberate mobilization by advocates of specific innovations, but who exploit the shielding opportunities they provide</p> <p>E.g. promotion of off-grid in remote regions from centralized grid, academia, or environmentalists</p>
	<p>Active protective spaces as the result of deliberate and strategic creation by advocates of specific path-breaking innovations to shield regime environments</p> <p>E.g. technology policies and incubator projects, civil-society initiatives such as solar cell cooperatives</p>

Source: Summarized from Smith & Raven (2012)

2.3.2 Automobility regime environments

Referring to six identified regime dimensions and its characteristics (Geels, 2012; Smith & Raven, 2012), six automobility regime dimensions and issues associated with CS are summarized as follows.

- *Infrastructure dimension* includes legal and technical infrastructures such as parking spaces, roads and fueling stations that favor the automobile against other alternative systems (Hoffmann, Weyer, & Longen, 2017). CS inherently shares the existing infrastructures such as parking spaces that are already established in the automobile regime. As a result, there is no need to build new parking spaces for shared cars. Instead, CS requires plenty of parking spaces at accessible locations where users can reach out easily (Dowling & Kent, 2015; SMG, 2012). This infrastructural requirement becomes a challenge to CS.
- *Technology dimension* is associated with the dominant technologies used in the automobile, for example, internal combustion engines that heavily rely on fossil fuels (Orsato & Wells, 2006). This also applies to CS. To maximize the sustainability benefits of CS, changing from internal combustion engines to efficient and fewer emission vehicles are necessary.
- *Industry dimension* is about organizational networks, industry platforms, shared industry routines and user-producer networks. CS firms targeted customers in 20s and 30s who have less potential to buy private vehicles. They highlight reasonable pricing structures to the targeted customers. This user-profiles raised social inclusion issue of CS (Akyelken et al., 2018).
- *Policy and political power dimension* are associated with policy goal and power relations promote the automobility. For instance, the automobile used to be politically supported and protected by a national government (Smith & Raven, 2012). CS literature emphasized the importance of financial supports and perception of policymakers (political will) when integrating CS into the current transportation networks. Besides, strategic policy measures to institutionalize CS are determinant (Akyelken et al., 2018; Dowling & Kent, 2015).
- *User practice dimension* features the domination of private passenger cars, which are usually owned by an individual for all-purposes (Urry, 2004). CS has the potential to become an alternative to private car ownership however, still, private car ownership prevails in general.
- *Cultural dimension* includes the social symbolic meaning of car ownership such as high social status, autonomy and social inclusion (Carrabine & Longhurst, 2002; Raphael & Rice, 2002). This meaning is often reproduced by media advertisements and narratives repetition between social actors.

These six regime environments work as a framework to analyze the CS case in Seoul in chapter 4.

2.4 Institutional change to protect niche

According to the niche conceptualization by Smith & Raven (2012), the phase where institutional changes occur refers to niche empowerment. This section presents niche empowerment to introduce the second proposition (Proposition 2: CS advocates engage in changing institutions to promote CS). As niche empowerment does not give a detailed description about mechanisms of how actors change institutions, the author reviewed institutional work, which will be used as the second analytical framework in this thesis.

2.4.1 Niche empowerment

Niche empowerment refers to making niche innovations competitive within the mainstream environments under the incumbent regimes (fit-and-conform) or to build up favorable environments to the innovations (stretch-and-transform) (Smith & Raven, 2012). It is conceptualized by the efforts to understand the interplay between regime level and niche. Fit-and-conform empowerment is to make innovation competitive within mainstream selection environments. This leads to an incremental innovation which results in two limitations. One is that efforts to fit-and-conform can move a focus from sustainability values to narrow market development therefore, rebound effects and economic growth can counteract these efforts (Sorrell, 2009; van den Bergh, 2011). The other limitation is that actors who have been shielding niche face challenge to improve the niche performance. Historical experiences showed that the protected infant industries could sustain despite their underperformance and no further improvements (Chang, 2002; Cimoli, Dosi, & Stiglitz, 2009). This is because of its symbolic importance to the government, the government is hard to withdraw this protective shield (Caniëls & Romijn, 2008). Therefore, it requires stretch-and-transform empowerment.

Stretch-and-transform empowerment aims to reconfigure mainstream institutions in the incumbent regimes and to make sure to avoid the negative impacts of shielding such as underperformance and lack of improvement. Sustainable niche works as an alternative to the unsustainable regime and the regime actors accept niche practices by forming a political coalition with the niche advocates. This process can be found in the German feed-in tariff. The landscape pressures such as low carbon energy, anti-nuclear agenda, and political interests in the development of green economies provide conditions to introduce German feed-in tariff to protect solar PV niche. The networks consisted of industry, administration and civil society gained the political power that enables to locate a niche in regime level (Dewald & Truffer, 2010).

Table 2-2. The summary of niche empowerment

	Niche empowerment
Definition	Processes that develop competitiveness to enable widespread diffusion without the protective shield
Category	Fits-and-conform empowerment is defined as processes that make niche innovations competitive within unchanged selection environments
	Stretch-and-transform empowerment is defined as processes that re-structure mainstream selection environments in ways favorable to the niche E.g. Feed-in-tariff in Germany

Source: Summarized from Smith & Raven (2012)

While MLP and niche literature is built based on the concepts from institutional theory (Geels, 2004, 2011; Geels & Schot, 2007), it gives limited explanations on how actors reconfigure institution (Smith & Stirling, 2010). Concerning the mechanisms of how actors affect institution, institutional work literature offers extensive description (Lawrence & Suddaby, 2006; Zvolska et al., 2019). Therefore, institutional work literature was reviewed, and the definition and key concepts of institutional work will be presented in the following section.

2.4.2 Institutional work

Institutions are defined as regulative (laws and regulations), normative (norms, values, beliefs, and assumptions), and cultural-cognitive (knowledge and skills) rules that affect actors' thoughts and behavior for a long time (Scott, 2001). The perception towards institutions has been changed from institutions that coordinate organizational actions to the product of purposive actions taken to reproduce, alter and destroy them. Accordingly, the focus of the study is altered to identifying the role of actors in creating, transforming, and maintaining institutions, often called institutional work.

The following section presents the mechanisms of institutional work (Lawrence & Suddaby, 2006) and the examples of urban sharing organizations from Zvolska et al. (2019). This conceptualization is adapted to better describe the institutional works by the government and urban sharing organizations, which will be a framework for analyzing the CS case in Seoul. The institutional work mechanisms and the examples of sharing organizations will be presented in order of creating, maintaining, and disrupting institutions.

Creating institutions

Creating regulative institutions is to set up new political and regulatory structure giving legitimacy to the interested actors. This involves mechanisms of advocacy, defining, and vesting (Lawrence & Suddaby, 2006).

Advocacy refers to activities to mobilize political and regulatory supports by persuading powerful institutional actors, for instance, lobbying, and advertising and litigations (Suchman, 1995). It was found that more powerful actors engage in either litigation or lobbying concerning sharing organization. For instance, Uber and Airbnb use litigation to promote regulation that is in favor of them. In the case of lobbying, many urban sharing organizations have employed this strategy, for example, London-based B2C CS companies were spending resources to set the agendas of city-level policymakers and municipal governments. It aimed to ensure that CS scheme is included in the government's transport strategy and to gain access to parking spaces. Often, CS companies demonstrate the benefits of CS in reducing car use to municipal officials (Zvolska et al., 2019). *Defining* refers to formalizing rules system by conferring identity or determine boundaries such as certification or standardization (Lawrence & Suddaby, 2006). For example, Uber defines itself as a tech company, not a mobility company to avoid conflict with the taxi industry (Zvolska et al., 2019). *Vesting* allows a public authority to change rules system or the negotiation process by giving rights or responsibilities to whom have not been entitled to (Lawrence & Suddaby, 2006). Examples were found from the local governments in London, Berlin and Malmö who help to support CS by designating parking spaces or becoming customer themselves (Zvolska et al., 2019). The actors are not necessarily inherent to a public authority, but any actors with power and resources. These three processes are mutually reinforcing each other and invoke drastic change rather than incremental (Greenwood & Hinings, 1996).

Normative institutional work is associated with changing the roles, values and norms underpinning institutions. *Constructing identities* provides new identities to individuals or organizations (Lawrence & Suddaby, 2006). This work engages actors both outside and inside of the group and collective action as an important element. While for-profit and B2C sharing organizations mostly identify themselves as a forward-thinkers in terms of technology adoption and sustainability perspective, P2P or non-profit sharing organizations focus more on positive social values of their business that can be an alternative to the incumbent economic sectors (Zvolska et al., 2019). *Changing normative associations* refers to the actions weakening moral and cultural foundations of certain practices and making actors question them (Lawrence & Suddaby, 2006). The meaning of ‘sharing’ has been altered by different types of sharing organizations. In the case of non-profit sharing organizations, they tend to emphasize enhancing social cohesion at the beginning of the business, which is waned as their business scale-up (Zvolska et al., 2019). *Constructing normative networks* is forming inter-organizational networks to promote new practices (Lawrence & Suddaby, 2006). The networks create a peer group for compliance, monitoring and evaluation to such new practices. There are inter-industrial and intra-industrial sharing networks to promote sharing economies such as EuCOLab and Sharing Economy UK. And to foster strategic networks like non-profit NGO Carplus and its Bikeplus (Zvolska et al., 2019).

Cognitive institutional works are to leverage risks that actors might have when following new institutions. This is involved with shifting the beliefs, assumptions and frames that inform individuals or organizations to follow certain actions. *Educating* actors is essential to inform new practices that are often accompanied by the creation of new institutions (Lawrence & Suddaby, 2006). For-profit organizations tend to educate their members on how to lobby to avoid stricter regulations and non-profits organizations educate the public to increase awareness of sharing activities and their values (Zvolska et al., 2019). *Mimicry* refers to imitating the old practices to decrease unfamiliarity with the new practices (Lawrence & Suddaby, 2006). There are plentiful examples, from forming industry associations to adopting traditional templates such as copying business models each other so that sharing organizations become more familiar and understandable (Zvolska et al., 2019). *Theorizing* is the naming of new concepts and practices and categorizing to make them recognizable in one’s cognitive map (Lawrence & Suddaby, 2006). Airbnb and Uber attained cognitive legitimacy and theorized by coining new words such as ‘to uberize’ and ‘Airbnb for cars’. In contrast, the term sharing economy is not still contested and confused with other similar terms like the collaborative economy and circular economy (Zvolska et al., 2019).

Creating institutions requires skills and resources for setting rules, rewards, and sanctions, which can be gained by political and economic processes. Regulative works involve anew construction of new institutions and immediate change, especially in the cases of vesting and defining. In contrast, normative works come along with the existing institutions since their deeper cultural and moral embeddedness. Cognitive works may engage both the incumbent actors in a field and entrepreneurs. Usually theorizing and educating associates with more large and central actors in a field whereas mimicry with relatively smaller and peripheral actors (Lawrence & Suddaby, 2006).

Maintaining institutions

Maintaining institutions are required to enhance the reproductive mechanisms of institutions. They involve supporting, repairing, or recreating social mechanisms that ensure compliance. It is important because empirical studies show that it is rare that institutions sustain by themselves based on self-reproduction, rather it involves intentional works to maintain

institutions. A large amount of institutional work can be found in maintaining democracy such as democratic elections, voter registrations, vote collection etc. This type of institutional work has not been covered in the arena of sharing organizations yet so the examples given as follows might be irrelevant to the topic (Lawrence & Suddaby, 2006).

Concerning adherence to rule systems there are three institutional works. *Enabling work* is to create rules that encourage, support, and reinforce institutions (Lawrence & Suddaby, 2006). This may involve the creation of new roles or associations to continue institutional routines or mobilizing resources required to keep regulative institutions. *Policing* refers to ensure compliance with regulative institutions through enforcing, auditing, and monitoring (Lawrence & Suddaby, 2006). This can involve both sanctions and incentives e.g. launching petition and certificate of compliance. *Deterrence* is to establish coercive barriers against institutional change (Lawrence & Suddaby, 2006). This includes a threat of economic and administrative coercion to inculcate obedience intentionally to institutional actors. These regulative works are more apparent than the normative and cognitive works and strengthen the coercive character of institutions.

To reproduce norms and belief systems, valorizing/demonizing, mythologizing, and embedding and routinizing are involved. *Valorizing and demonizing* are to repeatedly provide demonstrations of what is good and bad thus it becomes normative foundations of actors (Lawrence & Suddaby, 2006). For instance, in boy school, the teachers give repetitive public demonstration emphasizing competitive and macho ethic. *Mythologizing* refers to the promotion of past myths by making a story and telling it (Lawrence & Suddaby, 2006). *Embedding and routinizing* is infusing normative foundations to actors' daily routines and organizational practices through training, education, and certification routines etc. (Lawrence & Suddaby, 2006). These normative and cognitive works are less comprehensive about the original purpose or intent since practices are embedded in routines and participants usually do not question them.

Disrupting institutions

Disrupting institutions engage both innovator and powerful actors in the regime. These activities are mostly associated with discourse and boundary setting by redefining, recategorizing and reconfiguring. *Disconnecting sanctions/rewards* aims to redefine a set of practices, technologies, and rules to restructure relationships between actors and institutional arrangement (Lawrence & Suddaby, 2006). In this work, it is likely to involve the state and professional groups in the period of social upheaval. A B2C CS organization lobbied to discourage private car use by taxing, imposing congestions charges and road pricing. This could be successful because of the alignment with the city's transport strategy (Zvolska et al., 2019). *Disassociating moral foundations* refers to gradually undermine the moral foundations behind the practices and rules (Lawrence & Suddaby, 2006). Main actors who initiate this work are often elites such as large firms who can use their resources and prestige to justify their logic. In the case of sharing economy, exogenous factor such as economic downturn provides conditions for less consumption (Zvolska et al., 2019). *Undermining assumptions and beliefs* are to replace taken-for-granted practices by removing transaction costs, for instance, giving feedback and peer policing (Lawrence & Suddaby, 2006). Technology innovation allows normalizing sharing with a stranger by dismantling cognitive assumptions.

Table 2-3. Summary of the institutional work mechanisms

	Creating institutions	Maintaining institutions	Disrupting institutions
Regulative	<ul style="list-style-type: none"> • Advocacy (lobbying, advertising, and litigation) • Defining • Vesting 	<ul style="list-style-type: none"> • Enabling work • Policing • Deterring 	<ul style="list-style-type: none"> • Disconnecting sanctions/rewards
Normative	<ul style="list-style-type: none"> • Constructing identities • Changing normative associations • Constructing normative networks 	<ul style="list-style-type: none"> • Valorizing/demonizing • Mythologizing • Embedding and routinizing 	<ul style="list-style-type: none"> • Disassociating moral foundations
Cultural-cognitive	<ul style="list-style-type: none"> • Mimicry • Theorizing • Educating 		<ul style="list-style-type: none"> • Undermining assumptions and beliefs

Source: Summarized from Lawrence & Suddaby (2006)

3 Methodology

The purpose of this thesis is to describe how different actors have engaged in mainstreaming CS practice in Seoul. Two research questions are asked. First, *what are the key strategies and resources that niche advocates have employed to shield the CS niche?* Second, *what mechanisms do the governments and the CS companies employ to create, maintain, and disrupt institutions?* This chapter presents a detailed description of the case study design, data collection and analysis method to answer the two identified research questions. It aims to explain the logic of this research leading to the conclusion and justify the choices that the author made.

3.1 Descriptive case study design

This thesis employed the single case study design. A case study is a research approach to study a contemporary phenomenon (the “case”) considering its contexts by using various data sources (Yin, 2014). It is effective when the focus of the study is to answer “how” and “why” questions; a researcher cannot manipulate the behaviors of research participants and focuses on contemporary events. The case study design differs from other research designs because it focuses on the particular phenomenon; it yields an extensive description of the phenomenon; and it improves understanding of the readers about the phenomenon (Merriam, 1998). Drawing upon the definition and the characteristics, three reasons for choosing case study design can be outlined. First, this thesis aims to answer, ‘how different actors engage in mainstreaming CS practice in Seoul’. Second, it cannot impact the behavior of research participants as all data is collected after the activities have already occurred. Lastly, the topic of this thesis, CS scheme, has gotten attention from academia, governments and businesses due to its potential as sustainable transportation that can disrupt the current unsustainable transportation system within last decades. (Cohen & Kietzmann, 2014; Meyer & Shaheen, 2017; Münzel et al., 2018; S. Shaheen et al., 2015, 2016). A case study can cover either a single case or multiple cases. Single case study suits when the researcher want to study a single group (Yin, 2014). As the author focused on CS advocates in Seoul that can be considered as a single group, this thesis adopted a single case study design.

A descriptive case study is considered as the most appropriate for this thesis among other case study design such as exploratory and explanatory. The major difference is the existence of a descriptive theory and its aim. A descriptive case study is to assess a sample case in detail and in-depth based on a descriptive theory, that is an articulation of what is already known about the phenomenon (Ruthanne, 2010). It aims to describe the phenomenon as it occurs (Yin, 2014) and seeks to uncover patterns and connections to theoretical constructs (Ruthanne, 2010). As this thesis aims to describe what different strategies are used by CS advocates in Seoul, it is well suited with the purpose of descriptive study. Before this study, descriptive theories to support the case description are identified, which are MLP and institutional work. These help the author to narrow down the research questions and allow the reader to see the case through the lens of theories.

According to descriptive theories, the research questions were formed. The descriptive theories were that niche advocates such as governments and private enterprises engage in niche protection in ways to shield niche against regime environments and to change the institutions. They are formulated into the first research question, *What key strategies and resources did CS advocates in Seoul employ to shield the CS niche?* and second research question, *What mechanisms did CS advocates employ to create, maintain, and disrupt institutions?*

During the research, both deductive and inductive approaches are used. A deductive approach is mainly used when identifying the descriptive theories and investigating the CS scheme development in Seoul and its performance. An inductive approach is used when answering each question, which is empirically derived from the collected data.

A case study design has both advantages and disadvantages. It enables describing and explaining a complex phenomenon and enhances holistic understanding of the phenomenon. Besides, it gives flexibility when selecting data collection and analysis methods (Yin, 2014). The disadvantages are often the issues of reliability, measurement validity, internal validity and generalization (Bryman, 2016; Yin, 2014).

Concerning reliability, the case study design is accused of being sloppy in methodology thus makes the research hard to be replicated (Yin, 2014). To deal with this issue, the author described methodological details including research design, data collection and analysis in section 3 and the appendix. Second, measurement validity refers to whether the research method measures what it supposed to measure (Bryman, 2016). To achieve measurement validity, an extensive literature review of theoretical concepts about MLP and institutional work was conducted. Based on these theories, the interview guidelines are formulated (see Appendix C). Third, internal validity refers to whether the conclusions that are derived from collected data are not affected by the other factors (Bryman, 2016). To complement this issue, data triangulation was employed. The author did a literature review of multiple data sources such as academic and grey literature, which is then organized in a synthesis matrix. Besides, multiple stakeholder interviews were conducted. Fourth, generalizability, often called external validity, is one of the common critiques to case study (Bryman, 2016; Yin, 2014). However, like other study designs, “case studies are generalizable to theoretical proposition not to populations or universe” (Yin, 2014, *p*21). It increases the chance of generalization once numerous studies are conducted from one research site to another, enabling comparison across time and sites and finding out whether the findings from one site can be applied in the future or at other sites (Blaikie & Priest, 2019). In this sense, this thesis is expected to contribute to generalize how CS advocates shield niche from the regime pressures and change institutions along with the similar studies conducted in different geographical sites.

3.2 Analytical frameworks

Two analytical frameworks are developed from the descriptive theories as presented in chapter 2. The first descriptive theory is that CS advocates employ strategies and resources to protect CS from the incumbent regime environments. It is derived from the concept shielding niche, which refers to protect a niche from six regime environments. The six regime environments become the first analytic framework to analyze strategies and resources that CS advocates in Seoul employed.

The second descriptive theory is that CS advocates engage in changing institutions to promote CS. It is derived from the concept niche empowerment. However, as niche empowerment has limitation on explaining how actors change institutions, institutional work is employed as the second framework.

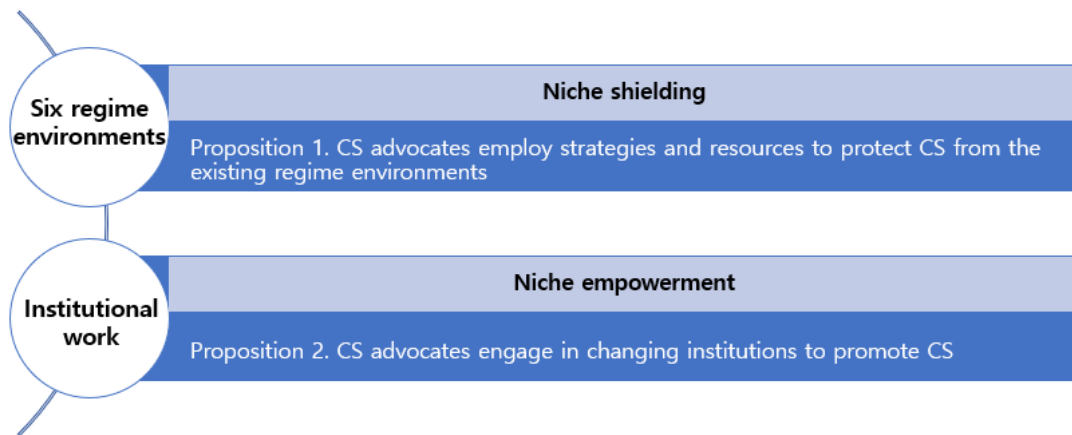


Figure 3-1. Development of the two analytical frameworks

Source: Own illustration

3.3 Data collection and analysis

To collect and analyze data, a qualitative research method is employed although the case study design can be qualitative and quantitative (Bryman, 2016). The qualitative research is defined as research method that aims to understand the meanings that research participants in natural setting hold about phenomena (Creswell & Poth, 2016). It enables to identify thoughts of the research participants (Bryman, 2016). Considering the research questions of this thesis, the author needed to identify the participants’ strategies to mainstream CS scheme in Seoul. The following section presents the detailed data collection and analysis processes of this study.

3.3.1 Data collection

As the first step of this thesis, the research topic was chosen from the list that was distributed during the course “*Applied Research in Consumption Governance for a Transition to Low-carbon and Resource-efficient Economies*” held at International Institute for Industrial Environmental Economics at Lund University. The research topic of urban sharing economy and institutionalization was suggested by the researchers working on an ongoing 5-year project titled “*Urban Sharing: Sustainability and Institutionalization Pathways*”. The project included Seoul as geographical scope. Among various sharing activities in Seoul, CS was chosen due to its unique feature that the government directly supports the CS companies to mainstream CS practice. The author did preliminary research to identify which actors are engaged in CS and to check whether the identified actors is accessible for the study. It was found that the government (SMG and the 25 municipal districts in Seoul) and six CS companies are engaged in CS. Among six CS companies, four of them were part of the CS scheme and the others were not. They were all potential interview participants because the government actors and CS partner companies were the major actors who contributed to mainstream CS; as well as the other two companies could give different perspectives from the major actors.

Literature review

As the author chose a descriptive case study design, it was important to find rigorous descriptive theories that could well explain the case. To identify theories, the peer-reviewed journal articles published in English and accessible by the end of April 2020 were searched through Lund University library tools (LubSearch), Google scholars and Research Gate. The

key topics were 1) CS and sharing economy, 2) MLP and niche management and 3) Institutional work and the key search words are presented in Annex A. By employing the snowballing technique, the author reviewed additional literature that was found in the references of previously reviewed papers and suggested automatically based on the previous search words by journal publisher website (i.e. Elsevier).

Concerning the topic of this thesis, the CS in Seoul, there were few academic literatures thus grey literature was also reviewed. First, the author reviewed the policy document entitled “Seoul CS scheme introduction plan” written by SMG transportation policy department and “Impact of Nanum-car and its operation plan” published by the Seoul Institute. They were both written in Korean and gained from the SMG government official who was a study participant. Also, the author reviewed addition policy documents that were accessible to the public on the website “Seoul Information Communication Plaza” and news articles that SMG wrote. All the reviewed literature was organized in a synthesis matrix and saved in a reference tool (i.e. Mendeley).

Semi-structured interviews

In total six interviews were conducted with SMG government official, a municipal government, three Nanum-car partner CS companies and one CS company that is not a partner. From preliminary research before this thesis, the identified potential interviewees were the government (SMG and the 25 municipal districts in Seoul) and six CS companies are engaged in CS. The author first called SMG government official whose contact was publicized on the SMG official website then asked for introducing the contacts of four partner CS companies and one municipal official for further interviews. It was due to the difficulty of getting direct contacts. Among four partner CS companies, three of them agreed to have an interview. Additionally, the author sent an email to two CS companies that are not included in the Nanum-car program and one of them were participated in the interview.

Four interviews were conducted in telephone and two were in a written form. Due to the geographical distance between Sweden and South Korea, the author asked for an online face-to-face interview to all interviewees. Four interviewees preferred to have a telephone interview and two interviewees decided to have it in a written form. A telephone interview had a limitation that the author could not observe informal communication (Creswell & Poth, 2016) and in a written form interview, it was hard to ask follow-up questions. The list of interview participants is presented in Appendix B.

An interview guideline was designed and distributed to the interviewees before the interview. One example of one interview guide is presented in Appendix C. The questionnaires were developed based on literature review and the research questions then revised according to the context of the interviewees. They were further refined by referring to sample interview questions suggested by the thesis supervisor. The interviews were conducted upon the interview guide with some follow-up questions.

All interviews were conducted in Korean, which made the author and the interviewees easier to engage in the interview. Later, the interview results were translated into English. They were recorded and transcribed under the informed consent of the interviewees then stored in the author’s private computer.

3.3.2 Data analysis

All reviewed literature was organized in three synthesis matrices on 1) CS and sharing economy, 2) MLP and niche protection, 3) institutional work. The author manually computed concise data into an excel spreadsheet. Data reduction and organization helped the author to identify key themes and frameworks for empirical data analysis. The literature review was iterative until the end of this study and additional literature were added in the synthesis matrices.

Based on the literature review, two analytical frameworks were identified and employed when coding. Coding is ‘reducing the data into meaningful segments and assigning names for the segments’, which is the heart of qualitative data analysis and needs description and interpretation from the researcher’s perspective (Creswell & Poth, 2016). According to this definition, code is the names for the meaningful segments. The identified codes were six regime pressures suggested by Geels (2012) and Smith & Raven (2012) as well as the identified mechanisms to create, maintain and disrupt institutions suggested by Lawrence & Suddaby (2006). They were computed in the qualitative data analysis software NVivo. Six interview transcriptions and grey literature were the data sources that were coded, and the author used both prefigured codes and additional codes emerging during the analysis. The results were described and interpreted in the following chapters.

3.4 Adjustments to the research design and methods as a result of the COVID-19 pandemic

The original research design included a field visit and face-to-face interviews as it allows more comprehensive understanding by accurate screening and capturing non-verbal communication. However, due to the COVID-19 pandemic outbreak, international travelling was restricted so the author could not perform a field visit. Instead, the author conducted telephone interviews. Most communications with the potential interviewees were performed via emails, which delayed the data collection processes. Therefore, the author requested a one-week extension for the thesis submission.

4 Results

This chapter presents the CS case in Seoul. Section 4.1 summarizes a brief history and background of CS in Seoul. Section 4.2 and 4.3 answers to two research questions respectively by presenting the analysis results based on two analytical frameworks (six regime environments and institutional work) identified in chapter 2. Strategies of the CS advocates, namely SMG, municipal districts and CS companies in Seoul, were analyzed.

4.1 Car sharing in Seoul

Before the CS scheme was introduced in Seoul, there were few attempts to operate CS in South Korea. The first community-based CS started in 2007, however, it lasted only a few years due to low profitability. Around 2011, CS demonstration projects by a central and local government were operated on a small scale. In late 2011, few private CS companies started their business. They sourced shared cars from several rental car companies and established a consortium with car parks association and other affiliation companies (SMG, 2012). They had the potential to upscale CS service; however, public awareness of CS was still low.

The year 2012 was about the time when the Seoul Metropolitan Government (SMG) began the sharing economy initiative entitled Sharing City Seoul (SCS). SMG showed its determination by organizing Social Innovation Bureau that is under control of the Mayor and enacting Seoul Metropolitan Government Ordinance on the Promotion of Sharing (Ban, 2018). Since then SMG started supporting and encouraging sharing activities in the city. The CS scheme was one of the most important elements under SCS.

A CS scheme was launched in 2013. It aimed to lower private car ownership and solve serious air pollution, traffic congestion, and parking difficulties within the city. Later the CS scheme was named the Nanum-car program as a result of a public contest (Ko, 2015b). CS was included in SMG's long-term transport plan. It was mentioned that SMG visions that CS becomes one of the major modes of transport (Seoul Transport Department, 2013).



Figure 4-1. A sign for Sharing City Seoul, Nanum-car parking space

Source: Retrieved from Medihub (2016)

SMG and CS enterprises formed a public-private partnership to diffuse the CS practice in Seoul. The role of SMG was to coordinate the Nanum-car program and support CS. SMG

mobilizes city-owned resources such as public car parks, reform restrictions and regulations, and publicizes CS by requesting for cooperation to municipal districts and the press. CS enterprises as a service provider, establish operational systems, source shared cars, and allocate them.

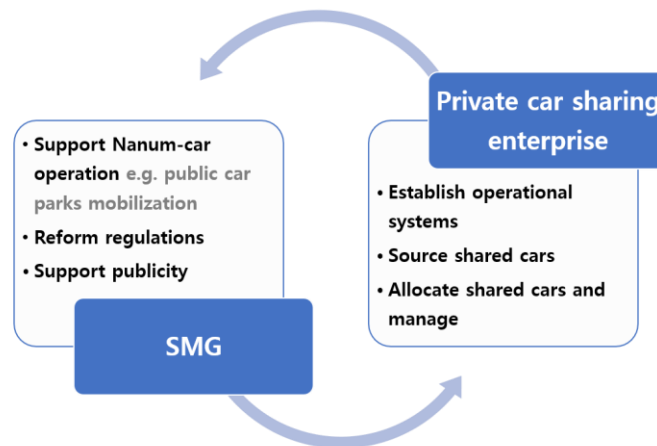


Figure 4-2. Public-private partnership in Nanum-car program

Source: Retrieved from <http://www.seoulnanumcar.com/SeoulNanum/main>

Nanum-car program consists of three phases and each phase has a different main theme. The first phase (2013-2015) was an introductory period and aimed to establish CS systems and increase public awareness about CS. SMG considered this phase as a pilot. The second phase (2016-2018) was a growth period and aimed to expand the number of shared cars, car parks and users. It also focused on developing new projects under the program and giving the perception that CS is safe and convenient. The third phase (2019-2021) is an advancement period and aims to reform regulations that can support CS. Besides, it includes financial support and various projects for different user groups such as the youth and low-income group.

The outcomes of the first phase were successful in terms of the increased number of shared cars and members. Two private CS enterprises (Greencar and Socar) won the bid to become a shared car provider. They mostly provide gasoline-driven cars. To provide EVs, a consortium consisting of four CS enterprises (Citycar, Hancar, KT rental Car, Youcar) was formed by SMG council. In total, there were 676 shared cars including 492 gasoline-driven shared cars, and 184 shared EVs. (Ko, 2015a). By the end of the first phase, the total number of the shared cars were more than doubled (1,816 shared cars including 1,474 gasoline-driven cars and 342 EVs) (Ko, 2015a). Also, Nanum-car members increased fifteen times, from 58,869 in February 2013 to 897,662 in December 2015 (SMG, 2019).

The outcomes of the second phase showed constant growth of CS market. Four of the first phase CS partners (Greencar, Socar, Citycar, Hancar) continued to be a partner in the second phase. By the end of 2018, the Nanum-car members were 1,283,000 with 4,688 shared cars located in 1,444 car parks (SMG, 2019). However, compared with the first phase, the proportion of EVs kept decreasing from 18.8% to 5.8%. This means that the growth in the number of shared cars is mostly attributed to the increase of gasoline-driven cars.

The third phase plans have not been fully executed yet at the time of the research. However, the outcome in 2019 was that new Nanum-car partners (Dealcar and Peoplecar) were selected along with the existing partners (Greencar and Socar). The two new Nanum-car partners source shared cars from small-medium rental car companies and provide CS operational systems. It is touted as a win-win relationship because they pursue coexistence with the disadvantaged incumbent industry.

Table 4-1. The number of increased Nanum-car users and shared cars

	December 2013	December 2018	Increase rate
Members	102,000	1,283,000	12.6 times
Shared cars	933	4,688	5 times
Car parks for shared cars	528	1,488	2.8 times

Source: Retrieved from SMG (2019)

Key CS advocates in Seoul are SMG, municipal districts, and CS companies. SMG and municipal districts as a public actor mainly involve in reforming relevant regulations and publicizing CS to the public. Within SMG, a team of government officials in Transport Policy Department designed Nanum-car program. One of the designers was assigned as a dedicated person of the Naum-car program for six years. It was unusual because most government officials often have rotation duty every two years. From the interview, it was found that a technical officer who has expertise in transport was assigned due to the specificity of Nanum-car program (SMG, telephone communication). At the time of the study, a different government official in Transport Demand Management Team under the Transport Policy Department is responsible for the program. Inter-department cooperation was observed within SMG. Parking Management Department under the same Transport division and Climate Change Department under Climate and Environment Bureau were the ones that are closely support shared car allocation and EVs infrastructure establishment.

SMG consists of 25 municipal districts (called “Gu” in Korean) and each municipal district is autonomous entity with its own mayor and its own legislative council. Municipal districts have a varying number of shared cars and car parks. This is because of different geo-demographic features (i.e. population composition and community characteristics) (Ko, 2015a). Gangnam (146 car parks) and Mapo (130 car parks) municipal district whereby large business districts and university towns are located have most car parks. Within the municipal districts, shared cars and car parks are distributed unevenly. Each municipal district is comprised of numerous administrative division (ranging from 10 to 27). 359 out of 425 administrative divisions have shared car parks however, some divisions have only 1 car parks and others have as many as 40. The number of shared cars in one car park ranges from between 1 and over 10 (Ko, 2015a).

Six for-profit CS companies currently operate in Seoul. Four of them (Dealcar, Greencar, Peoplecar, Socar) are part of Nanum-car program and the other two (Ppoingcar, Naivee) are not. Unlike the other major cities where global giant CS companies are present, such as Zipcar and Car2go, all CS organizations in Seoul are domestic private companies. They only offer B2C and B2B CS services as P2P CS is illegal. The initial Nanum-car providers (Greencar and

Socar) got first-mover advantages and dominate the CS market. According to one calculation, they account for 87% of the market share (J. Choi, 2019).

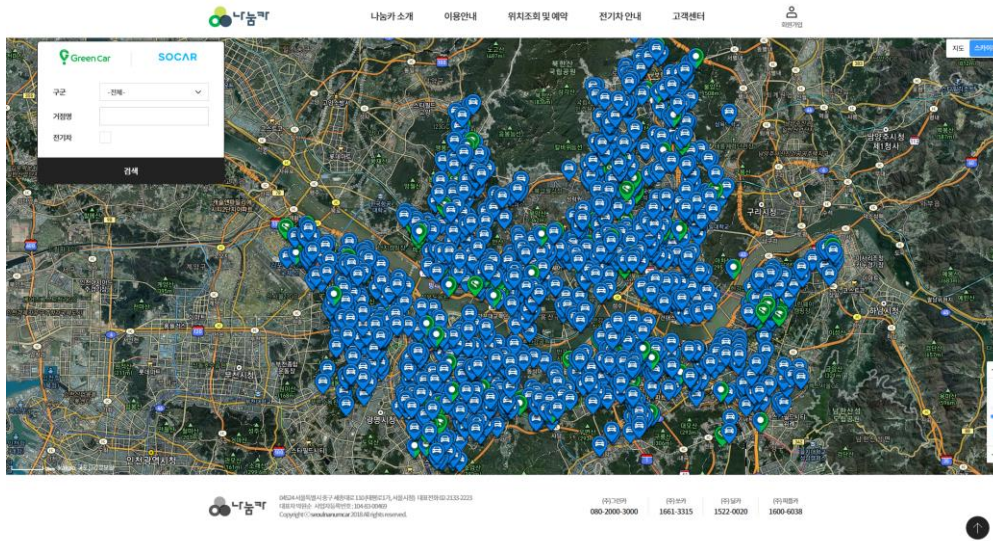


Figure 4-3. The map of Nanum-car parks in Seoul

Source: Retrieved from <http://www.seoulnanumcar.com/SeoulNanum/main>

The following section presents strategies employed by the CS advocates in Seoul to shield CS from the six regime environments.

4.2 Strategies to shield car sharing from regime environments

The following section will present key strategies and resources of the CS advocates (SMG, municipal districts, and CS companies) in Seoul to shield CS from six regime environments. Shielding niche aims to protect niche (car sharing) from dominant regime environments. These regime environments refer to various conditions that make people choose a certain technology or practice. They belong to six regime dimensions, which are infrastructure, technology, industry, policy and political power, user practice and cultural dimension.

4.2.1 Infrastructure dimension

Securing parking spaces for shared cars is one of the important infrastructural requirements. CS companies bear high transaction costs to find parking spaces for their shared cars. For instance, they often need to search for available car parks, persuade car park owners, and go through negotiation. To reduce their burden and to achieve rapid CS diffusion, SMG and municipal districts engaged in expanding parking spaces for shared cars.

One of the strategies employed by SMG was to revise public car parks ordinances. First ordinance revision was about enabling shared cars (confined to Nanum-cars) to be parked in public car parks. The second revision was to enable parking shared cars on the side of the roads as well as car parks in an apartment complex. The third revision was assigning mandatory shared car parking spaces if public city car parks have more than 10 parking spaces (SMG, 2019). This strategy contributed to 5 times increase in parking spaces devoted to shared cars.

SMG's other strategy was mobilizing resource such as institutional networks. For instance, the transport department encouraged Nanum-car service to SMG affiliation organizations. Besides inter-department cooperation between the transport department and the housing department is an example. The housing department in SMG requested public youth housing owners to assign 10% of their parking spaces to shared cars (SMG, 2018).

A strategy of the municipal districts in Seoul was mobilizing car parks owned by the municipality. They mobilized 294 municipal car parks to place 583 shared cars (SMG, 2019). Another strategy was persuading businesses and residents to provide parking spaces for shared cars. For instance, some municipal districts held information sessions targeted representatives of apartment complexes or businesses who have the potential to provide parking spaces.

A strategy of CS companies was to secure not just public car parks but also private ones. They decide shared car location based on profitability. Some CS companies analyzed user data and used it for decision making. Even though parking fees in public parking lots are cheaper than the private ones, they do not necessarily use them.



Figure 4-4. Nanum-cars on-street parking space near Seoul city hall

Source: Retrieved from I. Lee (2019)

4.2.2 Technology dimension

The dominant technology in an automobility regime is internal combustion consuming fossil fuels. This is same for shared cars in Seoul. 94.2% of the total shared cars were internal combustion cars and EVs accounted for only 5.8% (SMG, 2019). To maximize the environmental benefits of CS, changing this dominant technology is important (Jung & Koo, 2018).

SMG was the key actor in increasing proportion of EVs among shared car fleets. The first strategy of SMG was to establish a legal basis. SMG announced new transport initiative '2025 Anytime, everywhere EV in Seoul' and enacted a city ordinance (*Promotion of Environment-Friendly Vehicles Development and Dissemination and Energy*). This was done independently from the Nanum-car program, however, includes the increase of EVs among shared car fleets.

The second strategy was to increase EV charging facilities throughout the city. This was because the lack of charging facilities was a major barrier to people who want to drive shared EVs (SMG, 2017). SMG planned to set up fast chargers that are open to the public. This was because 68% of existing EV chargers were owned by individuals, and only 8% was accounted for a common fast charger (SMG, 2017). Besides, SMG planned to install charging facilities near business districts, gas stations and public car parks. It includes mobile cable charger and

solar energy charging stations. These new charging facilities are subsidized by SMG, Korea Energy Agency, and the Ministry of Environment.

The third strategy was to increase the number of EVs. SMG targeted to increase the number of EVs over 50,000 by 2022 and over 100,000 by 2025. To achieve this, both SMG and national government work together. When buying an EV, there is a subsidy from national and city government. For instance, an EV produced by Hyundai gets a subsidy of 16,000 USD so the actual price becomes 18,000 USD per car. Besides, EV buyers gain benefits on consumption, acquisition, and traffic congestion taxes. The total tax benefits are expected to be 3,700 USD at maximum (SMG, 2017). CS companies can also receive the subsidy and it is expected to contribute the increase of EVs in shared car fleets.

Up until 2020, the Nanum-car program had a no-budget policy. However, SMG assigned a special budget of 406,000 USD in 2020 to give 30% discounts on shared EV usage fares. It was due to expensive usage fares of EVs (about 20%) that make CS users unlikely to choose EV. This is expected to increase EV demand as more citizens experience EVs; to mitigate air pollution and GHG emissions; and to contribute to sharing practice diffusion (Ko, Ki, & Jung, 2017; SMG, 2020a).

SMG encourages purchasing EVs when the Nanum-car partners buy new cars and replace the old ones (SMG, 2020b). All Nanum-car partner companies agreed on the environmental value of EVs and planned to increase the proportion of shared EVs. One interviewee highlighted that SMG's role in establishing EV charging facilities and engaging more citizens to use shared EVs (CS company 1, telephone communication).



Figure 4-5. Shared EV connected to its charger

Source: Retrieved from Mediabub (2016)

4.2.3 Industry dimension

Industry dimension is associated with organizational networks and industry platforms. Nanum-car program provides an industry platform that connects public and private actors. Through this platform, SMG and CS companies have a regular meeting and discuss how to expand the CS service in Seoul. Also, the program works as an inter-organizational network that connects major CS companies since there was no industry association formed by CS companies.

CS companies have a different perception of car rental companies. It was attributed to its business model. When a CS company owned shared cars, it is likely to be more hostile against the car rental industry. It was mentioned that “they joined CS association and paid the association fees to avoid conflict, but there is no meaning other meaning than that” (CS company 1, telephone communication). On the other hand, when CS company source shared cars from rental car companies, they tend to be more in favor of them.

4.2.4 Policy and political power dimension

Policy and political power dimension are associated with setting policy goal and strong political will to protect certain niche practice.

The past transport policies in Seoul were focused on establishing infrastructure for private vehicles. As per economic growth, the number of cars increased, which caused serious air pollution, congestions, and parking difficulties. Accordingly reducing traffic volumes created by private vehicles has been one of the major transport policy goals in Seoul (Ko, 2015b). Various policies were implemented such as road pricing and alternate no-driving systems.

Among others, a CS scheme becomes a focal transport policy to reduce the number of private vehicles since 2013. CS was included in the long term transport policy plan and visioned to become one of the major modes of transport (Seoul Transport Department, 2013). This CS policy, Nanum-car program, was selected as a key component of a SE initiative led by the strong leadership of Mayor Park. As a result, the CS scheme not only became a focal transport policy in SMG but also gained political supports.

Nanum-car program is compatible with other transport policies. As one of the major policy themes is developing a convenient public transportation system, competition between CS and public transportation might be of concern. However, the interview results showed that CS advocates consider the substitution effect between the two modes of transport is low. This is because the price of public transportation is way lower than the CS's and intended use is different. Besides, the policy documents repeatedly mentioned that CS as ‘quasi-public transportation’. From this repetitive statement, it can be inferred that Nanum-car program is another type of public transportation to SMG.

Another example shows compatibility with air pollution mitigation policy. SMG restricts the influx of outdated private vehicles that emits a high level of GHG emissions and fumes within the center of Seoul (called Green Transport Region, see figure 4-6). Instead of using private cars, citizens can either walk or use public transportation, shared cars and bikes. For those who scrap their outdated cars, SMG gives 30% discounts on Nanum-car fares.

Besides, the strategy to encourage EVs in Seoul can be found. Within this region, currently, there are 191 shared cars including 33 EVs. SMG will replace 12 gasoline cars parked in public car parks to EVs in the first six months of 2020. Then EVs parked on-street within this region will be expanded so that citizens can easily borrow shared cars. By 2022, all Nanum-cars within this region will be replaced with EVs (SMG, 2019).

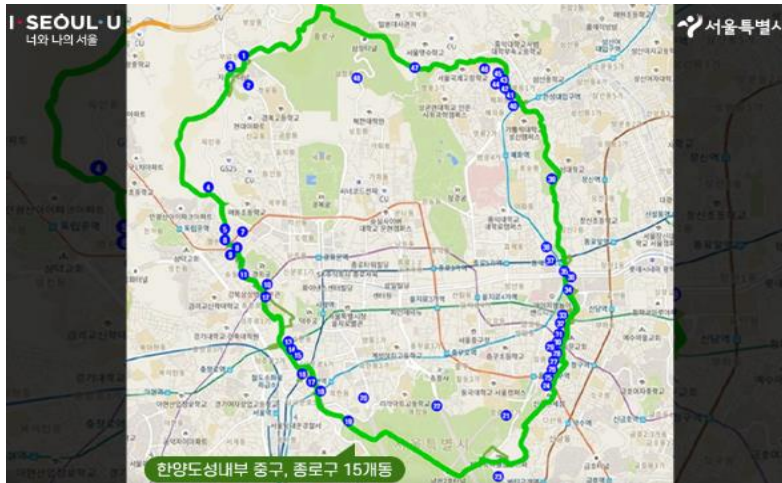


Figure 4-6. Green Transport Region

Source: Retrieved from <http://mediahub.seoul.go.kr/archives/1240681>

4.2.5 User practice dimension

The domination practice in the automobility regime is private car ownership. CS has the potential of being an alternative to private car ownership therefore CS advocates in Seoul tried to encourage citizens to use CS service instead of car ownership.

CS firms targeted customers in 20s and 30s who have less potential to buy a car. As CS provides cheaper, reasonable, and easier access, it becomes successful among young people. This is a way to mobilize passive protective space that is pre-existed due to limitations in the existing systems.

On the other hand, SMG and municipal districts distributed leaflets, press release and broadcasting during the second phase of the Nanum-car program. In 2016, the 25 municipal districts held Nanum-car program information session. During the session, the introduction of Nanum-car program, how to use CS service and its economic, social, and environmental benefits was covered. In 2020, SMG will publicize the Nanum-car by distributing posters and leaflets targeting citizens over 40s.

All CS advocates agreed that the more shared cars in residential and business area result in CS dominance. Most shared cars have been allocated in the areas with a large transient population, which is often far from residential and business areas. In this sense, it was less accessible and inconvenient for most citizens. To solve this issue, SMG targeted apartment complexes, neighborhood associations, and businesses to allocate shared cars. Once residents in apartment complexes and neighborhood associations decided to have shared cars in their car parks, CS companies negotiate discount rates and sign a contract with the representatives of the residents. The residents can get 30% discounts on CS fares, and there are an additional 5 to 10% discounts when EVs is installed.

4.2.6 Cultural dimension

In terms of the cultural aspect, a challenge of CS practice is the symbolic meaning of car ownership. Car ownership often represents high social status, autonomy, and social inclusion and this perception are deeply embedded in society. Still, this perception prevails among

citizens in Seoul. Most interviewees in common mentioned that symbolic meaning of car ownership is a cultural barrier to further mainstream CS.

There were no strategical activities to undermine this perception. However, SMG and CS companies highlighted stepwise changes. It was mentioned that “as private car ownership cultural is prevalent in South Korea, it is important to target replacing the second car with a shared car at first hand. Once more citizens experience CS, they start thinking they do not need their second car anymore and drive a shared car instead” (SMG official, telephone communication). Besides, one CS company emphasize that “to achieve this level, the number of shared cars should be increased so users can drive shared cars whenever, wherever they are” (CS company 1, telephone communication).

Table 4-2. The characteristics of the automobility regime and the logic of shielding CS

Regime dimension	Characteristics	The logic of shielding CS
Infrastructure dimension	Legal and technical infrastructures such as parking spaces and fueling facilities that favour the automobile against other alternative systems	CS requires parking spaces devoted to shared cars; this is an extensive work for CS companies, so the public actors help them to secure car parks
Technology dimension	The dominant technologies used in the automobile, for example, internal combustion engines that heavily rely on fossil fuels	Increasing EVs among shared car fleets requires supports to build necessary infrastructures
Industry dimension	Organizational networks and industry platforms	There was no industry-level platform nor inter-organisational networks to discuss and collaborate to mainstream CS
Policy and political power dimension	Policy goal and power relations promote the automobility, for instance, the automobile used to be politically supported and protected by a national government	Policy goal setting and political support are necessary to incentivize CS. Besides compatibility with other relevant policies improves the effectiveness of CS
User practice dimension	The domination of private passenger cars, which are usually owned by the individual for all-purpose	Target people who have less potential to buy a car, publicity of Nanum-car program to increase public awareness, change user practice by increasing shared cars accessibility
Cultural dimension	The social symbolic meaning of car ownership such as high social status and autonomy	Stepwise changes: target to decrease second cars and a predomination of shared cars

Source: Own illustration

4.3 Strategies to change institutions to promote car sharing

The following section will present strategies employed by the CS advocates in Seoul to create, maintain and disrupt institutions. They are organized according to the institutional work framework identified in chapter 2.

4.3.1 Creating institutions

This section presents institutional works to create institutions. Creating institutions further categorized into regulative, normative, and cognitive. Creating regulative institutions is to set up new political and regulatory structure giving legitimacy to the interested actors. Normative institutional work is associated with changing the roles, values and norms underpinning institutions. Cognitive institutional works are to leverage risks that actors might have when following new institutions.

Regulative institutional work

Three regulative institutional works to create institutions are found while analyzing empirical data. The following presents these three regulative works (advocacy, defining and vesting) and one institutional work (litigation) that was not observed.

Advocacy refers to activities to mobilize political and regulatory supports by persuading powerful institutional actors, for instance, lobbying, advertising and litigations (Suchman, 1995). Two large CS companies (Socar and Greencar) engage in advocacy. They have lobbied the Congress, the Ministry of Land, Infrastructure and Transport and the Ministry of Economy and Finance to create CS legislation however, it remains pending. There have been no CS regulations in South Korea and no discrete legal definition of CS unlike other cities such as London or several cities in the US. Instead, CS companies are subject to car rental law concerning car operation (*Passenger Transport Service Act*), insurance (*Guarantee of automobile accident compensation act*), car maintenance (*Motor vehicle management act*), and taxation (S. Choi & Lee, 2018).

However, litigation was not observed. Ride hailing companies such as Uber are known to litigate against the incumbent industry to gain legitimacy. Rather than choosing litigation, CS companies in Seoul follow the rule systems of the incumbent industry (rental cars) and join rental cars industrial associations. This was a tactic to reduce conflict and continue CS business.

Defining refers to formalizing rules system by conferring identity or determine boundaries such as certification or standardization. Despite lacking legal boundary setting, CS gained formal identity by joining Nanum-car program that is a CS scheme in Seoul. Nanum-car program is based on public-private partnership (PPP) between SMG and CS companies. SMG posted a public announcement to recruit CS service providers every three years. Based on submitted proposals by CS companies, SMG performed qualitative and quantitative evaluation then selected high ranked companies as Nanum-car partners. Interestingly, unlike other PPP projects that often have budget, SMG did not assign any budget for Nanum-car program by 2020 but provides indirect financial supports by revising regulations. For instance, SMG has revised several city ordinances to give 50% discounts on public parking spaces to Nanum-car partners, and reduction in traffic congestion tax.

Vesting allows a public authority to change rules system or the negotiation process by giving rights or responsibilities to whom have not been entitled to. A major contribution was done

by SMG, which allows public car parks to be used for profit-making. Profit-making activities in public parking spaces are not allowed in South Korea. Therefore, SMG revised a public car parks ordinance so that Nanum-car partners can locate shared cars in public car parks. Besides, it becomes mandatory to assign at least one parking space for Nanum-cars in city public car parks whereby having more than 10 parking spaces. This is a pioneer case in South Korea and no other cities except Seoul have allowed this. 52 out of 142 city-owned car parks have at least one shared car (see Figure 4-7). When there is a request for shared car allocation in public car parks, SMG discusses and cooperates with Seoul Facilities Corporation and municipal districts in Seoul that have their public car parks. Other than vesting car parks, SMG and municipal districts become shared cars users by themselves. They allocate shared cars in the city hall or municipal district offices so that government officials can use for the business trips. From the interviews, it was found that 8 shared cars are placed in the Seoul city hall and 5 in Mapo municipal district office.

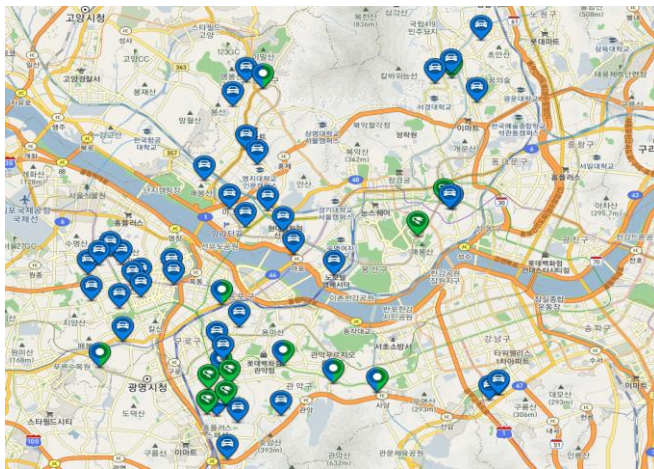


Figure 4-7. The location of shared cars in public car parks

Source: Retrieved from <http://www.seoulnanumcar.com/reserve/nanumSpot>

Normative institutional work

Normative institutional work is associated with changing the roles, values and norms underpinning institutions. The identified three normative institutional works (constructing identities, changing normative associations, constructing normative networks) are all relevant to the case of Seoul.

First, *constructing identities* provides new identities to individuals or organizations. Each CS advocates showed various ways of constructing identities. SMG considers themselves an innovator that initiated a CS scheme in the city and bridged CS companies and citizens. Besides, they emphasize their role as a public service provider. To build this identity, SMG provides shared car use vouchers to socially disadvantaged groups such as low-income groups and people with disabilities. Also, SMG donates accumulated funds that are raised by CS use (accumulate 2 cents per usage).

One municipal district official in Seoul identifies themselves as a marketer as it actively engages in CS publicity. It often persuades municipality-affiliated organizations, apartment complexes and private enterprises.

CS companies in general, differentiate themselves from rental car business because CS is a new type of platform-based mobility service. One company mentioned during the interview that “what CS makes different from car rental is vision. CS visions sharing instead of car ownership” (CS company 1, telephone communication). However, the level of differentiation was somewhat different among CS companies. This was closely related to how solid their business is in the market. Large CS companies that have rather long business history and high profile tend to highlight the difference between CS and car rental. On the other hand, those who provide CS platform service to rental car companies and source shared cars from them highlight mutual growth and win-win relationship with the car rental business.

Second, *changing normative associations* refers to the actions weakening moral and cultural foundations of certain practices and making actors question them. The first existing associated norm was private car ownership. As it becomes common to own more than one car per household, SMG and CS companies aim to reduce ‘second car’. Often second cars are less frequently used compared with the ‘main car’ so SMG and CS companies think that CS can substitute the need for the second car. These CS advocates tend to believe that repeated CS experiences make users question about the need of the second car. Most CS companies expressed both explicitly and implicitly that CS provides mobility service at a cheaper price compared with car ownership, which shapes a positive image of CS. Another strategy was to promote environment-friendly car against a traditional gasoline car. One CS company mentioned that CS helps citizens experience electric vehicles at a reasonable price so that they get to know the benefits of them (CS company 2, written communication).

Third, *constructing normative networks* is forming inter-organizational networks to promote new practices. A normative network was formed between SMG and CS companies who joined in Nanum-car program. The main goal of this network is to mainstream CS in Seoul and the network members suggest projects that help diffusing CS practice. They meet every quarter at the Seoul city hall. During the initial market formation, there was only competition between CS companies and no networking. The interview results showed that thanks to Nanum-car program, CS companies start interacting with each other, otherwise it would have been hard. In contrast, it is interesting that one CS company that is not part of the program described “currently every CS companies compete with each other” (CS company 4, written communication). So far, there is no CS industrial association. Other networks are formed between a municipal district and CS companies who joined in Nanum-car program, and between CS companies and its business partners. They all cooperate to secure car parks for shared cars and encourage more people to participate in CS.

Cognitive institutional work

Cognitive institutional works are involved with shifting the beliefs, assumptions and frames that inform individuals or organizations to follow certain actions. All three identified cognitive institutional work (educating, mimicry, theorizing) was found.

Educating actors is essential to inform new practices that are often accompanied by the creation of new institutions. The main theme concerning education is publicizing CS practice to citizens in Seoul. It was one of the major roles that SMG had, and SMG released articles in the press and the SMG official blog. The municipal districts directly contacted municipality-affiliated organizations, apartment complexes and private enterprises to inform benefits of allocating shared cars in their parking spaces; attended neighborhood meeting; distributed leaflets (see figure 4-8). SMG and municipal districts consider beneficiaries of these education works are CS companies. However, Nanum-car partner companies request for more active

publicity to SMG and highlight the importance of publicizing CS practice itself rather than each members' brands. Some CS companies advertised through mass media such as TV commercials in 2015 and 2016 when the CS practice was not common. At the time of research, they focus more on in-app advertising.



Figure 4-8. Sharing City Seoul, Nanum-car PR leaflet

Source: Retrieved from <http://opengov.seoul.go.kr/>

Mimicry refers to imitating the old practices to decrease unfamiliarity with the new practices. Mimicry and imitation works were observed. First, CS companies have joined rental car association to ease the adoption of the new practice and improve acceptability, rather than forming a separate CS association. This is partially due to legal identification of CS, and to avoid conflict with rental car companies. Some companies just pay association fees, others find their business opportunity by persuading them to join in the shared mobility platform. Second, imitation between CS companies occurred, and one interviewee answered that “they are benchmarking strategies and visions that market leaders and adjust their strategies” (CS company 2, written communication).

Theorizing is the naming of new concepts and practices and categorizing to make them recognizable in one’s cognitive map. The process of naming Nanum-car program is one way of theorizing. The Nanum-car program was named as a result of a public contest. It was one way of publicizing by citizens engagement. The slogan of the program is ‘Without car ownership, everywhere anytime Nanum-car’. Besides, whenever new projects launch, SMG named them for instance, ‘local shared car’ and ‘business shared car’ and used the new names in a press release. On the other hand, the term CS is still not well defined on media coverage and often mixed with other shared mobility services such as ride-hailing or carpool. Few interviewees even responded that the boundary between car rental and CS is becoming blurred.

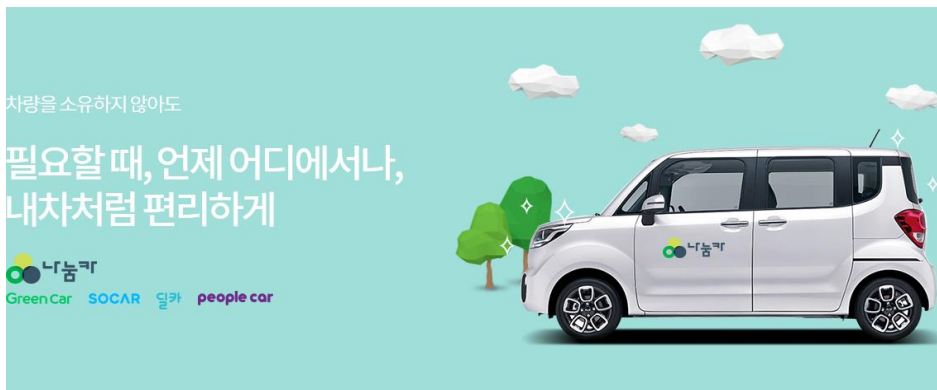


Figure 4-9. Without car ownership, everywhere anytime Nanum-car

Source: Retrieved from <http://www.seoulnanumcar.com/reserve/nanumSpot>

4.3.2 Maintaining institutions

This section presents institutional works to maintain institution. These institutions refer to both newly created institution and old existing institution. Maintaining institutional works are required to enhance the reproductive mechanisms of institution, involving supporting and repairing social mechanisms. They are also subcategorized into regulative, normative, and cognitive.

Regulative institutional work

Three regulative institutional works (enabling, policing, deterrence) to maintain institution are observed. As Nanum-car program has 7 years of history consisting of three phases (introduction, growth, advancement), there were strategical efforts to maintain a newly formed institution during the early phases.

Enabling work is to create rules that encourage, support, and reinforce institutions. After the first phase of the program, regulatory revisions to enable CS continued. SMG mobilized regulatory power so that shared cars can be placed in affiliated organizations and road parking spaces. Also, SMG revised a city ordinance to give 10% discount of traffic congestion tax for companies or building owners who provide parking spaces for shared cars; to allow shared cars to be parked in private apartment complexes; to make it mandatory to have at least one Nanum-car parking space in municipal parking lots; and to establish an untact identification system with the Ministry of Land, Infrastructure and Transport and National Police Agency.

Policing refers to ensuring compliance with the regulative institution through enforcing, auditing, and monitoring. With regards to this work, first, SMG monitors the operational status of Nanum-car partners every month. The partners report statistics on the number of members and shared cars, user behavior to SMG. The statistics are used when SMG analyzes the performance of the Nanum-car program however, it was highlighted that ‘the monitoring is not detailed nor systematic’. Second, SMG grants incentive budget to municipal districts that publicize Nanum-car program. Every year SMG evaluates traffic demand management performance of each municipal district, and how well Nanum-car program is implemented is one of the evaluation criteria. It accounts 15 points out of 100. According to the evaluation result, SMG distributes budget to a municipal district, which works as an incentive. SMG explained municipal districts have much more affiliated parking spaces than the city and they know detailed situations thus it is important to cooperate with them. Besides, the municipal

district official mentioned that “in the end, it is good for a municipal district in terms of reducing traffic caused by cars and encouraging public transportation” (Municipal district official, telephone communication).

Deterrence is to establish coercive barriers against institutional change. This work is associated with the existing regulation that does not consider the distinctive feature of CS. All CS companies refer to the lack of CS regulation as a deterrence. Drawing on the interviews, the common obstacle was that they need to prove the ownership of parking spaces for shared cars, which hinders them to operate one-way or free-floating service. Some CS companies offered a one-way trip for customers who pay extra. It was possible by employing personnel to drive the shared car back to the garage where the car was originally parked. At the time of research, the one-way trip was possible in certain car parks such as Seoul station and Gimpo international airport. It was mentioned that “unlike car rental CS offers short term service. Therefore, it needs to be flexible in terms of parking” (CS company 3, telephone communication) and “despite the differences between car rental and CS, the fact that CS companies need to follow car rental law forces us to bear unnecessary costs and limits businesses expansion” (CS company 1, telephone communication).

Normative and cognitive institutional work

To reproduce norms and belief systems, valorizing/demonizing, mythologizing, and embedding and routinizing are involved. Although demonizing and mythologizing works were not found from this case study, there was implicit valorizing or idolizing. *Valorizing* is to repeatedly provide demonstrations of what is good so that it becomes normative foundations of actors. All actors participating Nanum-car program in common consider that the program is a successful case showing that public and private actors collaborate and contribute to the explosive growth of the CS market. They share this narrative repeatedly and it is reinforced by a positive appraisal by third parties. For instance, in 2017 Nanum-car program won ‘Asian Pacific Innovation Policy Awards’ conferred by the World Public Transport Association. Besides Nanum-car program holds second place in terms of brand awareness and satisfaction according to Sharing City Seoul policy survey in 2018. CS user survey showed more than 97% of them (the sample of 9,768) are satisfied with the Nanum-car service. Referring to this case, other metropolitan cities in South Korea such as Busan and Incheon, have asked SMG and the CS partners to introduce a CS scheme.

Embedding and routinizing is infusing normative foundations to actors’ daily routines and organizational practices through training, education, and certification routines etc. Public actors often involved in this work. For instance, publicizing CS is routinized in municipal district official’s jobs as SMG incentivizes a municipal district that better perform in expanding the number of shared cars. Besides, encouraging public actors (SMG, municipal districts, affiliated organizations) to use CS service during business trips is one way of embedding CS practice. On the other hand, there was a concern of low shared car usage rate by government officials.

4.3.3 Disrupting institutions

This section presents institutional works to disrupt institutions. Disrupting institutional work is mostly associated with discourse and boundary setting by redefining, recategorizing and reconfiguring. All three identified works (disconnecting sanctions/rewards, disassociating moral foundations and undermining assumptions and beliefs) were found.

Disconnecting sanctions/rewards aims to redefine a set of practices, technologies, and rules to restructure relationships between actors and institutional arrangement. This work appears as a way to incentivize CS rather than to directly discourage private car use. As mentioned earlier, municipal districts give the incentive to allocate more shared cars by deducting traffic congestion tax for companies and building owners. Also, some CS companies give free shared car use vouchers and 50% discounts on service fees for the people who sell their cars and use CS service instead. Interestingly, Nanum-car program included discounts on CS fees when CS users transfer from public transportation.

Disassociating moral foundations are relevant to exogenous factors that discourage the existing practice. Two factors were identified, which affect people to divert from car ownership to CS. One is the consumption trend of sharing caused by the economic downturn. People in 20s and 30s who have a hard time getting a job often cannot afford car ownership. Besides, this generation is familiar with using mobile apps. As a response, CS companies provide a compact shared car at a reasonable price and enable easy access through mobile apps. This explains why more than 80% of shared car users are in the 20s and 30s (SMG, 2019). Second, COVID-19 pandemic influenced CS use practice. The interviewees highlighted that the number of users and the profits increased. This is because more people used to commute on public transportation were afraid of being with strangers and chose CS instead.

Undermining assumptions and beliefs are to replace taken-for-granted practices by removing transaction costs. Both the governments and CS companies work to increase business customers by removing transaction costs. It was a common practice to own cars at businesses, which cause economic and administrative burdens. Shared cars can reduce these burdens. For business customers who want to use the existing cars, CS companies offer shared car management systems (i.e. app or website that people can borrow a shared car).

Table 4-3. The key findings of the institutional work in Seoul

Institutional work		
Regulative	Creating	<ul style="list-style-type: none"> • Advocacy: CS companies lobbying the Congress to create CS legal boundary and legislation • Defining: CS companies are formalized by joining Nanum-car program • Vesting: Parking spaces, government actors becoming shared car user
	Maintaining	<ul style="list-style-type: none"> • Enabling work: numerous regulatory revisions, mobilizing city affiliated organizations • Policing: monitoring the operational status by SMG, granting incentive budget to municipal districts • Deterring: the existing regulation that does not support free-floating CS services
	Disrupting	<ul style="list-style-type: none"> • Disconnecting sanctions/rewards: this work appears as a way to incentivize CS
Normative	Creating	<ul style="list-style-type: none"> • Constructing identities: SMG public service provider and coordinator of Nanum-car program, municipal district official as a marketer, CS companies that is different from car rental companies but varies depending on the business model • Changing normative associations: reduce second car initiative • Constructing normative networks: Nanum-car program offers inter-organizational networks and cooperation opportunity
	Maintaining	<ul style="list-style-type: none"> • Valorizing: all CS advocates consider Nanum-car as a success in terms of

		<p>collaboration and contribution to the growth of CS market</p> <ul style="list-style-type: none"> • Embedding and routinizing: focus on expanding the number of shared cars
	Disrupting	<ul style="list-style-type: none"> • Disassociating moral foundations: economic downturn and COVID-19 pandemic
Cultural-cognitive	Creating	<ul style="list-style-type: none"> • Educating: mass media, non-specific target, promotion of CS itself • Mimicry: CS joined the incumbent industry association • Theorizing: naming Nanum-car, CS not clearly defined
	Disrupting	<ul style="list-style-type: none"> • Undermining assumptions and beliefs

Source: Own illustration

5 Discussion

SMG adopted the CS scheme in 2013. To mainstream CS within the city, CS advocates (SMG, municipal districts, and CS companies) employed various activities. As a result of the efforts, the CS market has been growing rapidly.

However, it was not known how CS advocates have contributed to institutionalizing CS in Seoul. To understand this, two research questions were asked:

RQ1: What key strategies and resources did CS advocates in Seoul employ to shield the CS niche?

RQ2: What mechanisms did CS advocates in Seoul employ to create, maintain, and disrupt institutions?

The reviewed MLP and institutional work literature as presented in chapter 2 guide to building plausible propositions: 1) Niche advocates employ strategies and resources to protect CS from the incumbent regime environments, and 2) Niche advocates engage in changing institutions to promote niche practice. Based on the frameworks (six regime environments and institutional work) derived from these propositions, the CS case of Seoul was analyzed as presented in chapter 4. The results provide empirical evidence that supports the identified two propositions and contribute to developing them.

The following section presents the major findings from the case analysis and compares them with the existent knowledge. It is organized in order of the research questions. Then it follows the reflection on the study.

5.1 Assessment of the major findings

Overall, the analysis of the CS case in Seoul suggests that a niche requires continuous and diverse efforts from niche advocates. It includes multifaceted consideration of the regime environments (infrastructure, technology, industry, policy and political, user practice and cultural dimension) as well as institutional change.

Government actors who have political and regulatory power tend to engage in infrastructure establishment and regulatory institutional change. Besides, the results highlight the significant role of the government actors in CS diffusion. On the other hand, private enterprises play a role in expanding the number of shared cars in the city and suggest ideas for policy design by attending a regular meeting.

5.1.1 Key strategies and resources to shield niche

Related to the first research question, the major findings can be summarized as follows.

The importance of local governments in CS institutionalization

The first finding is the importance of the government actors in institutionalizing CS. This was especially true when it comes to infrastructure establishment. For instance, as CS requires car parks by nature, SMG and municipal districts first focused on mobilizing public car parks owned by themselves. Besides, they encouraged affiliated organizations to use a CS service. They employed both material (i.e. car parks) and immaterial resources (i.e. political power and regulatory power) for establishing systems in favor of CS.

Also, the political will of the government actors contributes to CS diffusion. The strong political will to promote sharing activities and sustainable transportation in Seoul imply the increase of shared cars. As the number of cars sharing users increases, SMG diversifies focal strategies. Continuous push from the Mayor, SMG focus on expanding EVs in shared car fleets. This policy direction is compatible with other city's major environment policies, which gives a positive effect on both policies' outcome.

This finding is consistent with the existent knowledge of CS. In CS diffusion, parking policy is essential (Dowling & Kent, 2015; SMG, 2012) and the political will of the city government is determinant (Akyelken et al., 2018). From the planning stage of the CS policy in Seoul, SMG planned how to secure car parks as a key strategy. Also, the CS policy was supported and enforced by strong leadership and its administration.

The importance of cooperation between CS advocates

The second finding is the importance of cooperation among niche advocates. Mutual benefits enabled cooperation. There was no inter-organizational association before Nanum-car program. It was described as a 'complete competition'. However, Nanum-car program forms an industry platform so that major CS companies can join and cooperate to diffuse CS. Besides, it gives CS companies 'official identity' that contributes to its brands' promotion. On the other hand, the government actors can attain its policy goals effectively and efficiently without operating business by themselves.

Cooperation contributes to CS diffusion by changing dominant user practice. To change dominant user practice (car ownership) all CS advocates cooperated to achieve their agreed aim. They all believe the increasing number of shared cars can undermine car ownership. CS companies target people in their 20s and 30s, and SMG and municipal districts mostly target potential parking space providers such as apartment representatives and businesses. The latest strategy is to allocate a shared car near a residential area and business districts so that more citizens can easily access shared cars. SMG is in charge of publicity, and CS companies provide incentives to encourage citizens to join CS. In this way, this is expected to be contributing less car ownership.

For further diffusion of CS to different user age groups, CS advocates need cooperation as they did to increase the number of shared cars. Currently, more than 80% of CS users are in the 20s and 30s. The current challenge is how to engage citizens over 40s. To deal with this issue, SMG plans to publicize CS by distributing leaflets to anonymous people, however, it has a vague target. Interestingly, most CS companies consider publicity is the role of SMG and expect SMG to engage more citizens in different ages.

The difficulty of changing cultural norms about car ownership

The third finding is the difficulty of change cultural norms about car ownership. There were no specific strategies to undermine the cultural meaning of car ownership (i.e. high social status and autonomy). Although the cultural norms are repeatedly considered as one of the challenges for CS advocates, in practice, CS advocates highlighted stepwise changes and focus only on the groups of people where they can influence.

It is attributed to focusing on measurable policy performance. CS advocates in Seoul tend to focus on tangible results, for instance, the increased number of shared cars, car parks devoted to shared cars and users. Most policy documents highlighted these measurable performances.

Besides, the practice focusing on measurable policy performances is reinforced by communication between CS advocates.

Disassociating cultural norms is one of the areas where CS advocates in Seoul put more efforts to further CS institutionalization. It could be achieved by radical goal and performance indicator setting to change the cultural norms.

5.1.2 Institutional change

Related to the second research question, the major findings can be summarized as follows.

Extensive regulative institutional work in the government-led initiative

The first finding is extensive focus on regulative institutional works. Activities done by SMG mostly focused on changing regulative institutions. This is due to the administrative and regulative power that the government has. For instance, vesting to confer car parks devoted to shared cars, defining the official identity of CS companies and various enabling works that support and reinforce CS practice. Especially, there are regulatory barriers relevant to securing car parks, SMG actively revised them so that more shared cars can be distributed throughout the city.

However, the works are limited to a boundary where SMG has control of. Still, the CS field lacks a separate regulation from car rental, which becomes a deterrent for CS companies to operate one-way or free-floating service. To change this, the national level of regulative reform is required. CS companies lobbied the Congress and the multiple ministries, which is still pending.

The importance of policy continuation

The second finding is the importance of policy continuity in institutional work. During the CS policy enforcement, creating, maintaining, and disrupting institution works were all observed. All these works contribute to institutionalize CS and legitimize CS advocates. This result is likely due to policy continuity.

As discussed in the literature review, institutions require intentional works to be sustained. Nanum-car program lasts for more than 7 years, which enables continued and consistent institutional works. In the early phase of the policy, most institutional works were associated with creating institution. Then SMG more engaged in maintaining institutions to sustain the newly created institution. Besides, often governmental officials in Seoul have a short period of service in a position, often 1-2 years. However, the government official of the Nanum-car program had a longer period of terms-almost 6 years. It is another factor that enhances the continuity of the work.

Contribution to institutional work framework

The third finding is the need to add a new mechanism ‘connecting rewards’ under creating regulative institutions category. In the original framework, ‘disconnection sanctions/rewards’ was included under disrupting mechanism. From the results, it was found that CS advocates engaged in incentivizing a CS practice rather than to directly discourage private car use or disconnect rewards. It appears in granting discounts on tax and service fees so that more citizens can be attracted.

5.2 Reflection on the study

To reflect the study, three criteria were applied, and the reflections are summarized as follows.

Methodological and theoretical choices

The single descriptive case study design helped to analyze the unique CS case in Seoul and to confirm two descriptive theories by giving extensive empirical evidence. The two descriptive theories derived from the existent MLP and institutional work literature contribute to narrow down research questions and provide analytical frameworks.

Although the choice of study design and the theories were appropriate to achieve the research aim and answer to the research questions, there are some limitations in methodological choices and theoretical choices.

The first limitation resides in the weakness of niche protection conceptualization. Different phases of niche protection processes (niche shielding and empowerment) have distinctive features but occur iteratively and simultaneously. As one strategical activity can function as shielding a niche and empower it, there was some overlapping in the results. For instance, the activity to ‘reduce a second car’ is associated with changing the normative institution. This can be interpreted as a way to undermine the dominant symbolic meaning of CS (shielding CS from the cultural regime environments) as well as changing normative associations (institutional change).

The second limitation is the vague conceptualization of regime environments. It was valuable to analyze the actor’s strategies based on this framework because it helps more systematic analysis of how a niche interact with the regime environments. However, with a limited literature review, it does not explain how the dominant regime works as a barrier to a CS. In future research, different regime environments, the characteristics and impacts of a niche can be further explored.

The third limitation is the collected data sources. Most reviewed literature is policy documents and except interviews, there were limited data sources to analyze business actors’ strategies. This might result in downscaling the works done by businesses.

The fourth limitation is the deductive approach when coding. When applying the second framework institutional work, the author tends to rely on the categorization of the framework. It might result in ignoring important institutional works that can be created from the case. To reduce this risk, the author suggests adopting both inductive and deductive approach when analyzing the institutional works of the actors.

Legitimacy

According to the purpose of the research aim ‘to describe’ how the CS advocates engage in institutionalizing CS in Seoul, two ‘what’ research questions were asked. The research questions were legitimate as they were simple, clear, and answerable. The study results gave answers to all research questions and filled the identified knowledge gaps.

During the study, new research questions have emerged, which are: **why do cultural norms attached to car ownership be changed?** and how can these cultural norms be changed?

Generalizability

Generalization in qualitative research can be achieved by numerous empirical studies conducted in different geographical areas and time (Blaikie & Priest, 2019). In this sense, this study contributes to expanding the geographical scope of the current SE studies. Most conducted empirical studies on the SE focused on Europe and North America. Besides, the key research findings outlined in chapter 5 confirmed the existing knowledge. For instance, the importance of local governments and their political will. Or the two propositions derived from the literature review. As a result, this thesis contributes to strengthening the existing theories by providing a coherent illustration.

6 Conclusions

CS, as an alternative sustainable mode of transport, got attention from numerous city governments. The city of Seoul is one of the examples to adopt the CS scheme in the city. It was praised as a successful case where the city government diffuse sharing activities. However, it was now known how CS advocates engage in institutionalizing CS.

To describe how CS advocates' activities have contributed to institutionalizing CS, two research questions were posed:

RQ1: What key strategies and resources did CS advocates in Seoul employed to shield the CS niche?

RQ2: What mechanisms did CS advocates in Seoul employ to create, maintain, and disrupt institutions?

The research results highlight the significant role of SMG in CS diffusion. They mostly engaged in infrastructure establishment (i.e. parking policy) and regulatory institutional change. The strong political will to promote sharing activities was another key determinant to lead success. On the other hand, private businesses have a role in expanding the number of shared cars so that more citizens can access easily.

When it comes to change dominant user practice, car ownership, both actors agreed that the increased number of shared cars can undermine car ownership. To achieve this common goal, they cooperate. However, in the area where both have fewer interests such as diversifying user age groups and undermining the cultural meaning of CS, there were less engagement and cooperation. It highlights the importance of mutual benefits in public-private partnership and the need for a radical change of normative and cultural-cognitive norms.

Policy continuity is important to create and maintain institutions. Institutions created by strategic works by niche advocates need continuous support until it can be reinforced by itself. In this sense, policy continuation is another key determinant to enable institutional change and its sustainability.

Disassociating cultural norms attached to car ownership is the area where CS advocates need further inputs. It is attributed to the tendency of CS advocates focusing on measurable policy performance such as the increased number of shared cars. It could be achieved by radical goal and performance indicator setting to change the cultural norms.

The research suggests including a new mechanism under the institutional work framework. In the original framework, 'disconnection sanctions/rewards' was included. However, CS advocates engaged in incentivizing a CS practice rather than to directly discourage private car use or disconnect rewards. Therefore, it suggests adding a new mechanism 'connecting rewards' under creating regulative institutions category.

6.1 Practical implications and recommendations for non-academic audiences

The target non-academic audiences are the research participants. The practical importance of this study suggests that CS policy in Seoul was successful in establishing necessary CS infrastructure and the increase in the number of shared cars. This was due to strong political will and policy continuity over 7 years. However, to achieve more extensive diffusion of CS, conscious efforts to undermine dominant user practice and disassociate cultural meaning of

car ownership is needed. The current barrier that CS companies felt was the lack of CS regulations and legal boundary setting. This can be done by engagement of national-level actors.

6.2 Recommendations for future research

The target academic audiences are researchers who have an interest in niche protection and institutional work of sharing organizations. The contribution of this thesis to the existent knowledge and recommendations for future research can be summarized as follows.

First, this thesis supports the existing proposition and offers empirical evidence on how niche advocates employ strategies to shield CS niche from the existing regime environments. For future research, it is necessary to explore how six regime dimensions become a barrier to a niche development and what the actors' strategies to shield from the pressure from the regime. This will help to scrutinize the concept of shielding niche.

Second, it contributes to providing empirical evidence on how actors change institutions to diffuse sharing activities in a city. The case of Seoul, as an example of a government-led sharing initiative, expands geographical contexts of the existing study. The future research focuses on developing institutional work framework by adopting the inductive approach.

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Appendix A: List of keywords for the literature review

Category	Keywords	Database
Academic literature	<ul style="list-style-type: none"> - Sharing Economy - CS - Shared mobility - Environmental benefits of CS 	LubSearch Google scholars Research Gate Elsevier
	<ul style="list-style-type: none"> - Multi-level perspective - System change - Niche innovation - Niche protection - Niche management 	
	<ul style="list-style-type: none"> - Institutional work - Institution theory - Institutional change 	
Grey literature	<ul style="list-style-type: none"> - Nanum-car program - Seoul, CS - Socar - Greencar - Peoplecar - Dealcar - Sharing City, Seoul 	Seoul Information Communication Plaza Google.com

Source: Own illustration

Appendix B: List of interview respondents

Organization	Position	Date	Duration	Interview method
Seoul Metropolitan Government	Deputy director	2020-03-16	80 minutes	Telephone communication
Mapo municipal district	Senior Staff	2020-03-26	35 minutes	Telephone communication
Socar	Team manager	2020-03-19	70 minutes	Telephone communication
Greencar	Assistant Manager	2020-03-27	-	Written communication
Dealcar	Executive Director	2020-03-17	60 minutes	Telephone communication
Ppoingcar	Chief Marketing Officer	2020-03-26	-	Written communication

Source: Own illustration

Appendix C: Example of interview guide

Interview guide

Interviewee name:

Organisation:

Title:

Interviewer:

I am a researcher from the International Institute for Industrial Environmental Economics (IIIEE) working on a thesis project on CS. The research aims to understand the current pathways towards a transition to a low carbon transport system adopted in Seoul. To achieve this aim, this interview is planned to identify the role of the main actors in affecting this pathway, and to understand the dynamics between the main actors.

The interview will be recorded and used only for this research purpose.

I Overview

1. You are responsible for NanumCS program in Seoul Metropolitan Government (SMG).
 - A. What are your main tasks there?
 - B. Internally what other departments or teams engaged in CS on the city level? E.g. Sharing City, Seoul team
2. Can you tell me a bit more the history of the Nanumcar program?
 - A. Who do you think are the main stakeholders on the city level?
 - B. Have you done any analysis or evaluated the CS policies?

II Governance

1. What is the relationship between the CS businesses and the city government?
 - A. Why did the government decide to form a public private partnership to legitimize CS?
 - B. How did the CS service providers (Socar, Greencar etc.) selected?
 - C. What do the government support (financial, technical, promotional)?
 - D. Have you experienced any challenges when working with them?
2. How is the relationship between the local government (Gu-level) and the national government?
 - A. What do you cooperate and how?
3. How would you describe the engagement of the city in mainstreaming CS?
 - A. Enabling, supporting, restricting, legislating?
 - B. Is there anything that is unique for Seoul with the CS scheme that you have not seen elsewhere?

III Institutionalisation strategies

1. What are the strategies of the city government to introduce and mainstream CS?
 - A. What are the regulatory changes introduced to make CS work in Seoul?
 - B. What did you do to create/disrupt identities and images of CS, challenging prevalent norms e.g. from owning a car to borrowing?
 - C. How did you educate or communicate people to promote CS services e.g. CS as environmental-friendly solution?
2. How has the CS landscape in Seoul changed over last 5 years?
3. How do you see the development of CS in the next 5 years?
 - A. What will be the main opportunities and challenges and why?
 - B. How is it going to develop and change?

IV Drivers & Barriers

1. What are the driving forces behind the provision of CS services in Seoul, e.g. intrinsic and extrinsic governmental support?
2. In your opinion, what are the legal or cultural barriers to the growth of CS scheme?
3. Has the Nanumcar program encountered any conflicts with the established businesses e.g. traditional rental car companies?
4. Do you see any tensions/conflicts between choosing public transportation and CS?

V CS and sustainability

1. How do you see sharing and its potential in relation to sustainability goals/challenges of Seoul?
 - A. Discuss economic, social and environmental potential, if possible
2. What do you think is needed to promote low carbon mobility system in Seoul?
 - A. E.g. Knowledge, human resources, finance, political will etc.
 - B. Who should take the action?

Thank you for the interview today! Before finishing the interview, I have some finishing questions to ask.

- Are there people or organizations that you think important to talk to?
- If it is possible, could you share the contacts?
- Can I come back to you in case I have further questions?
- Is it okay if I quote your opinion in the research paper?

Source: Own illustration

Appendix D: Coding structure on NVivo

Category	Nodes	Sub-Nodes
Six regime environments	<ul style="list-style-type: none"> - Infrastructure dimension - Technology dimension - Industry dimension - Policy and political dimension - User practice dimension - Cultural dimension 	
Institutional work	Creating institution	<ul style="list-style-type: none"> - Advocacy (lobbying, advertising, and litigation) - Defining - Vesting
		<ul style="list-style-type: none"> - Constructing identities - Changing normative associations - Constructing normative networks
		<ul style="list-style-type: none"> - Mimicry - Theorizing - Educating
	Maintain institution	<ul style="list-style-type: none"> - Enabling work - Policing - Deterring
		<ul style="list-style-type: none"> - Valorizing/demonizing - Mythologizing - Embedding and routinizing
		<ul style="list-style-type: none"> - Disconnecting sanctions/rewards
	Disrupt institution	<ul style="list-style-type: none"> - Disassociating moral foundations
		<ul style="list-style-type: none"> - Undermining assumptions and beliefs

Source: Own illustration

Appendix E: Letter requesting support of research



January 27, 2020

International Institute for
Industrial Environmental Economics

Letter requesting support of research by Ahra Jung

Ahra Jung is a Master Student at the International MSc Programme in “Environmental Management and Policy” at the International Institute for Industrial Environmental Economics at Lund University, Sweden. She is currently conducting research on the sharing economy and writes her MSc thesis.

Ahra’s research is part of the ongoing 5-year project with global scope titled “*Urban Sharing: Sustainability and Institutionalisation Pathways*” funded by the European Research Council (<http://www.urbansharing.org/>). Please find more information about the project in the information sheet on the next page.

As a principle investigator and project manager I am requesting your support of Ahra’s research. Her methods for data collection will be interviews with stakeholders relevant for urban sharing and study visits. The outcomes of the research will be academic publications.

Thank you very much in advance for your time and consideration.

Professor Oksana Mont
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URBAN SHARING: Sustainability and Institutionalisation Pathways INFORMATION SHEET

This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (Grant Agreement No. 771872).

Description of the Research Programme

Urban sharing of assets has emerged as a prospective solution to sustainability challenges faced by cities. However, its sustainability potential and institutionalisation pathways have not been examined. The project *Urban Sharing* aims to examine, test and advance knowledge about urban sharing organisations (USOs) across 5 cities: Amsterdam, Toronto, Shanghai, Seoul and Melbourne.

Our objectives are:

1. DESIGN: To examine how USOs are designed and operate and how they vary in different city contexts.
2. PRACTICES: To study the sustainability impacts of USOs and how they vary across cities.
3. PATHWAYS: To advance theoretical understanding of institutionalisation pathways of USOs across cities.

As part of this research programme, we invite you to an interview. We would like to learn more about:

- which *USOs* and *partnerships* have emerged and why, their history, how they are organised, what are their key activities and users;
- existing formal and informal *assessments* of tangible sustainability impacts of USOs and perceptions of various *stakeholders* about USOs' environmental, social and economic potentials;
- contextual factors including drivers, barriers, risks and opportunities that influence institutionalisation, normalisation and mainstreaming of USOs.

The collected material will be used to produce reports about sharing in the five cities, and will conduct a cross-case analysis of the USOs in these cities. Research will result in academic publications, an online blog and short films, as well as public communications and policy briefs reaching out to different actors in interactive ways, e.g. academia, policy makers, sustainability practitioners, and citizens. The research results will be accessible at: <http://www.urbansharing.org/>.

Data Management

All the data for this project is collected and stored in accordance with the General Data Protection Regulation (GDPR) 2016/679 of the European Union. More information about GDPR implementation at Lund University can be found: lunduniversity.lu.se/gdpr. All the research materials, including the participants' data will be securely stored during the continuation of the Urban Sharing project (5 years) at a protected shared virtual space of Lund University - LU Box,



This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement No 771872).

which provides password access only to the members of the project team (<http://www.urbansharing.org/team>). At any stage of Urban Sharing research project, the research participants have a right to gain access to their own personal data, request its correction or deletion or limitation to processing of data as well as they can file a complaint about how their personal data is used.

For any enquiries regarding this research, please contact:

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Source: Personal email communication