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# Developing a Car Sharing Service Concept for Uusimaa Area

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My studies at Industrial Management was an interesting journey that let me meet with highly educated and talented people. It opened up new spheres in my life and widened the perspectives. I am very grateful to all my instructors at Industrial Management and my supervisor Zinaida Grabovskaia at Metropolia AMK for her support along the research journey, and Juha Haimala managing that program.

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<p>The thesis focused on developing a car-sharing service concept for the Uusimaa area, Finland, based on customer needs. The study was commissioned by Company X, an international corporation with offices located in Uusimaa.</p> <p>The theoretical part focused on the relations between service and need, service concept elements and ended in a conceptual framework for building the proposal.</p> <p>The current state analysis was carried out by analyzing customer needs, revealing main patterns in vehicle needs and relating them with the current market offers. The current state analysis revealed the gaps and opportunities in the current car-sharing concepts in Uusimaa. It was conducted based on qualitative research methods. Data was collected and analyzed in the current state analysis around two topics, the car-sharing concepts and true customer needs in vehicles. Massive data was gathered also from the customer interview based on questions related to the needs in rental cars.</p> <p>The study revealed that the true customer needs lead to utilizing a vehicle in a unique way, but with common patterns. To satisfy that demand, car-sharing services have to be flexible enough. However, some challenges push the company to limit the service area such as the unbalanced car stock, further relocation, and possibilities to stock cars in dead areas. Currently, services are focused around city central areas. A free-floating model that basically provides flexibility and is focused around the service area in the city central part already has found low marketability in Finland and Sweden and led the wide-known company to close this type of service. On the contrary, the data from customer interviews revealed that as far as customers find the available routes inconvenient and complicated, their needs for cars become stronger and very definite, especially for outlying areas. Additionally, the study revealed the needs in car-sharing service may be bundled and thus have a synergistic effect, e.g. by rewarding a customer with the extended area and thus differ from others.</p> <p>The proposal for the service concept was built around the opportunities that lay outside the current service area, utilizing a wide and non-standard approach. The study proposed that the service area is extended with a wider net of stations organized via a selected company partner, Kesko groceries stores, chosen as the partner to increase available parking locations and the marketability. The proposed solution tackles precisely the customer needs in car-sharing service, it shows the new logic of bundling additional services, and encourages companies to modernize the existing service models.</p>	
Keywords	Service concept, Car-sharing, Customer need

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## Section 1. Introduction

The European regulatory system strictly dictates that changes toward fewer climate impacts must be applied in almost every business area. The changes occur toward smart cities, conscientious companies, and consumers doing environmentally-friendly solutions, and as changing in customer behaviour toward sharing instead of ownership. Additionally, shifts in business have occurred by the implementation of circular economy opportunities. It is done via renewable and electrical power transport, low carbon energy systems, recycling, and new circular business models. It comes as a challenge for some companies and open up opportunities for others.

New shifts toward sharing instead of ownership is especially popular in Europe in the transport business area. A car-sharing service is one example. More and more customers choose to get rid of their own vehicles and utilize a shared car. Desire to avoid costs and maintenance leads to choosing freedom, flexibility, and payment per use.

In the context of such changes, the current Thesis investigates the opportunities for launching a new car-sharing service in Finland for the international corporation X, with offices located in Uusimaa. The case company is interesting to explore an opportunity to create a service that would truly satisfy customer needs and could expand its own service opportunities.

### 1.1 Business Context

The case business owner of this Thesis is an industrial company that operates internationally. Originally, the company specialized in the wholesale-retail segment and thus does not have enough experience in the transport area. However, nowadays the company is actively developing and offering services. This international company, operating in Finland, investigates the possibilities to expand its services for end-users. One of the options is a car-sharing service.

The company is interested to consider designing a car-sharing service based on true customer needs and differentiation from the existing providers. At the same time, the case company would like to investigate the opportunities to utilize current company



assets, such as existing partner relations. Tackling the real customer need with service satisfaction is crucial.

## 1.2 Business Challenge, Objective and Outcome

The business challenge for this study is to design a concept for a car-sharing service based on true customer needs for the Uusimaa area, Finland, as the case company is interested to expand its service business areas. As the company articulates it, they are interested in the investigation of the current situation on the market, investigating customer needs and insights, and the situation with the competitor offerings. The company does not know how to approach the end-users, since so far it has mostly dealt with designing services for the B2B segment. This creates an additional challenge for this study.

Accordingly, the objective of this Master Thesis is *to propose a service concept for the car-sharing service based on the investigation of customer needs*. The study also analyzes the competitor services. The outcome is a service concept for the car-sharing service.

## 1.3 Thesis Outline

In order to proceed with the design of a service concept, this study first investigates and interviews potential customers using some specific tools that should be synthesized from the existing best practices, and also check the situation with competitors.

The study is organized into seven sections. Section 1 is the introduction. Section 2 describes the research approach and data collection and analysis methods. Section 3 contains a literature review that is done to identify the relevant tools and constructs for designing a service concept. The first part of Section 4 presents the results of the analysis of best practices in the car-sharing business (competitor offerings), compares the existing services and key value drivers. The second part of Section 4 contains the analysis of customer needs and insights based on customer interviews. Section 5 presents the initial proposal based on the current state analysis and the identified customer needs, guided by suggestions for designing a service concept from literature. Section 6 presents the results of the validation of the initial proposal with the company

stakeholders and selected customers and proposes the final version of the service concept for the case company. Section 7 contains the conclusions and evaluation of the research quality and outcomes of this study.

## Section 2. Method and Material

This section discusses the research approach and presents the research design with the stages how study was conducted. It starts with research approach. Next, it leads to the research design. The third part is data collection and analysis. The final part presents the thesis evaluation criteria.

### 2.1 Research Approach

Research approach includes logical steps which are aimed to collect data, analyze it and interpret the findings. The way to conduct the research has various options with own advantages and disadvantages.

There are two main research strategies: qualitative and quantitative. Qualitative research is aimed to research the episode and interpret the findings using information other than statistics. Qualitative data can be collected e.g. from verbal interviews, characterized as non-countable data. (Kananen 2013: 31-32).

In the business field, there are also various research approaches, with the most popular being Action research, Case studies, Design research, and others. The literature describes Action research as a more suitable approach for changing phenomena related to social context. It comes up from Lewin's work who attempted to utilize methods from natural science to social sciences. (Blichfeldt 2006:2) Kananen (2013) finds some similarities between Action research and Design research. However, Action research needs the investigator to be involved directly in developing processes and operations. Design research is usually aimed at developing products, services, processes, or actions.

This study is conducted following the logic and methods of the Design research. The main reason for that choice is the practical side of this methodology. It proposes useful functional and practical research techniques and aims at developing solutions. (Kananen 2013: 20). For conducting a Design research study, it is not enough just describe, understand or explain the phenomena, as it is done in a case study, but rather to focus on design, validation and testing of a proposed functionality.

According to Kananen (2013), the Design research approach is used for development and utilizes a cyclic research process. However, since the approach itself is quite

young, its research nature has been subject to intense debate. The main reason is the combination of several methods and tools conducted along the research process.

Accordingly, this study selected Design research as it is a research approach. The researcher aims at bringing a change and is involved as an external party to the development project. Also, the study utilizes a variety of research techniques relying mostly on the qualitative research strategy. All these features make the Design research the most appropriate research approach for this study.

## 2.2. Research Design

This study relies on the research design that consists of five consecutive steps in the research process. These stages are presented in Figure 1 below.

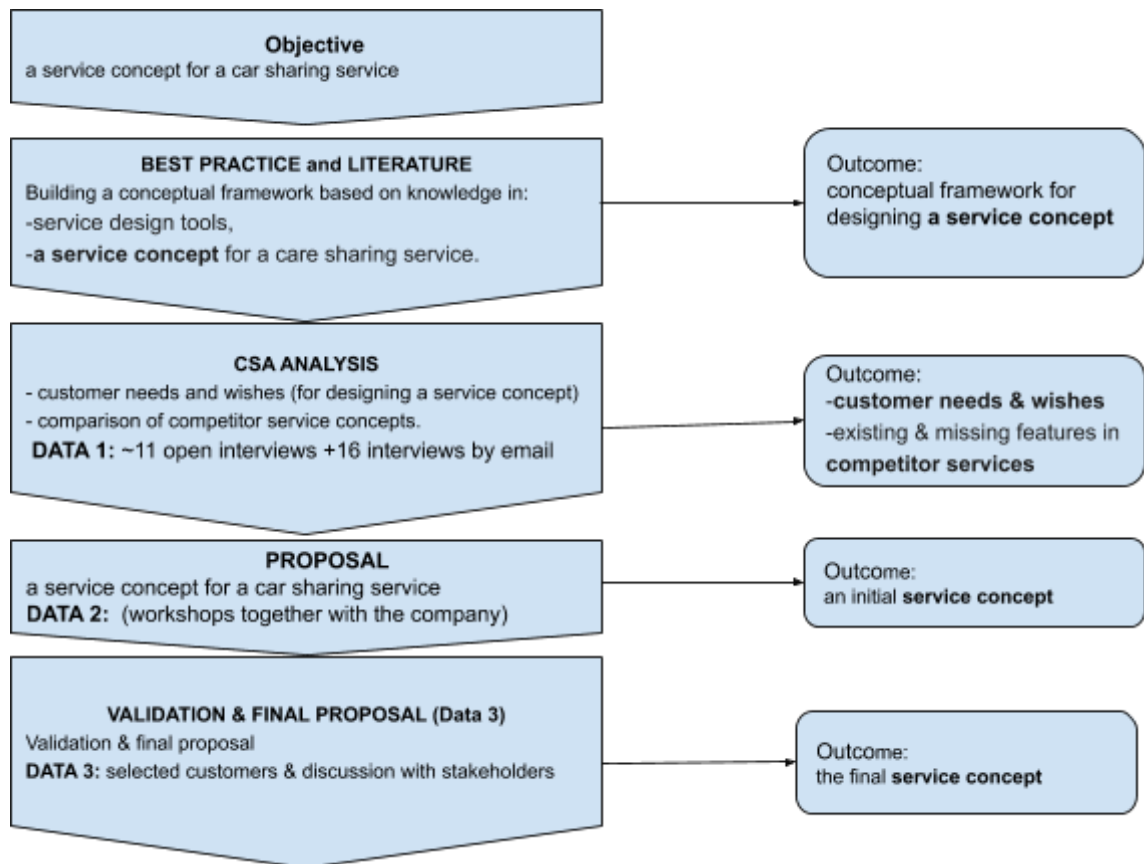


Figure 1. The research design of this study.

The study starts with setting up the objective. The study continues to explore literature and best practice on designing a service concept. To identify key elements of the

service concept, the literature review is done. The outcome is as a conceptual framework on how to build a service concept.

The next step is the current state analysis conducted after gathering Data1. The current state analysis is done by exploring the existing car-sharing services in the European Union and Finland with comparative analysis as the outcome. After that, customer needs are identified through open interviews. Open interviews collected and analyzed customer experience with the rental cars and car-sharing services. The results give a basis to detect patterns in customer needs and create User personas. Based on Data 1, the researcher created the draft of the car-sharing service proposal, based on gathering and analyzing Data.

The next step of the study is validation. Based on company requirements, validation was done together with key stakeholders and with a selected big audience (Data 3). The end step was the final proposal for the service concept.

### 2.3 Data Collection and Analysis

Data for the study was collected from a variety of sources in three data collection rounds. Table 1 below shows the detail of data collection.

Table 1. Details of interviews, workshops, and discussions in Data 1-3.

Participants / role	Data type	Topic, description	Date, length	Documented as
<b><i>Data 1 for the Current state analysis for existing car-sharing service concepts and true customer need (Section 3 or 4)</i></b>				
Company stakeholders	workshop	research objective and design approach, competitors service concept	Nov 2018, 1 hour	Fieldnotes
Case companies	frequently asked questions	the service concept of competing companies	Nov 2018, 2 hours	table of comparative analysis
Informants 1-13	face to face interview	customer experience with cars and car-sharing service	Jan- Mar 2019, 45min	Field notes and recording

Informants 1-17	Questionnaire by email	Customer experience with cars and car-sharing service	Jan-Feb 2019	Filled questionnaire lists
<b>Data 2, for Proposal building (Section 5)</b>				
Company stakeholders	Workshop	Initial proposal of the service concept draft	March 2019	field notes and recording
<b>Data 3, from Validation (Section 6)</b>				
Company stakeholders	Feedback to initial service proposition	Validation, evaluation of the proposal	April 2019	Field notes and recording
Big audience	Qualitative interview, feedback	validation, evaluation of the proposal	April 2019	

As seen from Table 1, data for this study was collected in three rounds: for the current state analysis, proposal, validation.

Data 1.1 was collected from the workshop with company stakeholders in order to clarify competitors and research methods. The next step was the comparative analysis based on frequently asked questions and information from the official company web page. Data 1.2 was gathered from face-to-face live interviews with 20 informants. The interviews were recorded and turned into field notes. During the interviews, various techniques were used e.g. mapping to create customer patterns and need. Questions were created in advance, but were used as semi-structured and created a path for the interview, leaving enough freedom for the informants to express their own experience.

Data 2 was gathered when building the draft proposal of the service concept. The draft proposal was developed in a workshop with the company stakeholders and recorded for further development.

Data 3 from validation was gathered in two steps: as feedback from the stakeholders, and as qualitative data from a workshop with a big audience.

The biggest part of the data was generated during the current stage analysis. The findings from the current state analysis are discussed in Section 3 below.

## 2.4 Thesis Evaluation

Along with conducting this study as design research, the evaluation criteria such as credibility, reliability, and validity were taken into account.

In this study, to ensure credibility and reliability, high-quality sources from the service development field are utilized. For conducting analysis and discussion on the service development topic, the best available studies by the leading Nordic service scientists are selected and utilized.

For improving the research reliability, there is a number of instruments available. In the current thesis, reliability is ensured along the research path via steering discussions at critical points of the research design with the company stakeholders. The quantitative research elements are conducted with ensuring with proper documentation, accurate data records, and field notes. The data is collected carefully and made available in the study. In that regard, any other researcher can retrieve the initial raw data and determine whether the argumentation is done correctly and there are no gaps.

The validity criterion is critical to ensure that correct tools are used and correct insights are generated. In this study, validity is ensured by taking the following steps. The current thesis is conducted with the customer company according to market demands along with the meeting discussion. In that way, the validity and relevance of the research are ensured and validated with the stakeholders. At the final phase, the solution is validated using quantitative analysis methods.

### **Section 3. Existing Knowledge and Best Practice for Designing a Service Concept**

This section discusses existing knowledge and best practice for designing a service concept for a car-sharing service. The section starts with the description of different service design methods. Further, it continues to the relevant service design tools, where narratives and dream catching techniques are covered specifically, as the selected tools for this study. The section then deepens into the service concept literature to analyze several available models, with a specific focus on the service concept elements. This section ends with a conceptual framework to further proceed to designing a service concept in the next sections.

#### **3.1 Service Design Approaches**

*Service design* for the last decade has grown into a significant management subject (Patricio et al: 2011). Based on the Service-Dominant (SD) logic, service design should be done in a way to support customer activities and processes. The foundation of that is the service itself. Service presents as a company approach to support the customer everyday activities through boosting the customer value creation, so that every player can achieve their desired goal in life or business (Grönroos: 2015, 221). That has a reflection on the service production process.

Grönroos (2015, 221) believes that it is critically important to clarify well and understand the difference between design for service and service design. *Design for service* uses a wider meaning of customers' signing resources and processes in a way to support customer's activities or other participants in value creation. These practices are defined as *Design for service*. (Kimbell L: 2011) In other words, design for service requests in *an offer* where service design and other products are included.

Figure 2 illustrates the triangle model of Design for service.



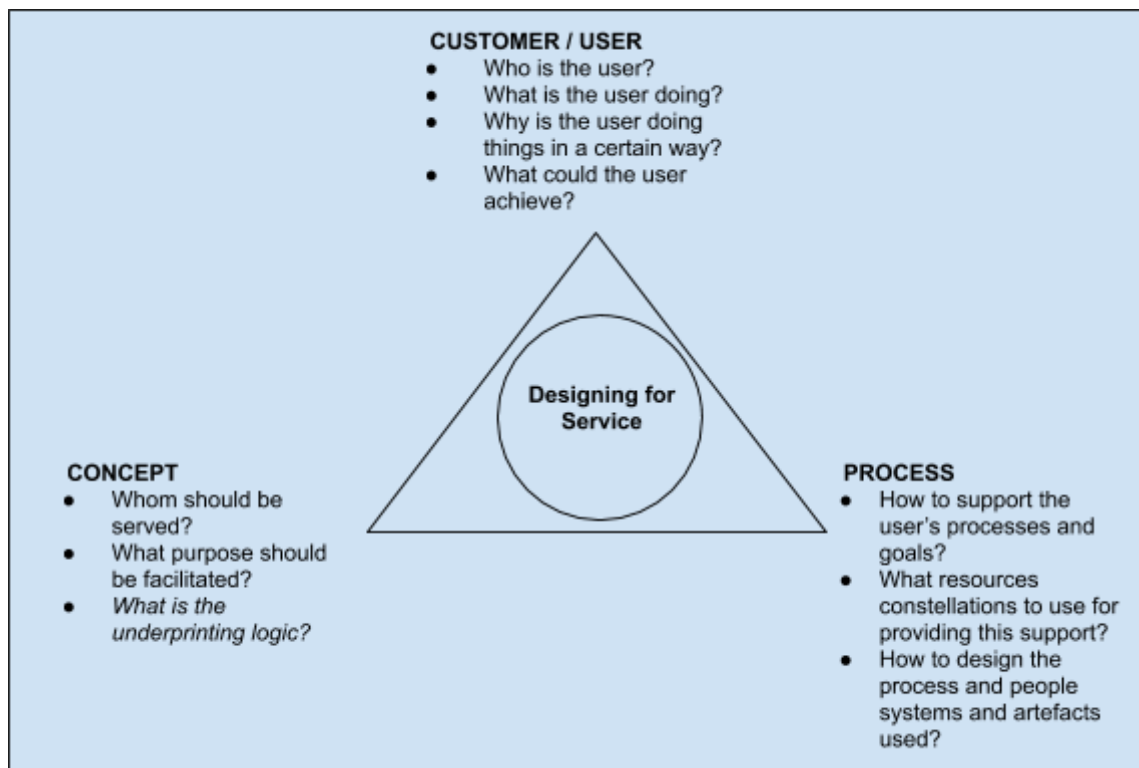


Figure 2. Designing for service triangle (Grönroos: 2015, 222).

The triangle model offered by Grönroos (2015, 222), the service concept consists of three main elements: (a) Customer or user, (B) Service concept, and (c) Service processes. Basically, the elements for designing a service are assembled by providing answers to appropriate questions. Looking for more detailed questions, for example at the Concept area *such as What is the underpinning logic*, may lead to innovative more solutions.

On the other hand, service designers use different kinds of methods for *Service design* and development. Such methods may boost the design process, like specific tools such as experience prototyping (Buchenau et al. 2000), or service prototyping (Blomkvist 2014), or rely on lean principles in service creation (Sarvas et al. 2017). Figure 3 below shows the difference of Service design as a dynamic process vs. the stress on the key defined notions in Designing for service (Grönroos 2015) approaches.



Figure 3. An approach to service design (Macintyre et al. 2011, 3).

As seen from Figure 3, the ideas for service design are collected and refined in multiple stages. It starts from the customer contacts, identifying and assessing customer needs, and defining the value, before the service idea can appear. As seen from Figure 3, such an approach is often complex and hypothetical, often requiring to adopt new ways of thinking. This approach makes *Service design* different from *Design for a service*.

In this study, the *Service design* approach is relied on, rather than an approach by Grönroos (2015), since the Business challenge is to investigate and build the service concept on true customer needs. However, it should be stressed, that - interestingly - both approaches utilize the critical notion of a Service concept. This fact makes the approaches agree that such a construct is needed before a service can be designed.

### 3.2 Tools for Designing a Service

Presently, there is a diversity of tools discussed in service design literature. As in many other development areas, the more complicated tools finally were adopted and re-considered into the Lean tools. The Lean collection of service design (SD) methods gives a wide array of available service design tools, and as such is food for illustrating the variety of exciting SD in a systematic manner. (Womack et al. 1996: 3)

The starting point in a Lean way of thinking is value. (Womack et al. 1996: 10) Womack et al. claim that determining the value and value stream to the product, at the same time developing the uninterrupted value flow, may lead the whole business process to a more efficient way. The main Lean principles are shown in Figure 4.

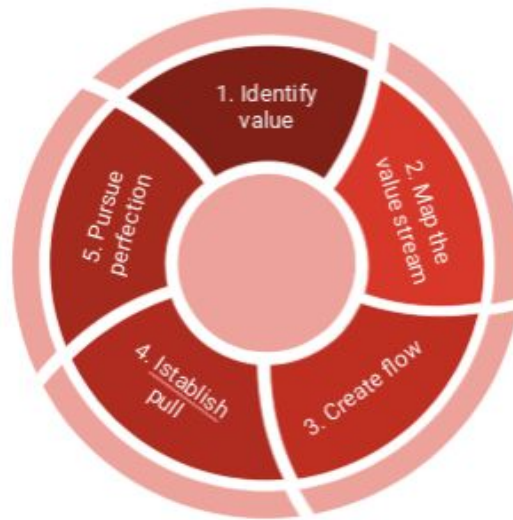


Figure 4. The Lean principles (Womack et al. 1996).

Many types of research have utilized Lean principles in order to minimize “waste along entire value streams and create more value for customers” (Arfmann et al. 2014), indicate value at any process, and analyze it at any process step or add value activities at non-value steps. As a result, it leads to quality improvement and business competitiveness.

Further, lean principles were adapted in a set of canvases. Such canvases guide to create definite results, boost the co-creation process, provide and receive feedback, try out or prototype a service, to tackle the challenges. The canvases cover such topics as, business objective and context, immersion, the data, customer grouping, insight, ideation, service concept, the way how value is proposed, project validation, customer relations, business model, market opportunities, service blueprint, concepting, experimenting etc. (Sarvas et al. 2017)

The main benefit of that approach is functional silos. However, the tools are mostly used separately at a definite time with the exact and visible problem. One disadvantage of that tool is the fact that customer opinion is neglected and at that way value from the customer perspective is missing. Lean tools let the employee to start the research fast and show quick results. However, more complex tasks require tools “with no immediate root cause resolution”. (Jiju 2011, 187)

The lean approach mostly relates to the process flow. Its main aim is to improve efficiency and productivity, increase the end result, and reduce all the waste along the process. After all, it is not much suitable for service concept development and creation.

For that exact objective, there are more sophisticated techniques. However, there are also certain drawbacks associated with the use of lean principles and their applicability to service providing process.

As it was marked previously, one of the Lean canvas, offered by the Lean Service Creation company, is a Concept and Value proposition. After brainstorming and generating ideas the company proposes to select the best available choices and develop out of them the concept. It is essentially important to keep the focus and come back to the main business objective.

Concept name?		
How does it work?		
Value to the end-user	What differentiates it from other solutions to the same problem?	Value to our business?
Written value proposition:		
Headline		Main points:
Description		

Figure 5. Concept and Value proposition canvas (Sarvas et al. 2017: 12).

Figure 5 illustrates how the concept and value proposition could be done in line with Lean principles. The process starts with the name of the proposed concept, and follows up to the description how the concept works. At this stage, researchers offer to describe main points such as, what the customer or end-user does with the concept and what happens at once. The next stage is the description of value which the concept brings to the customer, as well as the problem and its solution. Then the stage of differentiation from other solutions comes up. The focus on value does not end only on the customer but follows the description of the value to the stakeholder business. The final stage is a value proposition, where the need or problem is matched to the solution.

Alternatively, another very visible set of tools are combined under the name of the Double Diamond model for the Service Design process (Design Council n.d.). Double

Diamond formulates a distinct own method for Service design. The model consists of four definite stages such as *Discover*, *Define*, *Develop*, and *Deliver*. Figure 6 illustrates a model of thinking and searching for possibilities in line with narrowed focused and distinct objectives.

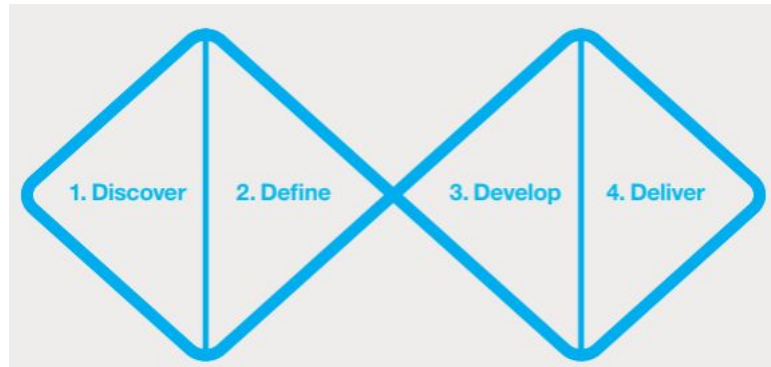


Figure 6. The Double Diamond model for service design (Design Council n.d. Design methods for developing services).

The starting point for service design is a Problem itself. Mainly it is the idea, insight or change that could be implemented practically. The starting point further widens to the Discovery phase. At the Discovery phase, the researcher gathers the inspiration, identifies the customer need and develops the initial idea. The main objective at that phase is to identify the opportunities or problems to which the design research would be addressed. Unsatisfied customer needs usually can become visible. The tools and methods which are used at that phase are user journey mapping, user diaries, user shadowing. (Design Council n.d.)

The Discovery phase follows the Define phase. The main objective here is to reduce massive opportunities, create a clear brief, and identify some to take forward. Service ideas are translated into practical service solutions at that stage. The idea also is checked against the main business objective. The common tools used at that phase are user personas, design briefs, and brainstorming. (Design Council n.d.)

The third phase is the Development. This phase starts with the Service brief where the service concept proposition is usually utilized by the way of prototyping. The main aim at that stage is to develop a service prototype and test it with end-users. Service prototype lets us check whether the service concept is feasible and functional, and solve the problems early enough. At that phase, stakeholders and investors may get a tangible version of the projected service concept. The widespread tools here are

service blueprint, experience prototyping, business model canvas. The final phase of the Double Diamond model is Delivery. At that phase, the final service concept is implemented.

Among the specific techniques and methods that are needed either for Double Diamond, or for Lean service design, are many interesting practices. The most frequently mentioned are the User Journey Mapping, User Diaries, Service Safari, User Shadowing, User Personas, Design Brief, Service Blueprinting, Experience Prototyping, etc. Among the newest ones are also Narratives that are based on the event-based inquiry. (Helkkula & Pihlström 2010: 359) The Narratives research technique gives the possibility to involve customers in the service development utilizing their service experience. The main advantage of that technique is the possibility to broaden the context of important social events, spoken and unspoken needs and develop it into a new type of service. Focusing on one special event and using narratives during the interview, the interviewer gets the full picture.

Additionally to narratives, the dream catching technique is used along with the customer interview. (Strandvik et al. 2013) The hidden customer dreams may allow the company to create real innovation, based on hidden and unrealized desires, instead of adding value proposition thinking. Digging deeply into the customer dream along with the research, it is essentially important to understand customer logic. Customer logic shows how they maintain their processes and activities and go through the existing challenges.

The combination of narrative technique and dream catching tools, lets to research customers' life challenges and dreaming solutions based on real-life experience, and at the final stage give a proposition.

### 3.3 Service Concept and Its Elements

As seen from the earlier discussion, the Service concept makes a significant part of *any* type of a service design approach. Such persistence of its appearance makes the notion that Service concept is one of the important milestones at designing a service. The following available service concepts were used for identifying the most critical elements of a service concept.

Both, Fitzsimmons and Fitzsimmons (2000) as well as Goldstein et al. (2002), agree that the Service concept not only a design tool to conduct a new service offer, but also a communication instrument with regulation function. It mediates the relations between company market strategy and customer needs. The gaps in the mediation function were marked as the main reason for poor service. (Goldstein et al. 2002, 124) Together, these studies indicate that the service concept is a key driver in the process of decision along with the whole service development. (Goldstein et al. 2002)

Fitzsimmons and Fitzsimmons (2000: 72) point out the service concept as the way to provide additional benefits and value to the customers. . Additionally, they characterize it with the main elements such as *value, form, function, experience, and outcome*.

Grönroos (2015: 81) claims that the Service concept is a set of definite instructions about how the service offer should be developed and conducted. Also, it is a way to express the service approach that the company is going to develop and implement in order to solve definite customer problems in a certain manner. Because of that, the Service concept should be definite, precise, and easy for understanding as much as it is possible.

Commenting on the service concept and its prototype, Goldstein defines it as the “detailed description of what is to be done for the customer and how this is to be achieved”. (Goldstein et al. 2002, 123) Here one needs to clarify what needs and wishes are to be satisfied.

Goldstein finds the Service concept and displays it as the driving element in design and decision planning. The basic model, proposed by him, consists of five main elements such as Strategic Intent, Customer, What, How and Service concept itself. The Service concept takes the central position in the whole structure and regulates the relations between company strategic intention and customer. (Goldstein et al. 2002). Figure 7 illustrates the model of the basic structure of the service concept.

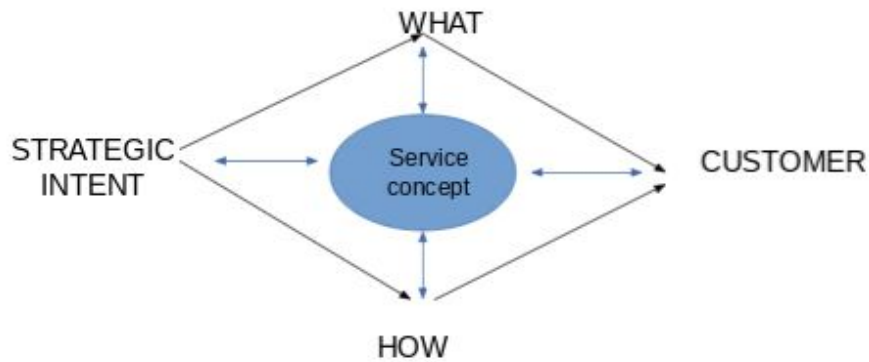


Figure 7. Model of the basic structure of the service concept (Goldstein et al. 2002, 123).

As seen from Figure 7, the element “What” relates to the question of what customer needs and wishes should be satisfied, or what processes in customer daily activities it will support? The element “How” belongs to the way, how that will be implemented by the company, and at the same time how it will add value and boost value creation in customer life or business? The picture illustrates not only the key elements but the relations and connections between them also.

Developing the service concept, the researcher may decompose every element of the service model presented by Goldstein, work with it separately and check whether they tackle the customer need.

However, Edvardsson et al. (1996) argue about the service concept a bit in a different way. Figure 8 illustrates the model of the concept proposed by Edvardsson and Olsson.



Figure 8. The concept of service by Edvardsson (Edvardsson et al. 1996,140).

The model includes three elements such as prerequisites for the service, customer process, and customer outcome. The relations between these three elements are



dependent. The customer process and outcome depend on the prerequisites for the service. In other words, it is crucially important to have the right resources to provide the service or make it possible.

It can, therefore, be assumed *that the service company does not only provide service but prerequisites for services. That the company may propose the opportunities for services that occur partly in customer individual processes with the individual outcome. The logical conclusion comes up, that one of the main goals in service development is to generate the best and right prerequisites for the customer process operation and winning outcome.* The winning outcome here means that the service initially is oriented to add customer value.

Edvardsson and Olsson point out that prerequisites for a service consist of three elements such as *service concept, service process, and service system.* Service concept refers to the customer needs and the way how they would be satisfied with the help of service, service design, and service package. (Edvardsson et al. 1996) The service concept is shown as a prototype of the planned service and a detailed description of what must be done and achieved. The element What relates to the question “What customer needs should be satisfied?”, and the element How relates to the service offer. The match between customer need and service concept was found by him critical.

Overall, these results indicate that *the service concept, being part of prerequisites, should match the customer need. Also it is important to develop prerequisites as well, tackling the customer need.*

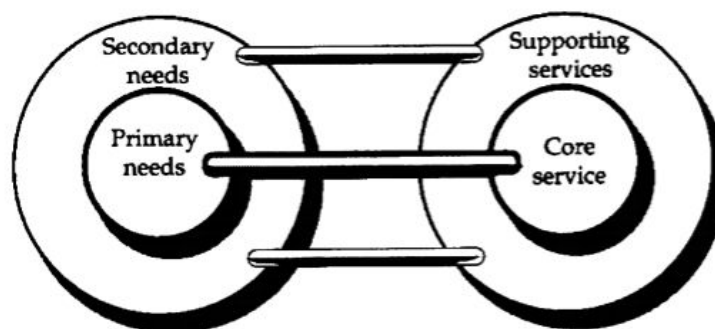


Figure 9. Model of the service concept by Edvardsson (Edvardsson et al. 1996: 150).

Figure 9 illustrates the tight relations between the primary needs and the core service, and the secondary needs and the supporting service. Primary needs become an

explicit “trigger” to utilize definite core service. In case when the need is implied, some additional supporting services may be utilized. (Edvardsson et al. 1996: 50)

For creating a service concept, the researcher should also consider that the main service goal is to bring additional value to the customer and satisfy his needs. The winning side of the outcome as the result of the service could be simply explained by the fact that customers produce income for the business. It can, therefore, be assumed that the service should be customer-oriented. There are some important objectives in customer-oriented service development. Further, follows some statements from the literature review about customer orientation.

Edvardsson et al. claim that the properly developed service prerequisites lead to the winning service outcome for the customer. Additionally means that the company thoroughly understands the customer's needs, wishes, and expectations. (Edvardsson et al. 1996) Because of that customer needs are intended to be a key driver for the high-quality service, the needs in a combination with past experience and communication channels influence the perceived service. (Grönroos 2015:129). Basically, the need for service is something that customers would like to satisfy through experience.

A strong relationship between business partners in-service approach, based on trust, was reviewed by Grönroos (2015: 11) and Edvardsson et al. (1996: 142). The company needs to know much better about their customers than before as the customers play a more active role and become co-creators in the service process. Exactly for that, companies need to establish trusted relations with customers. Effective collaboration in the long term depends on win-win relations between both service participants. The awareness that parties may achieve and get more utilizing the service than from any other available option, is fundamental (Gummerson 2000).

The current research deals with the innovative development of the service concept with proper quality. Edvardsson et al. (1996: 143) claim that the service quality is the indicator of how the service itself matches the customer expectations, satisfies their needs and requirements. Several studies, relating the service quality, mention that in the service approach the developer has to establish the quality customer expects to get (Grönroos 2015, Holmlund 1997). Additionally, Grönroos marked time as a critical resource and quality indicator. He marked that customers should have a feeling that the time they have spent with service is not lost (Grönroos: 2015, 12).

### 3.4 Conceptual Framework for a Car Sharing Service Concept

A conceptual framework for developing the car-sharing service concept is based on the studies discussed above. The conceptual framework utilizes the Goldstein's model for the service concept *structure*. The service concept is built with four main elements, namely the *company strategic intent*, *customer*, *what*, and *how*. The conceptual framework is presented in Figure 10 below.

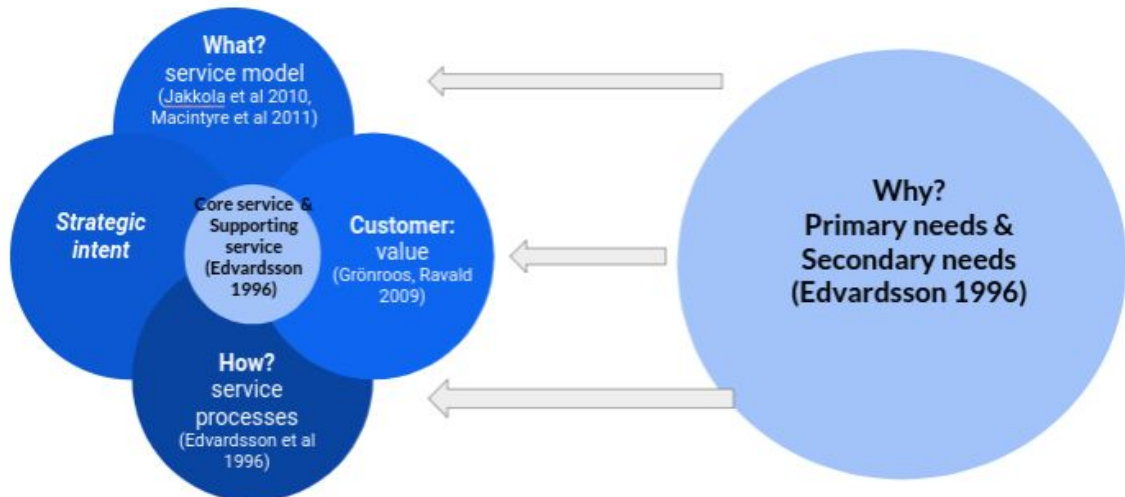


Figure 10. The conceptual framework of this study.

The service concept built in this way suggests understanding of the customer's everyday processes and activities. Starting with element *What*, it would be logical to ask the following questions; the questions go around what *needs* and *wishes* are to be satisfied; *what processes* in a customer's everyday this activity aims to support; what should be achieved in terms of value-in-use and value capture.

The next element of the service concept is *Customer*. Here the following questions would be asked: Who is the user? What is the user doing? What is the reason for the user to do things in a certain way? What the user would like to achieve?

The next element is *How*. Here the following questions should be asked: How this support is intended to enable and enhance value creation in the customer's life? How should it be achieved through the service offer?

The last element in the service concept is *the Strategic intent by the company*, including its business strategy focused on service. Here, the business mission plays

the main role in strategy formulation and adoption of service goals. Briefly, it can be formulated in a way, that the business mission aims to provide key customers with the service giving enough support and generating value for the customer in their everyday activities and processes. (Grönroos 2015: 451)

Furthermore, as the service relates to the customer experience comprising tangible and intangible services, that constitute *the Core service*. Customer satisfaction depends on whether a company's core service offering matches the customer expectations. *Supporting services* assist in the whole service experience, providing additional attractiveness to the core service. This distinction can be related to Edvardsson's idea that in service there is a difference between *the primary* and *the secondary* needs. Edvardsson argues that primary need is the main reason why the customer feels a certain need. (Edvardsson 1996: 150)

Logically from that statement comes out the element *Why*. In a car-sharing service, customers satisfy a need to move from point A to point B in a better way. That can be satisfied in different ways, such as by owning a car, taking public transport, calling a taxi, etc. Different customers want to satisfy their needs in a different way, depending on how urgent and in what way they would like to achieve point B. Their choice depends also from personal perceptions of the advantages and disadvantages of the various choices. At the moment when the customer decides in what way he would like to satisfy his *primary need*, further needs, i.e. *secondary needs*, also appear. These needs are the result of the chosen primary service. Customers assume that various ways to satisfy their secondary needs are available. For example, if the customer chooses the car-sharing service, it becomes the primary need, while secondary needs at that moment would be an online application, how to find an available car, how to activate that car, park the car and finish the trip. Boundaries between the primary and secondary needs are not definite and may change along with the time and process, as well as between core service and supporting service is vague and indefinite.

In summary, the study now has a conceptual framework, utilizing Goldstein et al. (2002) and Edvardsson et al. (1996) ideas by the way of connecting the Service concept with the Customer Need, in order to let the current study connect and clarify both sides.



## Section 4. Analysis of Existing Car-Sharing Services and Customer Needs

This section describes and analyzes the existing car sharing and car rental models. The focus is placed on analyzing the main service model elements and identifying the main gaps.

### 4.1 Overview of the Analysis Stage

The current state analysis consists of two parts.

The first part describes and analyzes the current state of the existing car-sharing services including the car-sharing models, an overview of biggest car-sharing players in Uusimaa, and conducts the comparative analyses of the car-sharing services in the Helsinki Smaller Capital region and identifies the existing service gaps. This analysis is done based on published research and overview of existing best practices by various players on this market published by these companies in their web-sites and open access publications. Thus, it is done based on secondary data. Importantly, the results of the analysis for some of the companies were done more extensively and they can be found from appendices indicated in the text.

The second part analyzes the unserved customer need. The following main topics are discussed there: the description of the customers, the analysis of their needs in cars, and car user types. This analysis is conducted based on the primary data, the 26 customer interviews conducted in this study. The field notes from these interviews can also be found in the appendices.

For conducting the analysis of customer needs, 26 semi-structured questionnaire-based interviews were conducted. On purpose, the interviews were narrowed to potential customers, who already have a vehicle and probably would be motivated to switch from own to shared. Utilizing the techniques discussed in Section 3 and following the conceptual framework, the questions were formulated in 5 blocks: *who*, *what*, *why*, *how*, and *dream catching* about the car. The main objective was to identify, first, the customer needs and, second, to attribute them to specific user personas.

The first block answered the question *Who*. It includes mainly demographic questions such as age, gender, family situation, the description where respondent lives and works. The second block utilizes questions regarding element *What*. It asked for facts about the car ownership and examined annual fixed expenses related to ownership. The third block related to the element *Why*. It asked questions about main needs, drivers, and motivation. In the fourth block, the questions focused on frequency of usage and common travel, patterns were investigated. The last, fifth block, focused on catching the customer's hidden dreams about cars.

In the current survey, 26 persons were interviewed. 11 interviews were conducted in face-to-face meetings and 15 by emails. Also, the interviews conducted by email were narrowed to the focus group of people who are familiar with the interview technique. The scope in both was limited to the for people living in the Uusimaa area.

Also, the interviews started by a trial use of the questionnaire with 3 persons. This initial version was used in order to verify whether all the questions were understandable. The other interviews were conducted using these approved questions.

The last part of the analysis summarizes the key findings of the current state analysis.

#### 4.2 Analysis of the Existing Car-sharing Services

The increasing use of private transport negatively influences the surrounding systems. Negative results are air pollution, energy consumption, traffic problems at peak hours, lack of parking spots especially in the central part of the city. Due to that, in the last few decades, lots of efforts have been made to provide new urban transport alternatives. One such alternative is public transport. However, the service has some shortcomings such as less flexible timetables, complicated routes or long duration, less personalized, and less comfortable compared to private.

Another alternative is a car-sharing service. The car-sharing service looks like a combination of public and private transport, at the same time is a mobility service that enables customers to have access to vehicles and cars without physically owning it. The organizational process of car-sharing service requires correct identification of customer value propositions, novel organizational ways contrary to taxi or rental concepts, as well as interaction with the public transport.

Scientists have not established a definite and single termination relating to the car-sharing concept. However, some joint features can be found in different descriptions. Commonly used features in the car-sharing concept are pre-qualification stage for the customer and access to the car without service provider interaction. Financial features usually look like billing based on time and probable fee for registration. Another common feature is the car distribution. Usually, cars are spatially distributed around the service area. Some additional services look the same in most car-sharing models such as cleaning services done by the service provider, while others require some need and customer involvement such as the refueling process.

#### 4.2.1 Car Sharing Models

##### *Round trip model*

The car-sharing service could be organized on the base of the *Round trip*, which requires the customer to drop off the car at the place where it has been picked up. The user collects the vehicle at a parking spot and has to return it at the same place. This type of car-sharing usually requires a prior reservation and an indication given by the user of how much time the customer will need the vehicle.

A major advantage of that concept is a more simple organizational process for the operator. Such a concept provides the possibility to regulate stock of vehicles at the stations. The main disadvantage of that concept is the lack of flexibility that could be less convenient for the customer as well. Lack of freedom, need to drop off a car at the same station, the necessity to book a vehicle for a longer period shows us the similarity with car rental service, and sounds opposite with car-sharing characteristics such as “sporadic trips”. (Jorge et al. 2013: 202)

Turning now to the more convenient for the user concepts, *Free-floating* carsharing could be found.

##### *Free-floating*

The free-floating car-sharing concept characterizes the process when the user collects the vehicle at point A and returns it at point B. There are two types of free-floating concepts.

##### *Point to point Free Floating*



Point to point Free-floating car-sharing concept allows the customer to pick up a car at one location and drop at another. Utilizing that concept, cars are usually dispersed freely within the centers of cities. This is the most flexible and appealing option for the user, as the vehicle can be collected anywhere, where one is available and can be returned at any location within a given authorized area. Based on the survey, held in Germany 2011-2016 with car2go customers, *Flexibility* was the major and essential factor to choose free-floating car-sharing (further as FFCS). It was chosen among 70% of correspondents and was almost twice as important as other factors such as comfort, better car availability, parking availability. (Wittwer et al. 2018: 328)

Free-floating provides full freedom for the customers to choose points to pick up and drop off the car inside the service area. Reservations, in that case, are most spontaneous. Such concepts better cover personal needs and provide more freedom in relocation. It was marked along with the literature review, *that car2go with the free-floating car-sharing concept has 25 times higher market penetration than round trip concepts in Germany.* (Jorge et al. 2013: 202) The biggest service providers in Europe are Car2go and DriveNow.

#### *Point to point station based Free-floating model*

A point-to-point station based Free-floating model can be another alternative. The model allows customers to pick up a car from one station and leave it at another. Stations can be fixed at parking stations, close to grocery stores, kiosks and train stations, or at gasoline stations.

Such a model was utilized in Bremen, Germany by the way of creating car-sharing service stations called mobile Punkte. Mobile Punkte has one main advantage such as support from local municipalities that have played a crucial role in its popularity. Additionally, creating a bundle with sharing bikes, made it more convenient for the end-users. Figure 11 shows an example of such a model.



Figure 11. Mobile Punkte in Bremen, Germany.

### *Joining model*

Some best practice examples show the joining model for both free-floating concepts. One of them is *Wible in Spain*. The company was able to reach critical advantages among the car-sharing providers by utilizing principles of point to point free-floating model in the business part of Madrid (inside the M-30 circle) and organizing additional stations outside the business area. In that way, the company was able to extend service areas. At the same time, the company provides customers with the possibility to leave their own car, change to the sharing, and reach the Madrid city center without fines and limitations.

Additionally, the outside driver, such as a ban for nonresident vehicles driving in the center of the city, has led to the proposed service model in an exact way (Garfield 2018, O'Sullivan 2018). It is worth saying that the car ban practice becomes widespread in Europe. For example, in France, Germany, Norway, and the Netherlands where the main reason is Diesel, while in others such as Madrid the intention is to clear up city centers from high traffic (Teivainen 2017).

Figure 12 illustrates how car-sharing companies are organized in Madrid. The business centers of Madrid are served by the companies Zitty, Car2Go, Wible and etc. While the red arrows show three additional hubs created by Wible in peripheral areas of Madrid.

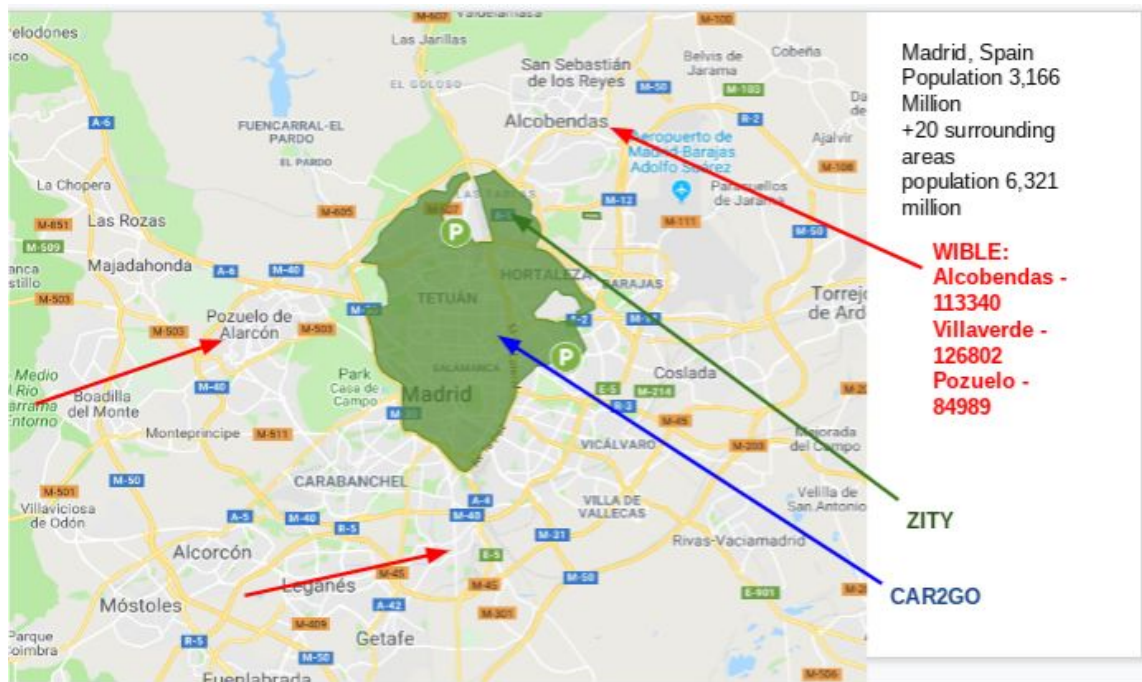


Figure 12. Car-sharing companies in Madrid, Spain.

More detailed information and comparison analysis of Wible with Car2Go can be found in Appendix 1, “The comparative report of Spain car-sharing provider”.

#### 4.2.2 Overview and Analysis of Biggest Car-sharing Players in Uusimaa Area, Finland

In the Uusimaa area, Finland operates several car sharing and car rental companies such as Drive Now, City Car Club, Go Now, Eko rent, Best rent, etc. The Drive Now company operated in Uusimaa when the current research started and along the process ended its service on February 29, 2020.

##### **Drive Now**

Drive Now is a car-sharing service owned by the car manufacturer BMW, which was established in Munich in June 2011, is available in various European cities, and offers premium cars of BMW and Mini brands to rent based on *the free-floating principle*. The cars can be rented and returned within a defined business area. More information about operation zones in the European cities can be found in Appendix 2 “Drive Now operations in Europe”.

As it could be seen from Appendix 2, the Drive Now car-sharing service is widely presented, especially in Europe. However, the marketability for a car-sharing service is

still a challenge. The main reason is the fact that the free-floating approach presents obstacles both for the service provider and fleet operator. In **October 2018, after operating for 3 years in Stockholm Sweden, Drive Now terminated its service operation.** While the current research has been conducted, Drive Now **ended its service in Helsinki, Finland on February 29, 2020.** The main reason is low demand, which did not meet the expectations and at the same time increasing operating costs, such as congestion tax and parking fees.

Additionally, some other impediments connected to the competition regulations are found in cities such as Berlin, Düsseldorf, Hamburg, Cologne, Munich, and Vienna. It forced the joint venture to make their apps available for other service providers such as short term vehicle rentals, as well as joint-venture offers must have access from other mobility service apps in order to prevent monopolization of the business.

In 2018, the Daimler and BMW Group announced the combination of their services in one huge mobility service called Share Now. Additionally, they expand their services with five joint ventures such as charging service ChargeNow, multimodal transport ReachNow, ride-hailing FreeNow (ride-hailing), parking service ParkNow (parking), and car-sharing ShareNow (Hampel 2019).

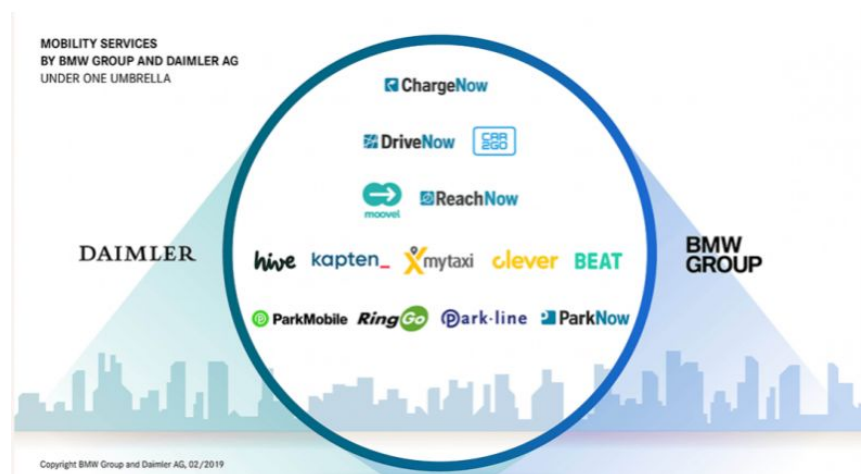


Figure 13. The joining service of Daimler and BMW Group.

## Go Now

Go Now cars sharing service operating in Uusimaa. Unlike traditional rental companies, it offers shared cars for short lead times at a charge per minute. All transactions are done electronically. In addition, prices include parking fees and fuel. If a customer is



going for a longer drive, for example, a weekend, the company recommends another service such as family product 24Rent.

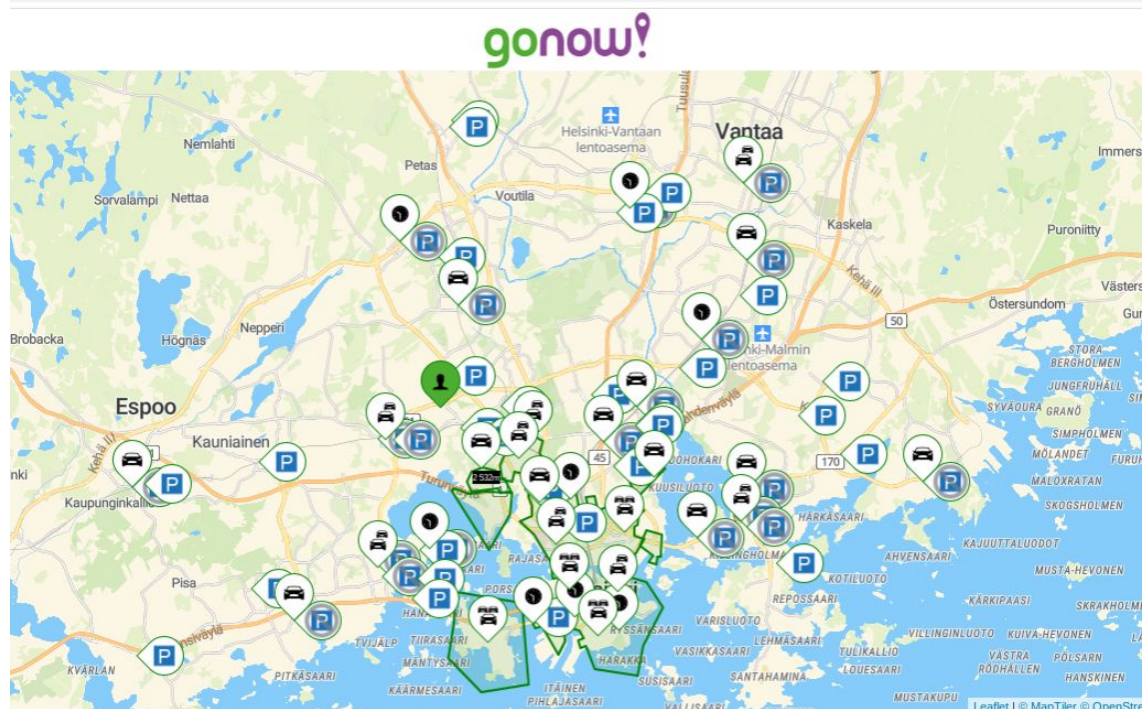


Figure 14. Go Now service area.

Figure 14 shows the Go Now service area. The company operates in Helsinki, Espoo and Vantaa. However, contrary to Helsinki, Espoo city is not covered widely by the service and has just several operational spots. For example, the company has available cars in parking spots, provided by the Espoo city for car-sharing cars, close to Sello shopping mall in Leppävaara, in Otaniemi area, and some at other partners provided spots. Vantaa city has the same analogy.

Other car-sharing companies also make attempts to join Helsinki with other cities in the Great capital area. For example, the City Car Club offers 11 slots in Espoo where the client may drop off the car. That provides slightly more cover range in Espoo city. The proposed slots could be seen on the City Car Club web page. The customer should mark the time when he would like to start and finish the trip. Sharp foresight goes contrary to flexibility, which makes *the process less convenient from the customer perspective*. Additionally, other City Car Club service features such as phone calls for activating and finishing the driving process, or increasing the time, overload the user process, and limit the customer's sensible freedom.

#### 4.2.3 Comparative Analysis of the Car-sharing Services in the Helsinki Great Capital Area

Nowadays, Go Now is the biggest player. Compared to other companies, it has modern high premium hybrid cars. A free-floating model with the condition to drop off a car inside the service area or at some pre-pointed spots, gives more advantages to the customers. The rented process is done through the application, almost automated without customer disturbance. The fee rate per minute avoids the customer to establish his driving period.

A bit more different model is utilized by City Car Club, where not all the amount of cars are available immediately but can be booked along the 2 hours. The most attractive feature is that the company offers more pre-pointed spots outside Helsinki city. However, the customer has to estimate the time of rent in hours beforehand, which excludes the main principle of free-floating. The phone call to the support service is a driver of the working process for activation and finishing.

Some main features could be noticed from the comparative analysis and operations zone picture. First, cars are freely operated inside the Helsinki city, but not in Espoo or Vantaa. Second, if we look thoroughly into the rental process, we would see some additional gaps in the service model. In case, if the customer locates outside the operational zone, he needs to travel some distance to the service zone to reach the nearest available car. Especially with small children or heavy luggage, it makes the process even more difficult. Third, at the moment when a customer wants to finish the trip, he/she needs to leave the car inside the service zone, based in Helsinki, or at additionally provided parking spots.

Together, all companies involve the customer in the fuel process, providing the customer with access to the fuel station. Other services as cleaning are done by the service company.

Another most obvious finding to emerge from the analysis is that *most of the services are tightly connected to the Helsinki business area, and less to Espoo and Vantaa city*. That means that citizens from the peripheral zones can barely utilize the service or even not at all. However, that goes contrary to the fact that residents have daily activities such as work, hobby, shopping around three big cities. The main reason is the highest population density in the Helsinki business area. Another factor is the parking fee for car-sharing cars. Helsinki city is divided into several parking zones. In business

cases, the permission could be provided covering several parking zones. Mutual parking ticket provides that, covering the business area and costs 61,66 euros for one vehicle.

The full comparative analysis can be found in Appendix 3. It gives a full description and comparison of the current models presented in the Uusimaa area. Only the main and winning features were touched in the section above.

#### 4.2.4 Car-sharing Obstacles

Presently, both business practitioners and scientists mark *further relocation* and *unbalanced vehicle stock* as the main obstacles for expanding the car-sharing service. Schulte and Voss (2015: 276) argue that relocation success depends on forecast quality and its integration into the planning system.

A car location close to the probable customer is a challenge for the companies. The majority of people would switch to alternatives if they have to walk more than **500 meters to find a car**. (Schulte et al. 2015: 278) Some companies solve this problem in a collaborative way with the customers, offering free rental time for relocation or proper location.

Market demand differs along with geography. It is less predictable, as some companies have to terminate their operations in some cities even being successful in another. For example *Car2go was not able to achieve 5-8 daily bookings, in order to make business sustainable in London, as well as Drive Now terminated their operations in Stockholm*, to the reason of low demand rate and high operating costs (Taylor 2014).

Following the discussion about obstacles in the car-sharing industry, it is worth adding financial features. The *insurance cost for car-sharing cars is 3-4 times higher than for ordinary cars*. That is hidden for the end-user but has a crucial influence on the usage fee. (Le Vine et al. 2014: 8) *Damage costs may prevent customers willing to use the service*. Customers have to inspect the car properly before the usage, or even do a photo report as a guarantee. Skipping the car inspection may lead to the responsibility for damage done by the previous customer. In case of disclosed damage, the customer has to check from the service provider whether it was reported before. Many

companies demand to indicate the duration of rental time, such as City Car Club, which leads to customer stress for a penalty in delay cases.

It is important to note that competition with public transport and constant improvement of it, creates additional obstacles for car-sharing marketability. Helsinki city actively motivates citizens to use public transport, especially in the city center. Facilities Park and Ride were purposely organized for that. Locating outside the city center and close to the train stations, it gives the possibility to leave a car in parking spots and switch easily to the metro, tram, train or buses. The maximum parking time is from 12 to 24 hours.

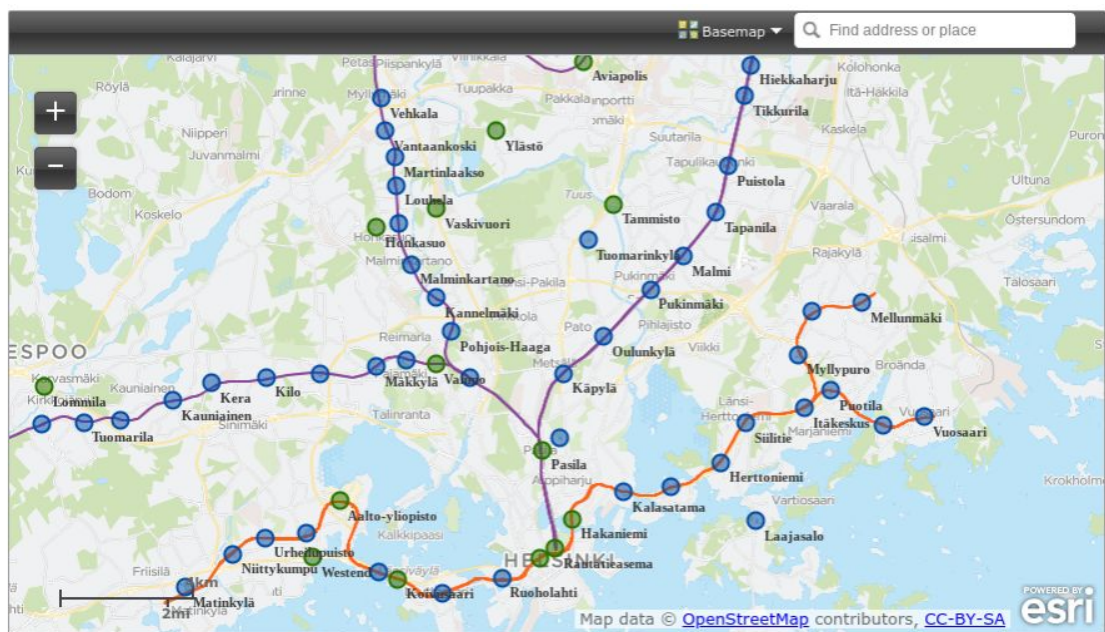


Figure 15. Park and Ride facilities.

The facilities have a high range of parking spaces, for example, Kalasatama - 300 places, Itäkeskus - 430, Ruoholahti - 140, Tapanila - 133, Huopolahti - 71 and etc.

*However, in case of further expenditure of existing car-sharing services in the metropolitan areas, such parking facilities with proper negotiations could be utilized. The analogy is the Bremen city in Germany. Car stations may relieve huge numbers of cars in the city center. Another best practice of car stations is 8 spots for shared cars in Leppävaara, Espoo, which are utilized successfully by Go Now and City Car Club.*



### 4.3 Analysis of Customer Needs

Customer activities with the car were widely studied by many researchers. In order to provide customers with proper service, one should have a good understanding of the up-to-date customer needs and desires. Needs for car ownership are unique, but some features and reasons are common. The following section describes the identified customer needs in the care-sharing service, the customer's travel patterns, and the user personas, based on the interview results.

#### 4.3.1 Needs in Cars

The results of the interview analysis show some common patterns in customer needs for a car. The following patterns were discovered. First, a customer has a need in the car to reach the distant endpoint location, or facilitate a long travel route by public transport. Second, another pattern is to maintain effective multitasking related to family or work tasks, or both. Third, there was a pattern to reach the working place in a more convenient way. This pattern shows a persistent use of a vehicle at the same time over the working days. In this pattern, the vehicle is mostly used in the morning to reach the working place and again at the end of the day to get back, and is being parked for several hours on a close territory. Fourth, the pattern was to organize and spend own spare time or weekends. Fifth, there was a need in the car to maintain some family tasks. It is opposite to ownership and leads to avoiding ownership or switching to another transportation type because of personal reasons.

In relation to each pattern, customer needs were identified, named and allocated to a certain persona's type. However, it is worth saying that some respondents may have several needs. Figure 16 shows patterns in customer needs identified based on the interviews.

	Live interview		
Respodent #	need 1	need 2	need 3
1	distal location	weekender	
2	multitasker	family oriented	
3	multitasker	family oriented	office based
4	weekender		
5	office based	family oriented	
6	family oriented		
7	distal location	family oriented	
8	distal location		
9	multitasker		
10	family oriented	distal location	
11	central part	weekender	

Figure 16. Patterns in customer needs identified from face-to-face interviews.

4 patterns out of 11 were discovered in relation to the need in a personal vehicle because of home or work distal location. 3 patterns out of 11 discovered a need in the car to maintain multitasking related to work or family. 3 patterns related to weekend time. 6 patterns were connected to the family needs in a car. 2 patterns showed the need for a car in the morning to reach the office and then at the end of the day back home, with a car most of the time being parked close to work. 1 pattern was to avoid car ownership because of living in the central part, but the owner still keeps it for weekends.

Further, the interviews were conducted by email by sending a questions to respondents. Figure 17 shows the results from the email interviews and their patterns.

	By e-mail interview		
Respondent #	need 1	need 2	need 3
1	distal location	office based	
2	avoid ownership		
3	office based	avoid ownership	
4	office based	weekender	
5	distal location		
6	distal location	multitasker	family oriented
7	central part	avoid ownership	
8	weekender	family oriented	
9	distal location	office based	
10	weekender	family oriented	
11	office based	distal location	
12	distal location	family oriented	
13	distal location	office based	
14	office based	family oriented	
15	distal location	office based	

Figure 17. Patterns in customer needs identified from the email interviews.

8 patterns out of 15 were discovered in relation to the needs in a personal vehicle because of home or work distal location. 1 pattern out of 15 identified a need in the car to maintain multitasking related to work or family. 3 patterns out of 15 related to weekend time. 5 patterns were connected to the family needs in a car. 8 patterns showed the need for a car in the morning to reach the office and then at the end of the day back home, with a car most of the time being parked close to work. 3 patterns were disclosed as almost a reason to avoid car usage, where 1 was explained additionally by the living area at the central part.

Based on the results of the data analysis, respondents may have different primary and secondary needs for cars, simultaneously. The boundaries are fragile and the needs may switch according to the circumstances. However, there were obvious findings about the customer needs. Some customers enjoy the freedom and independence that cars provide, as well as convenience in need satisfaction and the time spent when going somewhere else. While others feel the need for the utility to maintain the lifestyle and functionality that they get from vehicles.

The results also revealed the emotional content in car ownership. One question asked whether a car gives some additional social value. Most of the respondents answered that they do not feel any higher status having a car, but they are glad that it helps to meet friends and have a social life easily. Some respondents also pointed to a personal love to drive and fun at that moment. Also, some respondents also stressed the desire to have a car not only to satisfy logistic demands but also to get pleasure from playing the music while driving. The emotional connection to some definite types of cars may be so crucial that respondents prefer not to have a car, if they cannot have the desired type. This result was somewhat counterintuitive. Also, in some cases, there were external circumstances that pushed the respondent to sell the car. Thus, the results in quite many cases showed *a decrease in the need for vehicles*.

Regarding the ownership, the results revealed that: one group of customers felt stress, and even prefer to avoid ownership, due to high maintenance and service costs. Some may though of different models of car ownership combined with public transport, some definitely show the interest to access different transport services. The results show that the desire to use a car-sharing service was dependent on the costs. The respondents valued a possibility to have a car or use a car service to satisfy their need but stressed that they would be *motivated by low costs for such a service*.

The full answers are presented in Appendix 4, "Interview analysis about the customer needs in vehicles".

#### 4.3.3 Car User Personas

The current interview and data also helped the researcher to formulate the car user personas based on their customer needs.

##### **Residents of the Helsinki Central Area**

A minority of survey participants, exactly 2 out of 26, who make less than 10%, are living in the central part of Helsinki. One participant consciously decided to avoid car ownership, while another used it but rarely. The main reason for both of them is the high efficiency of public transport in the Helsinki central area. One respondent finds parking and traffic itself in the central part to be a "nightmare". However, the second respondent still prefers to keep the vehicle and use it occasionally on weekends. Closer inspection of the data opens up that the need for car ownership for people living in the

central area of Helsinki is almost absent. Interview results proved the fact that people avoid ownership because of well developed public transport.

*Need: Mostly to organize a weekend time or occasional use along the week with probable additional participants.*

Existing providers that may satisfy this need: basically, all the rental companies and current car-sharing services such as Go Now, City Car Club, etc. may do that.

### **Residents or workers of Great Capital Helsinki area**

Residents or workers of the Great Capital Helsinki area prefer to utilize vehicles to travel from one distal location to another destination location. The main reason is the complicated routes by public transport, requiring to switch (up to several times) along the route. Also, a longer process, around 40 min or more by public transport, makes the route less convenient. 12 out of 26 or almost 50% of respondents identify the need in the car exactly due to their distal living or working areas. Some of them, for example, live in western Helsinki and work in eastern part, or live in Helsinki city and work in other metropolitan cities such as Espoo and Vantaa.

*Need: to gain the destination rather work or home, not only in Helsinki city but in metropolitan Uusimaa area, when the public transport route is longer than 40 min and is not convenient enough and complicated.*

Existing providers that may satisfy the need: Go Now or City Car Club cover this dispersedly. At the moment, when there is a good match between the service area and customer need, a car-sharing service is already somewhat utilized. For example, one respondent mentioned that she has a great match between her place of living in Lauttasaari and her workplace in Leppavaara, as Drive Now cars have been available in both areas. Lauttasaari has been inside the Drive Now service area, and there are 8 parking spots, provided by the Espoo city for the car-sharing vehicles in Leppavaara close to the train station. That parking spot in Leppavaara is also utilized by other car-sharing companies.

Based on the interview research, some other interesting patterns were also identified. The interview analysis shows the repeated evidence in respondent needs for driving to the office place and then back home. The most common finding from the analysis is

that this need may overlap with other primary or secondary at different circumstances. This last finding is so significant that it is necessary to separate it into different types:

### **People based in office for 8 hours**

10 cases among 26 showed the necessity in the vehicle by the office-based people. The main driving pattern in the need (either primary or secondary) is the desire to reach office in a more convenient way. After they reached the final destination, the vehicle stays at the parking spot for 8 hours without the use and lately is utilized in the same way back home. This is a common pattern during the 5 working days, with only insignificant deviations.

*Need: to reach the office-based place in a more convenient way with the help of a car being utilized at a definite time and parked for longer at the parking slot close to work.*

Existing providers that may satisfy the need: Go Now and City Car Club may work inside the Helsinki service area and in case of a match between spots in Espoo and Vantaa. However, that may be a challenge as *most business centers lay outside the Helsinki central area*. The main obstacle here is not only to reach the final destination, but the possibility to drop off a car or find an authorized spot. The findings from the interview analysis (such as the match between the service area and authorized spot) could help to understand how a car-sharing service can be prosperous.

### **The weekenders**

Based on the interview, at least in 6 cases, the main motivation was the need for driving at a weekend time. Some respondents wish to drive outside the city and spend some time outside the city, or organize activities with family members such as kids at a weekend time. Another group may have an evening party and prefer to move around in a convenient way.

*Need: Spend leisure time at different locations, maybe natural locations, organize own activities, or/with other family members inside Uusimaa, evening parties somewhere in the city.*

Existing providers that may satisfy the need: all companies may do that inside the Helsinki service area with some limitations outside. Exactly, a match between the service area and the final destination is required.

## **The multitaskers**

Based on the interview results, there is a group of respondents, exactly in 4 cases, that have to maintain several tasks along the day, not only related to family activities such as doing shopping, driving kids to study place or hobbies, but also working. Multitasking workers have to move around several places, or do additional work. For them it is critical to be able to keep and transport the necessary belongings with the help of the car and utility are crucial.

*Need: move around several destinations in a very flexible way, carry and keep necessary belongings, maintain a tight schedule which depends on other sides.*

Existing providers that may satisfy the need: Go Now may satisfy needs such as flexible movement around the service area, but not so flexible to other metropolitan parts and in a less convenient way than owning a car. City Car Club is less flexible because of the hour rent rate. However, *keeping your own belongings in the car is not possible at all in both, rental and car-sharing services.*

## **The family-oriented people**

In 12 cases, the primary or secondary need to have a car was due to maintaining tasks related to family activities. Some respondents have to adjust their schedules because of kids' schedules. Other needs are related to such activities as family grocery in the big malls, reaching different hobby activities, etc. The easier way to move around several destinations is indeed by car. In some cases, the car is shared among the family members. Also, it is worth noticing that some respondents in that group are very concerned about expenses, as total family expenses grow with the number of members, and with having a car.

*Need: to maintain family-related activities especially with kids in the family, probably with some concern about family expenses.*

Existing providers that may satisfy the need: all the companies may do that inside the service area and in case if the match between destinations happens. The service is convenient for people with elderly kids, and is less convenient with little kids, because of kids' absence. Some *concerns about route prices* may occur. However, it was marked in the interviews, that sometimes utilizing a car-sharing service for the whole family is much cheaper and more convenient than public transport.

## Own reason to avoid car ownership

In 3 cases, the respondents preferred to avoid car ownership because of living location. 2 of them belong to the Helsinki central part and one to the outlying area. Well developed public transport was the main reason not to have a car, with another reason being financial savings. Interestingly, some respondents were willing to investigate opportunities for car-sharing services, while others would like to minimize their current expenses with car ownership and probably switch to sharing due to financial benefits, if they occur with a shared car.

### 4.4. Summary of Key Findings

Car-sharing service requires players from two sides in order to enable it: the service provider and the customer. Because of that, the analysis of the needs in the car-sharing service related to two main topics. The first topic was the current car-sharing models with its strengths, weaknesses, and obstacles. The second topic was the customer needs in a car-sharing service and based on that, the car user personas.

The results of the analysis show that the customer needs in the car are different and depend on the lifestyle, location, and other circumstances. There were also discovered the customer needs to utilize the car-sharing service in a unique way, however, with some common patterns in the researched customer group. It points that the car-sharing service needs to be flexible enough in order to satisfy unique personal needs and yet reach high utilization among the customers.

However, flexibility of the service provider side is limited. The analysis of examples of the existing car-rental and car-sharing services show that *the service area is the main factor*. Obstacles - such as unbalanced car fleet stock along the service usage, difficulties with further relocation, the possibility to stock cars in less popular areas, ect. - push companies to limit the service area and build the car-sharing service concept around *the city central parts*. The free-floating model that is aimed to satisfy the needs in flexibility may apparently have *a possibility of low marketability* at some markets and eventually push the company to stop providing the service.

However, in contrast to the current focus of service providers on the central city parts, it was surprising to reveal that the customer need in cars lies significantly outside the



central part. Interviews showed that the respondents gladly utilized a vehicle to reach much further destinations. As far as the customers find their public transport route to their final destination inconvenient and complicated, the need for cars becomes stronger and more definite. The existing service providers in the Uusimaa area mostly focus on business activities in the Helsinki central zone, while Espoo and Vantaa are covered poorly. However, the example of best practice by Wible in Madrid shows how additional business opportunities in the peripheral area could be found and utilized profitably.

One of the key findings is that by joining interests and building relations with selected partners, the service provider may gain significant benefits in the service quality, and extend the service concept possibilities. Asset and service bundling in the proper combination may have a synergistic impact and lead to meeting the customer needs. Wible in Madrid shows such a successful combination. The interests of car producer and petroleum company Repsol were joined in the car-sharing service concept. As a result, the service area was greatly extended with gasoline stations outside the center. Another service concept is a combination of public and private interests like Mobile Punkte in Bremen. Combining the customers and municipalities' interests helped to boost the service, increase popularity, and reduce the number of cars in the area. Such service concepts may let the company differ from the existing offerings and attract customers.

The identified customer needs and the gaps in the existing service concept will lead to building the proposal in Section 5.

## **Section 5. Building Proposal for the Car-sharing Service Concept Based on Identified Customer Needs**

This section merges the findings from the analysis and suggestions from the conceptual framework and into the proposal of the car-sharing concept in the Uusimaa area based on Data 2.

### **5.1 Overview of the Proposal Building Stage**

The current state analysis described in Section 4 stressed the important findings from the interviews and comparative analyses. Participants were able to identify the main needs, reasons and circumstances to utilize cars. Together with suggestions from literature and analyzed best practices, it gives the basis for designing a car-sharing service concept.

The first CSA finding concerned the existing car-sharing service area. Participants noted in their interview that their traveling routes lie inside the Great Capital area, not only in Helsinki city, but rather between three cities: Helsinki, Vantaa, and Espoo. It was clear that the existing scheme when the car-sharing service is structured inside the city business area limits the customers and does not fulfill their needs fully. Current service models are based in the Helsinki central part, which causes limitations for customers to move to other cities such as Espoo and Vantaa. However, the Helsinki city center has mostly a historical character, while most business areas are located further from it, for example, in Espoo (Leppävaara, Technopolis), in Vantaa (Tikkurila, Aviapolis), or Pitäjänmäki business area in Helsinki. These business areas are covered poorly with a car-sharing service which create further possibilities. However, service sometimes can be utilized for trips to Espoo and Vantaa in case of match between the service area and the parking spots there. The interviews confirmed that.

The most important finding from CSA pointed to the customer need for flexibility that the vehicle should provide regarding the personal needs, circumstances, and other factors. Importantly, this critical car-sharing feature is not presented fully in existing service models. First of all, in a free-floating mode, service zone expenditure is limited with obstacles related to car-stock balancing and relocation. In case most of the cars are parked at one specific area or, on the opposite, spreaded unevenly, companies

have to spend resources to balance it to make it profitable. So, the free-floating model does not allow to drive long distances and is designed for the inner-city travel. Higher population rate in the inner city is a factor for service profitability. However, Stockholm and Helsinki were not among such highly populated cities, and this fact pushed Drive Now company to terminate their service there, while in other bigger cities it operates successfully. However, alternative models such as station-based models, offering customers a clear understanding of where a car can be picked up and dropped off, tend to limit customer flexibility in the driving process. In other words, the findings pointed to these limitations for the service providers when designing a service concept for the Greater Helsinki area.

Another important finding from CSA pointed to the fact that even though people are willing to use a shared car, not many of them still do it. This creates additional obstacles, first, for cities as they do not get full advantages from existing car-sharing services and, second, for the companies that provide them, due to low profitability.

Based on these findings, the proposal was drafted together with the key stakeholder at the case company. For the Proposal building, the identified customer needs were brainstormed and, based on this brainstorming, it was decided to select the needs “to reach distant location” as the basis for the service concept design and use those areas that are not covered in the existing car-sharing services. Additionally, Wible best practice was chosen as a proposition driver. Thus, the proposal was designed in line with relevant best practices utilized in Europe.

## 5.2 Findings of Data Collection 2 (Drawing Together Data 1, CFW and Data 2)

Customer needs were taken as a basis for the service concept design at the Proposal stage. The customer needs were identified and analyzed in previous Section 4. Data 2 focuses on: a) selecting the customer needs, and b) selecting the service areas to brainstorm them with key stakeholders and evoking their main ideas and suggestions.

The proposal building started from utilizing the CSA findings with the results from the comparative analysis and the identified customer needs in vehicles. These findings were brainstormed for evoking further suggestions (Data 2) from the key stakeholders. For this end, the following CSA findings were discussed, as shown in Table 2 below.

Table 2. True customer needs in vehicle based on CSA (Data 1).

	<i>Car user type</i>	<i>True customer need in a vehicle</i>
1	Residents of the Helsinki central area	Mostly to organize a weekend time or occasional use along the week with probable additional participants.
2	Residents or workers of Great Capital Helsinki area	Need: to gain the destination rather work or home, not only in Helsinki city but in metropolitan Uusimaa area, when the public transport route is longer than 40 min and is not convenient enough and complicated.
3	People-based in office for 8 hours	Need: to reach the office-based place in a more convenient way with the help of a car being utilized at a definite time and parked for longer at the parking slot close to work.
4	The weekenders	Need: Spend leisure time at different locations, maybe natural locations, organize own activities or/with other family members inside Uusimaa, evening parties somewhere in the city.
5	The multitaskers	Need: move around several destinations in a very flexible way, carry and keep necessary belongings, maintain a tight schedule which depends on other sides.
6	The family-oriented people	Need: to maintain family-related activities especially with kids in the family, probably with some concern about family expenses.
7	Own reason to avoid car ownership	Need in vehicles is absent.

The CSA results showed that the customer need in a vehicle may be spontaneous or constant, frequent, or urgent. Peculiar needs lead to different driving scenarios.

Inspired by the CSA findings, brainstorming with key stakeholders was conducted. Based on the co-creation sessions with the company stakeholders, several suggestions

were formulated. The “Double Diamond” service design model was used to correlate the needs with the existing services and identify the opportunities. Table 3 below describes the most relevant suggestions by the key stakeholders (Data 3). The suggestions were summarized and grouped into Table 3 for further development.

Table 3. Key stakeholder suggestions for the Proposal building (Data 2).

	<i>Key focus area from CSA (from Data 1);</i>	<i>Suggestions from stakeholders, categorized into groups (Data 2)</i>
1	Focus on true customer needs that are not fulfilled by existing car-sharing services	a) Focus on the opportunities laying outside the Helsinki central part b) Differ from existing car-sharing services c) Focus on the areas that are not covered well with the current car-sharing services
2	Bundle with partner interests	d) Look for opportunities to create a bundle of partner interests to gain a synergy effect e) Utilize company existing assets

As seen from Table 3, stakeholders pointed to two key focuses for the service concept design. The first focus relates to the identified true customer needs that are not fulfilled by the existing car-sharing services. The second focus calls to look for probable partners that may boost the car-sharing service utilization. The stakeholders proposed the following suggestions:

a) Focus on the opportunities laying outside the Helsinki central part contrary to existing car-sharing services. The existing car sharing service models are tightly connected to zone A, presented in Figure 18. It is necessary to use further opportunities and expand the service to areas B, C, and D.

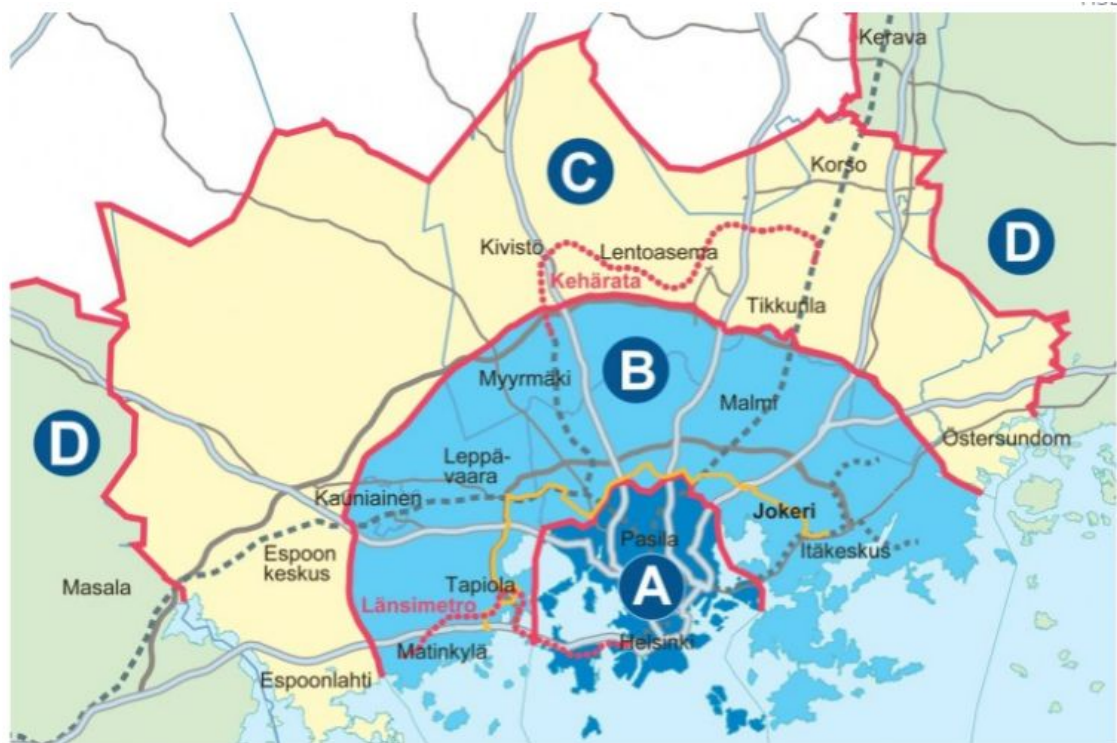


Figure 18. Further opportunities for car-sharing service.

- b) Use proper best practices to differ from the existing car-sharing services.
- c) Focus on the areas that are not covered well with the current car-sharing services.
- d) Look for opportunities to create a bundle with partner interests to gain synergy
- e) Utilize the company's existing assets.

### 5.3 Proposal Draft (Based on Data 1, CFW and Data 2)

The proposal for a car-sharing service is based on true customer need identified from Data 1, analysis of best practices, suggestions from literature, as well as the suggestions from Data 2.

The conceptual framework for a car-sharing service concept was used as its basis, with four main elements constituting it. The elements of core and supporting service include *What* or service content, *Who* or customer, *How* or service processes, and *the Strategic intent*, i.e. the company. In the Proposal draft, the main attention is given to the element *What, or service content*.

The first service concept element is *What, or a service content*. The proposed car-sharing service contains the following elements:

a) Service area

First, it was needed to determine the service area for the car-sharing service. One important stakeholder suggestion was to focus on the opportunities laying outside the Helsinki central part and areas that are not covered well with the current car-sharing services. However, that suggestion, therefore, needs to be interpreted with caution because of crucial factors such as unbalanced car stock and problems with relocation along with the service area expenditure. Due to that, it was decided to propose a service area for the new car-sharing concept as the combination of the Helsinki business area, that is widely utilized by the current car-sharing services, and advanced enough net of stations outside that area inside the Uusimaa. The advanced enough net of stations will expand the service utilization and increase marketability as the service area will be wider, but at the same time withhold the chaotic dissemination of cars at the dead-end areas. Extended service areas will definitely let the company differ from the current car-sharing services. It is important to bear in mind that it is better to organize the stations according to the company preferences with the availability of additional drivers.

Another stakeholder suggestion was to let the proposed service area be elaborated precisely. The suggestion concerns the opportunities to utilize the company's existing assets and create a bundle with partner interests in order to gain a synergy effect.

In particular, one of the company assets is the established partner relations with Kesko. Kesko is a Finnish listed trade company that operates in the grocery sector, building, technical, and car trade. Kesko chain has the biggest net of different size grocery shops along the Uusimaa area. Most of these shops have parking slots on the adjoining territory. Grocery shops are located with the principals of long term city planning and development. At the same, its fulfillment with different side services leads to satisfy customer needs simultaneously with grocery shopping. It is possible, therefore, to connect the Kesko grocery shops and the customers needs in the car-sharing services. It will help customers to pick up or park in a familiar area, close to a shop, in a smooth way because the path itself is already established in the customer's daily routine. That factor plays a crucial role, as much research shows that



customers do not want to travel more than 500 meters to get a car (according to Schulte, 2015).

b) Car-sharing model

Based on the stakeholder suggestions and CSA results, it was decided to utilize a *fleet-floating car-sharing service model* with a certain service area in the Helsinki central part and *combined with the station-based model*. Basically, the initial model of current car-sharing services is utilized with an extended net of stations outside the main area. This proposed approach gives a possibility for service owners to extend operational service areas, just by *organizing step by step new stations* outside the main service area and covering widened territory. At the same time, it allows the company to have a presence on the territory where previously others were not interested at all.

The Helsinki business area becomes a pool for cars. It accumulates the main stock of cars. Others are distributed in dispersion ways among stations. A company may regulate station fulfillment and fill up from the stock, simply driving from the business area to the station, also fill the high demand locations by organizing there a parking station. Definitely, *located stations* give a clear vision for customers where a car is parked and some additional marketing possibilities for the service owner. However, some *additional services for relocation* at peak hours according to the demand and offer should be done. That can be conducted *by cooperation with customers*, providing special offers to relocate a car from the stock in the service area and get the bonus minutes or reduced price for driving. Also, another possibility is *to offer customers to make a two way trip* and bring a car back to the station *for a low driving cost*. Cooperation with customers is critical to maintain the station's fulfillment and better coverage.

Furthermore, cars can move *freely inside the Uusimaa area, inside the service area, or from station to station*. At the moment, when a customer is willing to finish his trip, he can drop off and park a car either inside the service area based in the Helsinki business area, or leave it at a pre-appointed station.



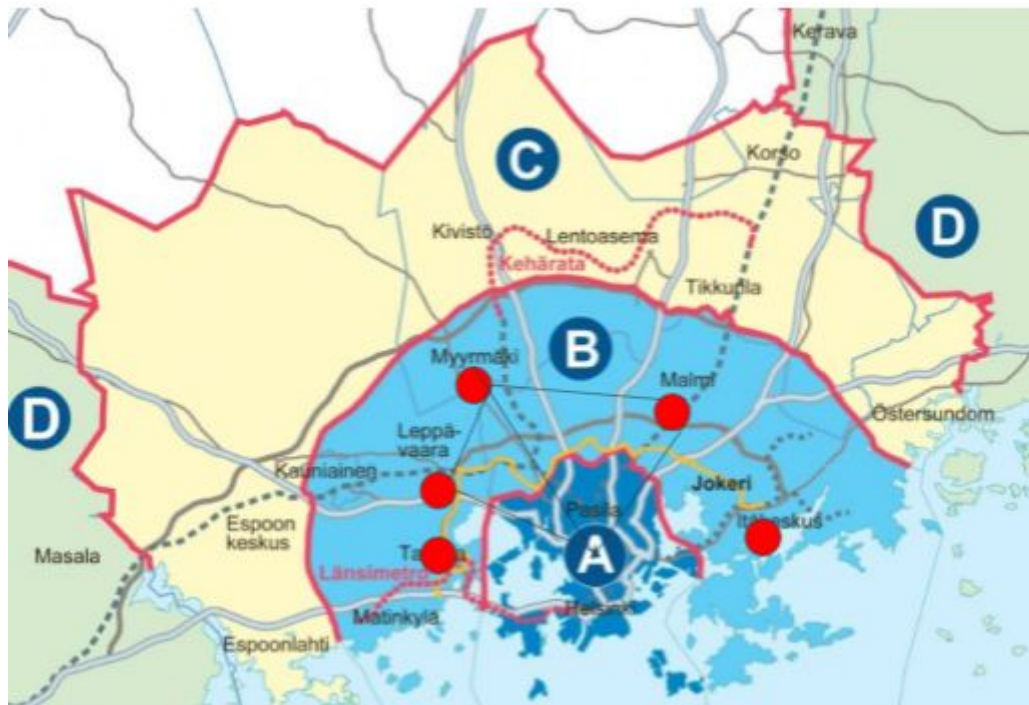


Figure 19. Proposed service model with free-floating and station-based features.

Figure 19 shows a *proposed service model combining the free-floating and station-based features*. The main service area lays in Zone A and partly in Zone B. Furthermore, the service area is connected by vectors with stations laying in Zone B, C and D. Such schemes supply the stakeholder suggestion to focus on the areas that are not covered well with the current car-sharing services.

*Stations* can be organized at the parking slots close to the Kesko grocery stores. It is supported by the existing company assets, as these business relations are already established. Additionally, other parking facilities should be utilized as well, such as Park and Ride, parking places close to train and subway stations, public parking stations with extended permission to keep a car there, and other possible parking slots. Here, it is crucial to dive into every area separately and investigate its parking opportunities. Perfectly, when the parking slots close to the grocery shops are labeled with restrictions to park other cars. Parking stations can be colored with brand colors to make it more visible and attractive.

In order to get higher profitability, it is important *to regulate station fulfillment*. As was said previously, the company itself may move some cars from the business area to the stations. However, it is more effective to establish *the navigation system* function to advise customer parking possibilities. In case the desired station is full, an alternative

close by station can be advised. The system may have motivation bonuses as free driving minutes next time in case a customer will park at the advised station. That will decrease company expenses and leave the process be done by the customer. The advice should be done very softly, in order to leave the customer a feeling that decision is done by himself. *Booking a parking slot at the station beforehand* is also an important feature.

Second, the service concept also consists of *Who, or the customer element*. Basically, the care-sharing service customers are the people who would like to use a shared vehicle instead of, or in addition to, an own vehicle. They are *the residents of the Helsinki central area, residents or workers of the Greater Helsinki area, the 8 hours office-based people, weekenders, multitaskers, family-oriented customers*, and others. All of them have their unique personal needs to utilize a vehicle. In age demographics, they are people starting from 18 to 70+ years old. Service can be utilized by *the customers on the go and willing to fetch a car at the last minute or at a very near time, drivers who make short trips around the Uusimaa area, drivers who make a conscious decision to avoid car ownership and change it with car-sharing service, smartphone users, families with elder children who need a booster seat or may travel without seat*. Also, *tourists and business visitors*, as well as *drivers headed to or from the airport* may use it. Basically, it satisfies all revealed customer needs.

The third element is the *How, or the service process*. The service process can consist of *a mobile application, web page, car display with system interface, and navigating system*. The initial registration is done on the company web page. Then, the customer has to download an application to his mobile phone. Reservation of vehicles can be done through the mobile application or web page. The same application is used to open a car, and activate the driving process. The navigation system in the car assists customers to get the direction, proposes a closed parking station, and at the same time provides the company with the route patterns. Customers use the same mobile application to end the driving process and close the car. The main value here will be satisfaction needs in short trips possibilities around the Uusimaa area, no parking fees, 24/7 availability, no maintenance costs, possibility to reach further locations in a convenient way, possibility to drive heavy shopping bags to the home. The same service process should be utilized within the entire system.

The fourth element is *The strategic intent, or the company*. This element mostly depends on the company's own interests, strategy, and assets. Implementing the

service concept company may choose itself the strategic way to execute the service totally green, sustainable, affordable, etc.

Figure 20 summarizes the draft proposal for the car-sharing service concept.

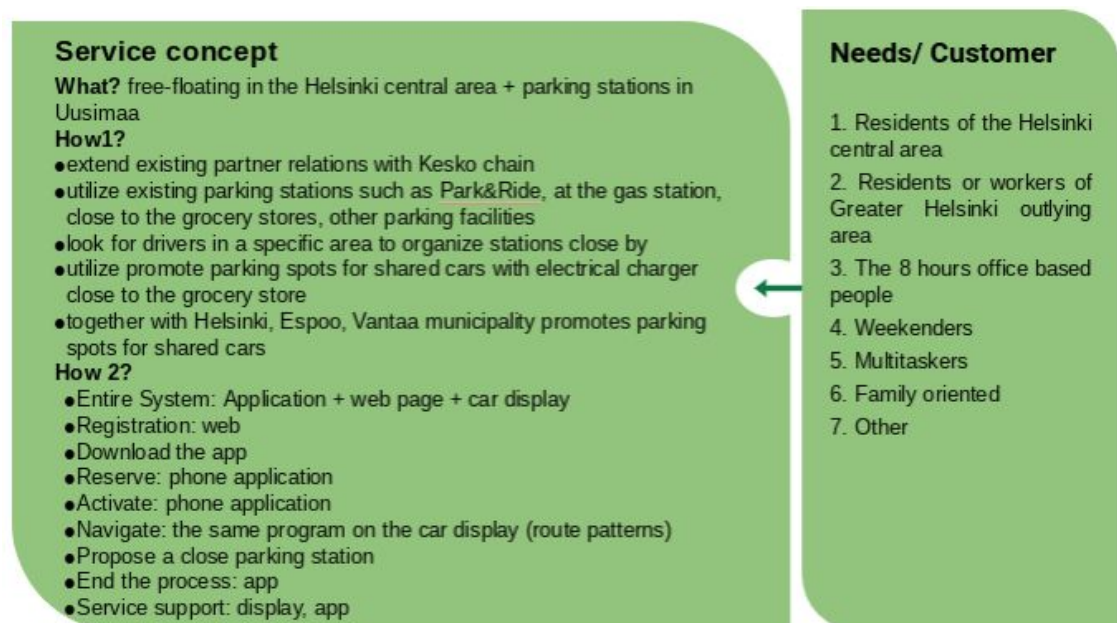


Figure 20. The draft proposal of the car-sharing service concept.

As described above, this proposal is based on the finding from current state analysis, best practice analysis, and stakeholder suggestions for the service.

As a summary, the proposed car-sharing service concept was described in this section. Next, the proposal is validated on a small scale before the large scale implementation can take place in the company.

## **Section 6. Validation of the Proposal**

This section reports on the results of the validation stage of the initial Proposal and reports on the feedback results from the company and selected audience. At the end of this section, the final proposal and car-sharing service concept are presented.

### **6.1 Overview of the Validation Stage**

This section reports on the validation results of the proposal developed in Section 5. In this study, validation refers to the key stakeholder evaluation of the proposal and the feedback from the selected audience (collected as Data 3). The goal of the selected form of validation of the car-sharing service was to evaluate and gather opinions from the stakeholders and collect feedback from a wider available audience.

Previously, the current state analysis focused on two main areas: the analysis of the current car-sharing services and existing best practices, and identifying the true customer needs in vehicles. To support the CSA with available knowledge, literature review was done, and based on both, the proposal was built, also with co-creation with the key stakeholders.

At this stage, validation was conducted in the following steps. First, the proposed draft of the car-sharing service was presented in a workshop to the key stakeholders where their feedback and comments were collected. Second, the validation of the proposal was conducted with the selected audience (Metropolia Master's students who participated in the "Service Design" course at the Summer School-2019). Key features of the proposed car-sharing service were presented to this audience and then a common discussion and an individual questionnaire were offered to the audience. Both feedback from the stakeholder and the results from the discussion and the questionnaire constitute Data collected along the validation phase.

### **6.2 Findings of Data 3**

As mentioned before, Data 3 consists of two main parts, namely the evaluation and feedback from the stakeholders and the results from the decision and the

questionnaires done with the selected audience. The collection of Data 3 starts with the results of the evaluation (workshop) and feedback by the stakeholders.

### *Stakeholders*

During the validation workshop, the stakeholders provided several comments and ideas to further develop the proposal with some details. Presentation and demonstration of the proposed car-sharing service concept was conducted with the slides. It gave enough information to each service concept element and opened discussion on positive and negative scenarios. These validation results created the first part of Data 3 collection presented in the table below.

Table 4. Key stakeholder evaluation and feedback for the proposal (Data 3).

	<i>Key focus area from CSA (from Data 1);</i>	<i>Input from the stakeholders, categorized into groups (Data 3)</i>
1	Focus on true customer needs that are not fulfilled by the existing car-sharing services	<p>a) Would it be better to build a concept based on the peripheral area of Uusimaa rather than on the business area?</p> <p>b) If the current car-sharing services widely cover the business area of Helsinki, maybe it is better to be different and avoid the business area from the concept.</p> <p>c) If the customer needs to move along the peripheral area is so definite, but at the same time is not covered well, would it be better to tackle that need with a proposed car-sharing service concept.</p>
2	Bundle of partner interests	<p>d) The service concept probably would suit more to be outsourced to other service providers for implementation as the company does not have enough own resources.</p> <p>e) It would be interesting to check the possibilities to utilize other companies' assets such as service stations.</p>

### *Selected audience*

The feedback from the selected audience was gathered over the discussion and as answers for the doodle questionnaire. First, a brief description of the service concept was given. Second, questions were addressed related to the main service concept

points. Third, the brainstorming was conducted as for the suitability of the proposed concept to the audience's needs and improvement suggestions.

*Questionnaire in Doodle:*

*Dear respondent, these questions relate to a new car-sharing service concept and ask your opinion about the main elements of a proposed model.*

Car sharing service concept proposal (a brief description):

Customers may rent a car using per minute rate. They can grab an available car on the street anytime and park it free of charge. Customers activate and finish the rental process by using a mobile application. Cars are distributed freely in the Helsinki business zone. Outside the Helsinki business zone, cars are located at the parking stations. Stations are organized along the whole Uusimaa area. Every living area would have her own parking station. Parking stations are organized close to the K market grocery stores, train and subway stations, and other public parking facilities. K-market is chosen as the main partner. Cars may freely move from station to station, or from station to Helsinki central zone and reverse. The concept differs from competitive service providers with a wider service zone and a possibility to drive along the Uusimaa area.

The survey results are presented in Table 5.

Table 5. Feedback from the selected audience to the Proposal (Data 3)

	Questions from a survey	Data 3, feedback from a selected audience in number of votes
1.	My need for a car: almost absent because of residence in the Helsinki central area and a big variety of public transport.	2
	Need for a car: occasional use along the week with other passengers	7
	Need for a car: gain the outlying destination rather work or home not only in Helsinki city but in the metropolitan Uusimaa area.	5
	Need for a car: when the public transport route is longer than 40 min, not convenient enough and	13



	complicated.	
	Need for a car: reach office place in a more convenient way, drive in the morning and afternoon, a car is parked in between.	6
	Need for a car: spend leisure time at different locations, organize own activities, or/with other families inside Uusimaa.	18
	Need for a car: move between several destination points in a very flexible way, carry and keep necessary belongings.	18
	Need for car: maintain a tight schedule which may depend on other factors.	5
	Need for a car: maintain family-related activities especially with kids or other family members.	14
2.	I am familiar with car-sharing services.	17
	I am not familiar with the car-sharing services	11
3.	I may use a proposed car-sharing service to satisfy your personal needs.	15
	I don't think that the proposed car-sharing service may satisfy my personal needs.	10
4.	It would be interesting for me to try a proposed car-sharing service.	19
	I have no interest in trying a proposed car-sharing service.	7
5.	I would like to have available cars in my living area for rent based on per minute to drive along the Uusimaa area.	14
	I have no desire to have available cars in my living area for rent based on per minute to drive along the Uusimaa area.	11
6.	It would be most convenient for me to have available cars for rent close to the nearest K-market (Uusimaa area).	18
	It would be most convenient for me to have available cars for rent close to the nearest TRAIN station (Uusimaa area).	6
	It would be most convenient for me to have available	3

	cars for rent close to the nearest SUBWAY station (Uusimaa area).	
	It would be most convenient for me to have available cars for rent freely distributed around the central part of Helsinki city.	4
7.	I would like to have a navigation system in the car that can advise the fastest route and available parking possibilities	21
	I don't have a desire for a navigation system in the car.	5

Table 5 illustrates the findings for Data 3 based on the feedback from the selected audience. Most of the findings relate to the main elements of the service concept.

As seen from Table 5, the results confirmed the proposed elements and the outline of the proposed service concept. Some of the findings provided the basis for further development, as discussed below.

### 6.3. Next Steps and Recommendations

The car-sharing service concept was validated and did not require any critical developments (Data 3). However, the feedback given by the selected audience pointed to some specific recommendations from potential customers..

A major recommendation concerns *the car distribution among the parking stations*. The location of cars close to the train and subway stations have not found big demand among the selected audience. However, locations close to the K-market have been one of the popular locations. That led to one critical recommendation for implementation. *Organizing car stations outside the Helsinki business area, one needs to research every living area separately, rather than distribute cars typically*. On-foot traffic, people's habits, side drivers, and lack of transport choices (such as bus stops) that can be further from the train and subway stations, all may lead to better marketability of cars. It was critical to the researched clients' logic in every living area, and pointed as the reasons why they would use a car-sharing car. The competitive choice between a fast train, a subway, and the rental car may have two side effects, namely to give a definite benefit at one location, while miss it at another one (if selected randomly, without careful research of the local area).



Another recommendation was attention to the customer needs *before* using/finding this service (while searching for it and getting acquainted with it), which are as relevant as the service execution itself. A car-sharing service requires continuous development and adjustments to these customer's needs as well.

## **Section 7. Conclusions**

The following section summarizes the results of the study. It points to the evaluation of the proposed model and gives some recommendations for implementation.

### **7.1 Executive Summary**

The objective of this study was to propose a concept for a car-sharing service, based on the investigation of customer needs and comparison to existing similar services. The case company of this study was interested in expanding its services, and a car-sharing service was one of the possibilities to explore. However, the company did not know how to approach the B2C end-users since so far it has mostly dealt with designing services for the B2B segment.

The research followed the Design research approach, utilizing its logic and suitable methods. Literature review, current state analysis, and data collection conducted in three rounds were the main key elements of the research design in this study. The study focused on two areas for research: the analysis of existing car-sharing services and the investigation of true customer needs.

This study was carried out, first, by analyzing the existing car-sharing services on the Finnish market, and best practices in Europe. This analysis revealed that there are obstacles related to the car-sharing service expansion, related to the service zone availability and marketability of these services. It is somewhat surprising that even though the service penetration in Europe is high, not every market was successful. An example of a very modest success are the markets in Sweden and Finland for the Drive Now company. The secondary data was collected and analyzed as a comparative analysis of existing car-sharing players on the Finnish market and successful best practices on the Spanish market especially.

Second, the current state analysis dived into the true customer needs by conducting 26 face-to-face and email interviews. The primary data was collected and analyzed from the respondents answers and revealed several types of customer needs. Surprisingly, that the correlation between the existing car-sharing services on the Finnish market

and the true customer needs revealed the gaps in the existing service models and pointed to the opportunities for further developments.

Next, in order to get a clear vision of how to tackle correctly the connection between the service itself and the customer needs, the study looked into literature. Recommendations from the literature revealed the ways how to design a service concept via true customer needs, that finally was reflected in the conceptual framework.

After that, the proposal for the car-sharing service concept was developed by utilizing the true customer needs and comparing with the existing services, which revealed the gaps and pointed to solutions in the proposed car-sharing concept. It was co-created with the stakeholders. Thus, the proposal was grounded both, recommendations from best practices and ideas from the stakeholders. It is worth stressing that true customer needs were revealed from comprehensive research that was conducted and utilized as the primary data.

The outcome of the study is a car-sharing service concept based on the identified customer needs. the proposed service concept is built around the identified opportunities on the market, and mostly describes the elements of *Who*, *What* and *How* the new service can be conducted, and it leave space for the company to decide on its *Strategic intent*. Finally, it points to some recommendations important for the implementation of the proposed service concept.

## 7.2 Recommendations Toward Implementation

Car-sharing services have reached high penetration on the European market. However, some markets showed challenges for successful implementation. Also, they demonstrate that differentiation from other similar services and a clear understanding of target customer needs are critical for success.

The first step to implement the service concept in a different way is to move away from a standard scheme when the concept is tightly connected to the business area of the city. On the contrary, the results point that successful solutions extend that area with additional possibilities, outside the main service zone. Thus, an extended net of car stations could be a good option for the new service as well. Successful examples prove that customers want the cars freely move around the service zone, and establish the

service zone as a pool for car accumulation, and thus further expand the territory via stations. Stations are needed to limit the chaotic scattering of cars along with the territory expenditure, while the service zone ring will accumulate the main stock of cars. In principal, the service company can always abandon extra cars to the organized stock in the service zone and pull out some cars to cover open places on pointed stations.

The second step to implement the service concept is via a bundle of interests. It is important here to think not only about business marketability but social impact as well. However, the first one, marketability, is especially critical. It is already a proven fact that a bundle of interests may lead to a more successful car-sharing service implementation. It helps to the positive impacts via a reduced number of private cars in the cities and reduced air pollution. The first step to such cooperation and internet bundling can be through presentation of the new service opportunities to the Great Helsinki area municipality and seeking cooperation with them. The next step is the search for cooperation for extending to separate parking places for shared cars. As the street parking are managed by municipalities, they can make a critical vulnerability of the new service. In some cases, the lack of parking spaces or high expenses for them may lead to the service termination. The mediation between municipality and service owners is quite novel for car-sharing relations, however, it has shown success in some existing car-sharing cases. Here, deep level of public and private collaboration is required to achieve high goals, such as the decrease of old cars and the number of vehicles in the case area.

At the same time, it is critically important to look for other partners as well. A detailed research in every living area is needed for parking space needs and their availability. Such drivers can be grocery stores with parking facilities. Parking facilities are the main assets in that aspect. However, other stores and businesses may also wish to support the service providing the parking permission if it would be presented as a social service with a positive impact on the society.

The third step is to give more depth and attention to the research on true customer needs. The current, small-scale research, demonstrated that it is not efficient to claim that customers want just freedom in their movement and build the car-sharing concept around that claim. The company will put itself in a trap following such a logic. Free movement around big territory leads to the challenges with unbalanced car fleet stock, further car relocation, availability of quite significant car assets, and probably some other difficulties that may lead to low marketability, cause not all cars will have high

usage frequency. Therefore, a more in-depth and wider research and especially a prototype service trial are needed to provide the final proof before investing millions into the new car-sharing concept.

### 7.3 Thesis Evaluation

The research goal was to propose a car-sharing service concept based on the identified customer needs and differentiation from competitors.

In order to achieve this goal, it was necessary to deeply focus on three intermediate steps: to identify the main elements of a service concept, to identify the customer needs, and compare to existing similar services.. The researcher followed these steps by, first, exploring and utilizing the Double Diamond research techniques for identifying the service concept elements, which led to start from the initial point, the customer needs. Basically, the study passed through four main stages, namely Discover, Define, Develop, and Deliver. Deep enough exploration of the existing car-sharing market provided the main insights about service gaps in competitor services and pointed to possible opportunities. At the same time, the interviews provided the deep insights about the customer needs in vehicles in the Uusimaa area. This data pointed to a new understanding of how car-sharing service may be constructed in order to fulfill these identified customer needs. Together with the company stakeholders, the researcher has utilized the most promising ones to design a suitable service concept that would differ from the existing car-sharing providers. Validation allowed to polish the service concept and give recommendations for further implementation.

The quality of the thesis was helped by an extensive literature review. Suggestions from literature had significant implications for the understanding of how customer needs relate to the service itself. Overall, this study strengthens the idea that customer needs have to be researched thoroughly with the service design techniques, and these results were reflected in the conceptual framework.

The thesis results and quality were evaluated and validated by the key stakeholders. Workshops with the stakeholders supported the research process, while their feedback as well as inputs from the selected audience at the final stage, further refined the proposal and made another step to ensure its potential success on the market.

## 7.4 Closing Words

Nowadays, shared economy trends gain attention and response in customer behavior and life routine. Companies look for existing opportunities in the service market that would utilize these trends. The car-sharing service is a prominent example of such services.

This study was interested in the interaction of factors that influence the market success and become obstacles to a new service, which sometimes do not get enough attention. The findings from that study may encourage the existing car-sharing providers to research more thoroughly the true customer needs of real customers and thus increase utilization and marketability of their services.

Summarizing the study, the research wants to stress that the value of this thesis lies not only in a new concept of *how* the car-sharing service may be conducted, but also in the reasons *why*, and the revealed necessity for the existing services to be modernized.

*“When one dream comes true, follow the other”.*

## References

- Arfmann D, Dr. Federico, Topolansky Barbe G., (2014). The Value of Lean in the Service Sector: A Critique of Theory & Practice, *International Journal of Business and Social Science*, Vol. 5 No. 2; February 2014.
- Blichfeldt B, Andersen J.R. (2006). Creating a Wider Audience for Action Research: Learning from Case-Study Research.
- Blomkvist, J. (2014). Representing Future Situations of Service: Prototyping in Service Design. Doctoral dissertation. Linköping: Linköping University Electronic Press.
- Buchenau, M., Fulton S. (2000). Experience Prototyping. Proceedings of the 3rd Conference on Designing Interactive Systems: Processes, Practices, Methods, and Techniques, DIS '00. Brooklyn, NY, USA.
- Edvardsson J, Olsson B. (1996). *The Service Industries Journal*; Apr 1996; 16, 2; ABI/INFORM Global pg. 140.
- Fitzsimmons J.A., Fitzsimmons M. (2000). *New Service Development: Creating Memorable Experiences*. London: Sage Publications, pp.72.
- Garfield L. (2018). 13 Cities That Are Starting to Ban Cars.  
<https://www.businessinsider.com/cities-going-car-free-ban-2017-8?r=US&IR=T&IR=T>
- Goldstein S. et al. (2002). The Service Concept: The Missing Link in Service Design Research. *Journal of Operations Management*, 20, pp. 121-134.
- Grönroos C. (2015). *Service Management and Marketing. Managing the Service Profit Logic*. Helsinki.
- Gummerson E., (2000). *Internal Marketing in the Light of Relationship Marketing and Virtual Organizations. Internal Marketing*. London: Routledge.
- Hampel C., (2019). BMW & Daimler Finally Combine All Mobility Services.  
<https://www.electrive.com/2019/02/22/bmw-and-daimler-join-for-combined-mobility-services/>



- Helkkula A, Pihlström M. (2010). Narratives and Metaphors in Service Development, *Qualitative Market Research: An International Journal*, Vol. 13 Issue: 4, pp.354-371.
- Holmlund M., (1997). Perceived Quality in Business Relationships. Doctoral dissertation. Helsinki, Finland: Hanken Swedish School of Economics.
- Jiju A. (2011). Six Sigma vs Lean: Some Perspectives from Leading Academics and Practitioners. *International Journal of Productivity and Performance Management*, 60 (2). pp. 185- 190. ISSN 1741-0401
- Jorge D., Correia G., (2013). Car-sharing Systems Demand Estimation and Defined Operations: A Literature Review. *European Journal of Transport and Infrastructure Research*.
- Kananen, J. (2013). *Design Research (Applied Action Research) as Thesis Research. A Practical Guide for Thesis Research*. Publications of JAMK University of Applied Sciences 146.
- Kimbell L. (2011). Designing for Service as One Way of Designing Services. *International Journal of Design*, 5(2), 41-52.
- Le Vine S., Zolfaghari A., Polak J., (2014). Centre for Transport Studies, Imperial College London, 22 th ACEA Scientific advisory group report.
- Macintyre M., Parry G., Angelis J., (2011). Service Science: Research and Innovations in the Service Economy, 2011, 3.
- O'Sullivan F., (2018). Madrid Takes Its Car Ban to the Next Level. Available from: <https://www.citylab.com/transportation/2018/05/madrid-spain-car-ban-city-center/561155/> (Accessed March 2019).
- Patricio L, Fisk R, Falcão de Cunha. (2011) Multilevel Service Design: From Customer Value Constellation to Service Experience Blueprinting. *Journal of Service Research*, 14(2), 180-200.
- Sarvas R., Nevanlinna H., Pesonen J., (2017). Lean Service Creation: The Handbook V1.8. Available from: <https://leanservicecreation.com/material/LSC%20Handbook%201.82.pdf> (Accessed March 2019).

Service Design. Design Council (n.d.) Design Methods for Service Design. Available from:

<https://www.designcouncil.org.uk/resources/guide/design-methods-developing-services> (Accessed March 2019).

Schulte F., Voß S., (2015). Decision support for environmental-friendly vehicle relocations in free-floating car-sharing systems: The case of car2go. *Procedia CIRP* 30., pp.275 – 280.

Strandvik T., Helkkula A., (2013). Dream catching' *Mercury Magazine*, vol Autumn/Winter, no. 5-6, Issue 5-6, pp. 21.

Taylor E., (2014). Daimler's Car-sharing Business Car2Go to Quit UK, London a Challenge. Available from: <https://uk.reuters.com/article/uk-daimler-europcar-carsharing/daimlers-car-sharing-business-car2go-to-quit-uk-london-a-challenge-idUKKBN0E81ZN20140528> (Accessed March 2019).

Teivainen A., (2017). Finland to End Sales of Diesel Cars by 2030. <https://www.helsinkitimes.fi/finland/finland-news/domestic/14925-finland-to-end-sales-of-diesel-cars-by-2030-says-berner.html> (Accessed March 2019).

Wittwer, R. et al. (2018). *Transportation Research. Procedia* 33, 323–330.

Womack, J.P. and Jones D.T. (1996). *Lean Thinking*. New York, Simon & Schuster.

Appendix 1 The comparative report of Spain car-sharing provider

Car sharing model	
<p><b>Wible, Madrid, Spain</b>                      Prototype from Korea, Spain Madrid only  <a href="http://www.wible.es">www.wible.es</a></p>	<p><b>Car2Go, Madrid (Daimler and BMW are parent companies)</b>                      Operates: Austria, Canada, China, France, Germany, Italy, Netherlands, Spain, USA  <a href="https://www.car2go.com/ES/en/madrid/how/">https://www.car2go.com/ES/en/madrid/how/</a></p>
<p>Free-floating in the business area and at 3 bases outside the city                      45 000 clients July-November 2018                      55 000 clients by the end of 2018</p>	<p>Free-floating inside the operating area (business area)</p>
Area, drop off	
Operating area	
<p>* Inside the circle M30                      * Base on the north of Madrid to Mirasierra, including Las Tablas and Sanchinarro                      * To the east will cover the entire area bordering Calle Arturo Soria to Calle Alcalá and the areas of Concepción and Quintana                      * to the west, the entire circumference of Ciudad Universitaria and the M-30                      * Villaverde and Las Tablas hubs, as well as the Repsol Service Station located on Calle Manuel de Falla in Pozuelo de Alarcón</p>	<p>Inside the circle M30</p>
Driving abroad	
<p>Yes, after authorization</p>	<p>No, €250 fee</p>
Price	
Rental price	
<p>€0.24/min (1st hour)                      €3/hour (2nd hour onwards)                      €50 per day  <i>Increase of €0.25/km starting from 100 kilometers</i>                      *Repsol                      A95 - 1,307€</p>	<p>€0.21/min smart for two ED                      €0,29/min cost per kilometer after the first 200 km</p>

A98 - 1,354€	
<b>Registration fee</b>	
€0	€9
<b>Fuel, charging the battery</b>	
Fuel is included in the price	Fuel is included in the price
* Wible charges and fuels * can not end the trip with a range below 60 km as you will be charged a €30 penalty if this occurs	* Car2go charges the battery, * leave minimum 10% of the battery
<b>Cars</b>	
500, Hybrid, Kia	Electric cars, Smart
5 seat crossover	2 seats
No children seats , clients own	
Pets are allowed	
<b>Use process</b>	
*Registration in application *Open the car with app *start button *Finish the trip: leave keys inside, close car and end trip with app	*Registration in app *Find a car in app *Open the car with app *Keys are inside the car *Finish the trip: leave keys inside, close car and end trip with app
Reservation for 20 min before hand, free of charge	Reservation for 20 min beforehand, free of charge
<b>Parking</b>	
* 15 private parking lots in the center of Madrid, located on Calle Galileo, Bilbao, Avenida de Burgos, Padre Damián, Colón, General Díaz Porlier and Casino de la Reina, which "save time for users", has had an impact * <a href="https://www.eleconomista.es/ecomotor/motor/noticias/9521237/11/18/Wible-el-carsharing-de-Kia-y-Repsol-amplia-su-zona-de-servicio-en-Madrid-y-confirma-que-su-flota-sera-100-electrica-en-2020.html">https://www.eleconomista.es/ecomotor/motor/noticias/9521237/11/18/Wible-el-carsharing-de-Kia-y-Repsol-amplia-su-zona-de-servicio-en-Madrid-y-confirma-que-su-flota-sera-100-electrica-en-2020.html</a>	inside the operational zone (circle M30)

<ul style="list-style-type: none"> <li>* Wible Red parking places</li> <li>* Green zone in Madrid</li> <li>* Blue zone in Madrid</li> <li>* The cost for parking Wible in an appointed car park is €1.</li> <li>* Wible spaces in the underground car parking. Parking cost €1, pick up car €0.</li> <li>* Outside the Madrid in the Wible bases</li> <li>* Leave your own car at Las Tablas or Villaverde bases and swap it for a WiBLE for just €1, which more than compensates for the hours of parking savings inside the city. The condition is the WiBLE usage for a minimum of 40 minutes during that booking.</li> <li>* Customers who pick up car from the car parking place don't have to pay parking fee</li> <li>* Pozuelo base: It is possible to leave a car in the vicinity of any Service Station in Pozuelo and leave with a WiBLE. There is no additional cost for picking up/dropping off a WiBLE at this base.</li> <li>* Las Tablas, Villaverde bases: It is possible to leave your own car in a space at the base and leave with a WiBLE. The use of WiBLE from a base is subject to an added rate on top of the normal WiBLE per minute rate: After picking up a WiBLE from the base, if the journey to your destination is less than 40 minutes, the parking rate for your own vehicle at the base will be €0.034 per minute. This equates to €2.04 per hour up to a maximum of €15. If the journey taken with WiBLE is over 40 minutes, the parking rate for your own vehicle at the base will be €1 plus the normal WiBLE per minute rate.</li> <li>* A private zone is possible as long as the rental is not ended. In this case, the normal rate for the trip will continue to apply while the car is parked. A penalty of €250 will apply if the trip is ended in a private car park.</li> </ul>	
<b>Review</b>	
Weaknesses	
<ul style="list-style-type: none"> <li>* Troubles with the customer service and application</li> <li>* Battery charge is enough for 60 km, further clients drive on the combustion engine. That leads to mislabeling as a 0 emission car.</li> <li>* WiBLE charges batteries, which is not enough efficient</li> </ul>	Cover inside M30
Strength	
<ul style="list-style-type: none"> <li>* Biggest cover area (outside M30, M40)</li> <li>* Drive from outside to the center of Madrid in cheaper way, no parking fee</li> </ul>	<ul style="list-style-type: none"> <li>* Minimum price</li> <li>* 0 emissions as total electrical</li> </ul>

<ul style="list-style-type: none"> <li>* Possibility to leave own car on the gas station and in base</li> <li>* Drive abroad after authorization</li> <li>* Price close to the minimum per minute</li> </ul>	
<p>Reviews by clients</p>	
<ul style="list-style-type: none"> <li>* 3,9 out of 5 for 32 reviews in google</li> <li>* Clients mark that service itself the cheapest, new cars</li> <li>* Negative reviews because of problems with application</li> <li>* Troubles with customer service center</li> <li>* Clients like surveillances at the end of the trip</li> <li>* Clients empathize with the electrical mode with 0 emissions and being eco friendly, but at the same time mark that electrical battery is enough just for few first clients, had experience with 0% at the electrical mode and had to operate on combustion. That also leads to the misunderstanding that cars are labeled as 0 emissions but operates further the whole day on combustion engines. It looks that recharging 500 cars for the company is a challenge.</li> <li>* Profitable to use by 3 people compared to the same people costs for public transport.</li> </ul>	

Appendix 2. Drive Now operations in Europe

<b>City, population, mln</b>	<b>Date of launch</b>	<b>Vehicles</b>	<b>Share of electric vehicles</b>	<b>Business area, ca.km2</b>
<b>Germany</b>				
Munich city 1,5 4,700/km2 urban 2,606	June 9, 2011	750	85	ca. 88 km2
Berlin city 3,748 metro 6,004	September 29, 2011	1400	140	ca. 167 km2
Dusseldorf city 0,617 2,800/km2 urban 1,220 metro 11,300	January 25, 2012	310	45	ca. 152 km2
Cologne city 1,080 2,700/km2 metro 3,573	October 25, 2012	310		
Hamburg city 1,822 2,400/km2 metro 5,107	November 4, 2013	was 600, increased till 620	150	ca. 90 km2
<b>Austria</b>				
Vienna city 1,888 4,326/km2 metro 2,600	October 17, 2014	was 500 increased till 720	20	ca. 101 km2
<b>United Kingdom</b>				
London city 9,126 14,500/km2 urban 9,787 metro 14,040	December 4, 2014	was 310, increased till 720	50	ca. 84 km2
<b>Denmark</b>				



Copenhagen city 0,777 4,400/km <sup>2</sup> urban 1,627 2,700/km <sup>2</sup> metro 2,057 1200/km <sup>2</sup>	September 3, 2015	was 400, increased till 550	400	ca. 89 km <sup>2</sup>
<b>Sweden</b>				
Stockholm city 0,962 5,100/km <sup>2</sup> urban 1,562 4,100/km <sup>2</sup> metro 2,315 360/km <sup>2</sup>	October 20, 2015	was 250, increased till 400	30	ca. 50 km <sup>2</sup>
<b>closed</b>	<b>31st October 2018</b>	<ul style="list-style-type: none"> <li>• demand did not meet the expectations</li> <li>• increasing operating costs, such as congestion tax and parking fees</li> </ul>		
<b>Belgium</b>				
Brussels city 1,191 7,384/km <sup>2</sup> metro 2,120	July 6, 2016	320	10	ca. 60 km <sup>2</sup>
<b>Italy</b>				
Milan city 1,372 metro 8,173	October 19, 2016	500	20	ca. 126 km <sup>2</sup>
<b>Finland</b>				
Helsinki city 0,650 3,041/km <sup>2</sup> urban 1,231 1800/km <sup>2</sup> metro 1,495 404,4/km <sup>2</sup>	May 24, 2017 <b>The service ended on February 29, 2020</b>	150	10	ca. 40 km <sup>2</sup>
<b>Portugal</b>				
Lisbon city 0,505	September 12, 2017	210	10	ca. 48 km <sup>2</sup>



Appendix 3. Comparison analysis of existing car sharing services presented in the Uusimaa area

<b>Drive Now, Helsinki, Finland (Daimler and BMW are parent companies)</b>	<b>City Car Club</b>	<b>GoNow</b>	<b>Ecorent</b>
<b>The service ended on February 29, 2020.</b>		Part of 24rent.fi (rental cars) <a href="https://www.gonow.fi/en/">https://www.gonow.fi/en/</a>	
<b>Car sharing model</b>			
Free floating in Helsinki city business area + possibility to pick up and drop of at few definite spots outside the Helsinki city	Round trip.	Free floating in city business area + Drop of at definite spots outside the business area in the city	Two way
<b>Working area, drop of</b>			
-all parking zones in Helsinki (regulated by Helsinki city) - several spots outside Helsinki zone as in Leppavaara -airport with additional fee	-Helsinki business area. -several spots in Espoo and Vantaa	Operates in Helsinki, Vantaa, Oulu	Several cars in the city operating in Helsinki, Espoo, Porvoo, going to Tampere, Riihimäki, Nurmijärvi
<b>Driving abroad</b>			
No	No	No	No
<b>Price</b>			
0,57 €/min 0,69 €/min during summer 0,40 €/min (Subject to availability and valid only for reserved vehicles)  packages	<b>Monthly fee + rental price</b> 0€+15€/h 10€+10€/h 30€+10€/h 50€+10€/h	0,47€/min Pause 0,10€  from 24rent: 3h price 22-26€ (depends on car) 6h price 36-44€ 24h price 52-62€	5€/hour 24h -48€

3h - 39€ 6h - 59€ 9h - 79€ 24h -139€			
<b>Type of cars</b>			
BMW 10 electrical or 150 combustion Wide size range	~30 cars Passenger cars: Volkswagen Beetle, Polo, Passat Vans: Opel	-Toyota hybrid: Toyota Auris Toyota CHR -24 rent.fi Uusimaa: 70 passenger cars, 62 vans, 3 minibuses	5 cars in Helsinki 2 cars in Porvo 1 in Espoo
Children booster seats are included			
Pets are allowed at every car model			
<b>Registration fee</b>			
30€	50€	free	
<b>Use process</b>			
Registration in application Find a car in application Open with app Keys are in the car	-Cars can be checked through the Internet. -At the reservation, customer should select from the list the drop of place. -Customers also mark the rent period. -To activate a car, customers get the message and then make a call to the opening service and follow the instructions. -To extend the rental period, customers send a message in a proper style. (ADD 1 30 - means to add 1 h	Registration in application Find a car in application Open with app Keys are in the car	

	<p>30 min)          -To finish the rental period, customers need to call the closing number.</p>		
<b>Parking</b>			
<p>-Free parking in the service zone          -The drop off in service area          -Parking in Leppavaara (parking for car-sharing by the Espoo city)          -Parking spots outside the service area in Espoo, Vantaa          -Parking spots at partners places</p>	<p>-During the operation, there is a possibility to use all available parking zones in Helsinki city.</p>	<p>-Free parking in the service zone          -The drop off in service area (not for every car)          -Parking in Leppavaara (parking for car-sharing by the Espoo city)          -Parking spots outside the service area          -In application detect free parking spaces from the light blue P icon, the reserved places appear gray, book a free seat for yourself.</p>	
<b>Fuel</b>			

<p>-Included to the price          -Drive Now charges          -If the fuel level drops below 25% during or at the end of the journey, it is recommended to fill up the car at one of the partner petrol stations.          -If the fuel level at the start of your rental was below 15%, and you return the car with over 90% in the tank, we will credit your account with 20 bonus minutes.</p>	<p>Included to the price          Refuel ST1, Shell with the company card</p>	<p>-If there is less than one-third of the fuel left, refuel the car and send the receipt to us. The costs of refueling will be credited and your driving time will be added to your account</p>	
<b>Review</b>			
<b>Weaknesses</b>			
<p>Most cars are in the Z-zone (business area).          Poor cover outside the Helsinki Z-zone (business area).          Poor connection in the Uusimaa area.          High enough price range.</p>	<p>*Fee by the hour.          *At the reservation customer should select the drop off place. For that customer has to make a match with the destination place.          *Lack of freedom.          *Not all cars are available immediately. In case a car is not available, it would be delivered within 2 hours.          *Cancellation free of charge is at the latest 4 hours before the trip starts.          *Complicated and old school way to</p>	<p>*Most cars are in the Helsinki central area.          *Poor cover with available cars outside the Z-zone (Helsinki business area).          *Provided parking spots outside the business area may be occupied. Need to reserve beforehand.</p>	<p>*Just a few cars.          *Poor electrical chargers spread in Uusimaa.</p>

	<p>activate a car and finish the rent.</p> <p>*To extend the time period, customers need to send a message in a proper form, which can lead to the possibility of misunderstanding.</p> <p>*No electrical cars.</p>		
<b>Strength</b>			
<p>*Reservation through the mobile phone app.</p> <p>*Reservation per minute.</p> <p>*New premium class cars.</p> <p>*Free parking in the center of the city.</p> <p>*More parking spots outside Z zone</p> <p>*Rental fee on minute base.</p> <p>*Fuel is included.</p> <p>*Wide range of car sizes.</p> <p>*20 min Bonus for fueling.</p>	<p>*Map shows the parking slots.</p> <p>*Possibility to choose the price rate.</p> <p>*Fuel is included.</p>	<p>*Provided parking spots in Vantaa and Espoo which are outside the business area.</p> <p>*Reservation through the mobile phone app.</p> <p>*Free parking in the center of the city.</p> <p>*Rental fee on minute base.</p> <p>*Better price per several hours and per day.</p> <p>*Hybrid cars.</p>	<p>0 emissions</p>



## Appendix 4 Current state analysis interview about customer needs in vehicles.

### Respondent 1 (email interview)

#### 1. Who? Personal case:

- Could you please say briefly about yourself? 40+ male, IT manager
- Where do you live? (area) Ruoholahti, Helsinki
- Where do you work (area) Vallila, Helsinki
- What is your family situation? Married, living in Helsinki with wife

#### 2. What? Car situation:

- What car do you have? Mazda MPV 2.0
- When a vehicle was produced? 2001
- How much do you pay per year for keeping the car? 2000 euros

#### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred car to public transport? I prefer public transport and use cars on rare occasions, mainly during weekends when we want to visit remote places, like nature spots, places for skiing, etc. Also when going to a night dancing party to be able to return faster and more conveniently after 3 a.m.
- What does your own car give to you? Convenience in specific situations.
- Does the weather outside influence your choice? Yes, but not on the daily basic commuting to work.
- Value experience in a social context? Just a little. The car enables me to serve others. It is good to be able to help a friend by giving him/her a ride or to drive around our guests/Helsinki visitors and be able to provide convenience and show hospitality, thus strengthening social connections.

#### 4. How?

- How often do you use the car? or would you like to use it? Weekends and special occasions (as in examples above).
- What is your typical trip? or would/could be your trip? Drive guests from/to the airport; go to the dancing party during the night; visit Serena water park/skiing slopes or nature park, etc.
- Is your day unpredictable and you use the car during the day? My day is mostly predictable. I usually don't use a car during a workday.
- Does your work influence the rhythm of how you move during the day? Directly. I have typical office work. I go to work in the morning and come back home in the evenings using public transport.
- Do you use it for work travel inside the Uusimaa? My work does not require traveling inside the Uusimaa.

#### 5. Car sharing

- Have you ever had a car-sharing experience, where? I rented the car once, but it was not in Finland.
- Briefly tell the reason? My car broke.
- What did you like? I was able to do what I planned
- What you didn't like? Expensive

- How was it? It was quite a "standard" rental service. One difficulty was to find the type of car we needed (big minivan) with the return at the destination for a reasonable price. Otherwise - everything was OK.
- Tell about the worst happened in experience: When standing in the line to embark the ferry boat car did not start. I called the support line of the rental service and they guided me through the situation. It turned out to be a technical defect - battery wire was loose and I needed to tighten the screw.

#### 6. Dream catching

- How would you like everything to be organized in the car? Sharing/renting the car when you need it. Rental service (say, every or every other weekend) shall cost much less than owning the car.
- How would you like the rent service to be organized? It could be a mobile App-based service, where you can book a car for a specific time and it will be delivered to you right where and when you need it. After usage, you shall be able to drop the car where it is convenient for you without a need to go at a specific return point.

#### Respondent 2 (live interview)

##### 1. Who? Personal case:

- Could you please say briefly about yourself? 37 years old, male. Married, 5 children, equipment engineer
- Where do you live? (area) Viikki, Helsinki
- Where do you work (area) Kumpula, Helsinki
- What is your family situation? Married, 5 children, equipment engineer

##### 2. What? Car situation:

- What car do you have? Opel Zafira, 7 places
- When a vehicle was produced? 2000
- How much do you pay per year for keeping the car? gasoline 150 euro, 600 euro tax, and insurance

##### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred car to public transport? to economize time spending to move from one destination to another. Public transport or any other type of transport requires more time than a car. I don't have free time which I am willing to spend just sitting on the bus. I have driven a car since 2009.
- What does your own car give to you? Time economy. Comfort for me myself, my family, other people along the transportation period. If I have a need to work somewhere additionally, it is impossible to bring 30 kg of different equipment and instruments on public transport. I can say that it is the need that drives my choice.
- Does the weather outside influence your choice? Not really
- Value experience in a social context? No

##### 4. How?

- How often do you use the car? I use it every day.
- What is your typical trip? or would/could be your trip? Sometimes I have additional work. In the morning I travel to the office, and after work, back home. In the evening do grocery shopping. Sometimes in the morning, I need to drive kids to kindergarten. When I am in the office, the car is parked for 8 hours at the company parking slot paid by the company. Company rents parking slots from the University of Helsinki. Those slots are spread among the workers. But such parking slots do not have electrical charges in terms of economy.
- Is your day unpredictable and you use the car during the day? Predictable day, office work.
- Does your work influence the rhythm of how you move during the day? I definitely can't say definitely yes. Because in the morning I check the traffic jam and rush hours. Sometimes I skip exactly morning hours in order not to stack. I have a free schedule and need to work for 8 hours, but at the same time more flexible when I would start it. Additionally, I am concerned whether I need to take kids from kindergarten and rush hours.
- Do you use it for work travel inside the Uusimaa? Uusimaa rarely goes outside the area.

## 5. Car sharing

- Have you ever had a car-sharing experience, where? No, just rental in Europe, America.
- Briefly tell the reason? Tourism, France, America.
- What did you like? I personally liked that I can choose what kind of vehicle I would like to have, a small or big one. I do not need to bother about its repair.
- What you didn't like? Cost. Place where it is located. Usually rented cars are located somewhere in further location and one needs to travel to pick up point. In the end, you need to drop it off at the same station. In France when I rented a car at the airport, and after when I needed to drop it off, I almost stacked at the airport, because public transport at that time was already limited.
- How was it?
- Tell about the worst happened in experience: This French experience was the worst because I didn't have a clear vision of how to come back, but finally, I found a bus. Also once a company demanded ordinary Visa cars, while I had a Visa electron. We were able to negotiate that I have paid full gasoline tack, additional insurance and gave some guaranteed money. But they didn't inform me about card requirements beforehand. The reason was that they wanted to reserve some amount of money on my bank card. Because I have a debit card, they couldn't do that.

## 6. Dream catching

- How would you like everything to be organized in the car? I would rather want to have a covered parking place, especially that is more convenient in wintertime. Also as we have to go uphill to the home and downhill to the parking slot, it is not comfortable in winter time when the hill road is covered with ice. Also, the fact that the parking slot is a bit far, and because of our big family, grocery shopping is quite big, I have to drive close first to the home and leave bags. Then drive back to the parking slot. Even though we have a temporary parking slot, close to home, several times we got fine for leaving the car there and did not dislocate it in 5 min. I would rather change to a Hybrid car. I don't think that

electric cars are so effective, as in case if the battery doesn't have power, one can't just add gasoline and continue the trip.

- How would you like the rent service to be organized?

#### Respondent 3 (live interview)

##### 1. Who? Personal case:

- Could you please say briefly about yourself? I am a 40 years old male, carpenter, married, one 2 years old child, and 1 dog. I have owned a car for 22 years. I won my first car when I was 18 years old from the R kiosk lottery, 400 000 tickets.
- Where do you live? (area) Pitäjänmäki previously lived in Tuusula. But the situation with the car was the same. Work dictates the need.
- Where do you work? (area) Border of Vantaa and Helsinki, and sometimes workshops in different areas in Espoo, Vantaa, Helsinki.
- What is your family situation? Married, one child 2 years.
- Hobby? Race driver in my hobby. It had for 10 years, but stopped because it is very expensive. I still have a passion for racing. I still follow up for rallying.

##### 2. What? Car situation:

- What car do you have? Skoda Octavia family wagon, benzine.
- When a vehicle was produced? 2017
- How much do you pay per year for keeping the car? maybe around 6000 euros per year including a loan for the car.

##### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred car to public transport? My work is the main reason and dictates that I need to have a car. Jobs are not stable at the same time. I need to travel from one place to another, especially when there is a need to get more materials. For example, last Friday I went to Matinkylä Espoo, but then I need to go to the store. Even though the store is close, it would take me 30 min by car, and by bus 1 hour 30 min. During my working hours, I always have instruments with me and I can not carry it myself. During my free time, my hobby is ice hockey, especially because I am a goal taker, and my bag is so huge. Even if I play in Pasila it takes 10 min to go by car, or by bus 45 min. But it is hard to carry the bag and the weather is not so much. Compared to the suffering of going by bus, it is better to go by car.
- What does your own car give to you? Freedom to plan my schedule more freely during the day. I don't depend on the bus schedule. Freedom to move as I want.
- Does the weather outside influence your choice? When the weather is nice, I also go by electric scooter to the center of the city and then go by train.
- Value experience in a social context?

##### 4. How?

- How often do you use the car? It depends on the job. Now I work in the city center, there is no need to go by car because the tickets would be very high. But 90% of the time I travel by car.

- What is your typical trip? To go by car to Vantaa. But if I need to have more materials, I would go by car to other places. But most of the time the car would stay till lunchtime. The lunch place is not so close.
- Is your day unpredictable and you use the car during the day? Yes, it depends on the daily schedule.
- Does your work influence the rhythm of how you move during the day? Yes.
- Do you use it for work travel inside the Uusimaa? Mainly.

#### 5. Car sharing

- Have you ever had a car-sharing experience, where? No.
- Briefly tell the reason?
- What did you like?
- What you didn't like?
- How was it?
- Tell about the worst happened in experience:

#### 6. Dream catching

- How would you like everything to be organized in the car? Maybe Hybrid is better to use instead of benzene. But I still see the capacity in the battery and I read that the battery loses 30% of charge. The recharging takes too much time with an electric car. So electrical is not possible with me. The same is with my electric scooter, the battery doesn't last so much.
- How would you like the rent service to be organized?

#### Respondent 4 (live interview)

##### 1. Who? Personal case:

- Could you please say briefly about yourself? 46 years old, a teacher at the University of Applied Science.
- Where do you live? (area) The western part of Helsinki, Lauttasaari.
- Where do you work? (area) In Leppävaara.
- What is your family situation? Husband, and 3 teenage sons.
- Hobby?

##### 2. What? Car situation:

- What car do you have? 2 cars, Sedan BMW 5, and smaller BMW.
- When a vehicle was produced? 2017
- How much do you pay per year for keeping the car? maybe around 6000 euros per year including a loan for the car.

##### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred car to public transport? In my case, it is a mix of using my own car and car-sharing. My own car is choice number 1. Sometimes I use the bus and metro when I go and I know that there is high traffic, especially in the city and around rush hour. Also when the weather is really bad, how it was recently. It was lots of snow, then to some extent, I used public transport, at that point, it was more convenient. When the

roads are bad and it is difficult to park especially. Recently I traveled and beforehand knew that the parking would be bad, so I used public transport.

- What does your own car give to you?
- Does the weather outside influence your choice? My first choice is always my own car, and then if rush hour I would switch to another. Or that autumn I did not have a winter deck, then I used Drive Now. So Drive Now and public transport are the second choices.
- Value experience in a social context?

#### 4. How?

- How often do you use the car? When I go to work from Lauttasari to Leppavara it takes me 20 min in my own car and public transport around 50 min. In case if my son takes my car, then I either drive with my husband if he drives to Leppavaara direction, or use Drive Now and leave it close at the train station. In that case, public transport would be my choice number 3.
- What is your typical trip? I come by car to work and the car is at a parking place and then come back home using the same route. But if I use a Drive Now car and then leave it at parking spots close to the station then I have a risk that someone else may take it. But so far I use it, there are always cars available there. Also, Lauttasaari is in the operating area of Drive Now. But in case if I need to walk around a kilometre or more, then I would probably decide to use public transport. I would go till the metro, then drive till the bus station, and then go by bus to Leppavara and then walk till work. If a Drive Now car is around 500 m, I would use that and then drive to work and leave at Leppavaara station and then walk around 300 m. But if I generally need to walk very far, I decide to take public transport.
- Is your day unpredictable and you use the car during the day?
- Does your work influence the rhythm of how you move during the day?
- Do you use it for work travel inside the Uusimaa?

#### 5. Car sharing

- Have you ever had a car-sharing experience, where? Yes, we use Drive Now, me and my husband as well. I have not tried any other.
- Briefly tell the reason? Sometimes it is more convenient to use Drive Now. Also, our eldest son has a driving license now, and if we need 3 cars, for example, he would give me good enough reason to give him a car and use it after school, then I myself use Drive now.
- What did you like? Mostly I use Drive Now, I use it if I need to go to work. I use Drive Now just if I know that I can easily leave it and it is in their operating area. It is very convenient if for example our whole family needs to go to one place and I would need to pay tickets for the whole family in the Helsinki metropolia area, and it would not be in direct connection with the metro and would be a bit further. And it is very convenient to take the whole family, you put them just in one car and then easily leave the car. Of course, if I go there where there is no cover by Drive Now then I do not even consider it.
- What you didn't like? The cost: if you are alone then it costs more than to use public transport. Before I take the car I always check that nothing wrong is with the car. Take photos of it and then I take the car. And then I also took photos of the car after I used it. So that I can prove that it is not me in case. But for example, if there is a scratch in the car, then I call the customer service and say

that there is scratch. And they answer that there is scratch. But if everyone does the same, that is annoying. So if somehow it would be indicated beforehand.

- How do you like it that you can not predict where a car is available? would it be better to have a definite spot where the cars are, let's say close to the K market. So that in Lauttasaari could be two probable spots? I like myself free-floating. So far there are always close cars. If I decide to take a Drive Now car, I always know that there is back up to take public transport if there are no cars close by. So that means that I need to check the availability of the cars so far beforehand that in case if there are no available, I would have enough time to go by public transport.
- The Leppavara is convenient for you because they have 8 definite spots provided by Espoo city, But how is the situation at home? For me, it would be totally personal. I live in such an area in Lauttasaari, outside of Lauttasaari. The possibility that I would have a spot close to me is very light. If the spot would be in Lauttasaari, it would be close to the metro station. Then I would be even in the worst situation than randomly to have a car close by. For me personally it would be even worse. And with free-floating I can always leave a car close by and have the possibility to have a car close. The question of the financial equivalent that is profitable for theme compared to the car is interesting.
- How do you find the price right now, it is not cheap? Yes, agree it costs. But still, it is much cheaper than taking a taxi and much faster than taking public transport to some places.
- How was it?
- Tell about the worst happened in experience:

## 6. Dream catching

- How would you like everything to be organized in the car? The ultimate dream is to have 3 electrical cars.
- How would you like the rent service to be organized? Drive Now goes close by to us now. But I assume that it would be even better to use car-sharing instead of owning 2 cars. But because we already have 2 cars, I do not need to count it yet. To have more spots where cars are available would be nice like it is in Leppavaara, and to have other areas where the free float. But in some way, I accept that if all my dreams would come true, the price would be even higher.

## Respondent 5 (live interview)

### 1. Who? Personal case:

- Could you please say briefly about yourself? 34 female, unemployed, a student.
- Where do you live? (area) Pitäjänmäki.
- Where do you work? (area)
- What is your family situation? Divorced, 2 kids: 2,5 years old and 5 years old.

### 2. What? Car situation:

- What car do you have? I don't have a car, but I investigated that and was going to buy it the previous year. Still, the question is open. Look also the possibilities to rent but there is no very close by in a short distance. The main reason to stop me to buy a car is the question of additional expenses to maintain the car, all



the repair questions and especially costs for that, which sometimes are not predictable at all.

- When a vehicle was produced?
- How much do you pay per year for keeping the car?

### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred car to public transport? I am looking for a car or other options now because of children and all activities that I need to maintain being a single mother. Kids are growing up. My son is 2,5 years old. Now we travel with strollers on the bus, but he does not like to sit in the stroller during the trip. He always asks to sit on the seat, but that does not make the bus trip easier. Especially if the trip is very long. He would jump like a monkey and that sucks. I live in Pitäjänmäki and study in Kapyla. My study starts at 09.00. The trip takes around 40-45 min by bus and additionally I need to walk around 10-15 min. I wake up at 06-30, we go to kindergarten usually around 08.00. Kids wake up at 07 or 07.15. Then they have breakfast, me myself and then I need to dress two kids and myself. As in Finland, winter is so long, I need to dress so many clothes for kids. The result is that every day I am late for my studies. The teacher is mad, showing me that I am late. That also puts additional negative emotions to me, as the morning always is not so easy. Sometimes kids are tired, or they have difficulties, they don't want to go to kindergarten and I can not make the process easier. I can't push, otherwise, it can be even worse. I have to skip lots of events and meetings, because of physical tiredness, maintaining study, grocery, picking up kids, and doing evening study in second place.
- What does your own car give to you? The car can give me the possibility to maintain a lot of different activities. Sometimes my schedule is very tight and I need to make groceries after study, pick up kids from the kindergarten, and also plan activities for the weekend. It can also give the possibility to have more social activities and short visits to friends. Kids' favorite swimming pool is in Leppävaara. I need to change 2 busses to achieve it. In wintertime with snow on the roads or when it is raining it is hard to travel with kids.
- Does the weather outside influence your choice? Definitely I would prefer to go by car when the weather is bad.
- Value experience in a social context? It can give me more possibility to meet with friends and maintain better children's hobbies. I would like to organize some additional hobby activities for my daughter, but one needs to travel. After a working week, there is not so much energy to do it.

### 4. How?

- How often do you use the car? I think I would use it almost every day.
- What is your typical trip? From home to study place, big grocery stores where I can go the shopping for the whole week and do not spend time more lately. Weekend activities, visiting farms and forests, driving to the swimming pool, visiting some girls' events, and parties for myself.
- Is your day unpredictable and you use the car during the day? Mostly I plan the week beforehand and know the study schedule. So the day is planned and predictable mostly. But having a good possibility and reason may go somewhere out of the plan.
- Does your work influence the rhythm of how you move during the day? Yes.

- Do you use it for work travel inside the Uusimaa? No, I avoid traveling even for personal reasons around Uusimaa so much because I feel tired and exhausted doing that myself with two kids. Son doesn't like to travel by bus sitting in a stroller.

#### 5. Car sharing

- Have you ever had a car-sharing experience, where? No.
- Briefly tell the reason?
- What did you like?
- What you didn't like?
- How was it?
- Tell about the worst happened in experience:

#### 6. Dream catching

- How would you like everything to be organized in the car?
- How would you like the rent service to be organized? The car-sharing service would be more affordable with a price.

#### Respondent 6 ( email interview)

##### 1. Who? Personal case:

- Could you please say briefly about yourself? 34-year-old female, working in an office, living alone, no kids.
- Where do you live? (area) Espoo
- Where do you work (area) Vantaa
- What is your family situation? In a relationship, living alone, no kids.

##### 2. What? Car situation:

- What car do you have? No car, reasons for financial saving, too much trouble, and flexibility.
- When a vehicle was produced?
- How much do you pay per year for keeping the car?

##### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred a car to public transport? Maintaining a car is too much trouble, all the renovations/maintenance, and gas refills. I also like the fact that I can go to the city without having to think about where to park my car.
- What does your own car give to you?
- Does the weather outside influence your choice? If I had a chance to use the car, I would use it on busy days when I have to visit a lot of places and where I know I will find parking. A lot of snow makes me not want to use a car.
- Value experience in a social context? Some older people might think it's weird I don't own a car or why I spend so much time using public transport even though I could afford a car. Younger generations are very used to not owning a car.

##### 4. How?

- How often do you use the car? If I had a car at my disposal, I would use it for my daily commute (almost two hours daily with public transport), and the car would make it half faster.
- What is your typical trip? or would/could be your trip? A daily commute between home and work. In the summer I would use it to go visit places (beaches, nature, etc).
- Is your day unpredictable and you use the car during the day? Days are quite predictable and I don't have to use a car during the day. Or very seldom when I share a car with a colleague.
- Does your work influence the rhythm of how you move during the day? Yes
- Do you use it for work travel inside the Uusimaa? I usually share a car with a colleague for business trips.

#### 5. Car sharing

- Have you ever had a car-sharing experience, where? I have used rental only on holidays abroad (EU, USA).
- Briefly tell the reason? We wanted to get around easily at the holiday destination.
- What did you like? Only paying for rental and gas. No hassle with maintenance etc.
- What you didn't like? Slight uneasiness with insurances and if you dent or crash the car, what would be the expenses.
- How was it? The case with the USA was quite easy to book in advance and we got the car as agreed. Some additional costs were added to the final bill that wasn't told before.
- Tell about the worst happened in experience: Additional, unpredictable costs added to the rental costs.

#### 6. Dream catching

- How would you like everything to be organized in the car? I would love to have the opportunity to book a car the night before to be delivered to my parking lot for the next morning. If that's not possible, then to a hub with reachable public transport near where I live. The return could be the same place or alternatively another location (flexibility is very important).
- How would you like the rent service to be organized? Online booking, payment opportunities of a monthly fee, or case by case (both options important). Possibility to choose a pick-up place and where to leave the car. Options for different cars for different use (small for a city, bigger for parcel transportation, or road trips).

#### Respondent 7 ( live interview)

##### 1. Who? Personal case:

- Could you please say briefly about yourself? 70 retired, female.
- Where do you live? (area) Now lives in Konala, Helsinki but moved from the central part of Toolo, Helsinki.
- Where do you work (area) Retired
- What is your family situation? Has 2 children, 2 grandchildren.

## 2. What? Car situation:

- What car do you have? I had a car but sold it because it was expensive to keep it while I lived in Toolo. Then switched to City car club. After moving to Konala used rarely because it was not so close to home. Fiat Punto, sold in 2013.
- When a vehicle was produced? 2011
- How much do you pay per year for keeping the car? I don't remember exactly now but it was expensive enough for me. The main reason why I sold it was because I lived in the center of the city where transport works so well. I didn't need it anymore.

## 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred a car to public transport? I bought it when I lived in Espoo in the countryside and after moving to the central part of Helsinki. I needed to go to work from Espoo to the Katajanoki, Helsinki. The transport of the countryside Espoo worked badly and bought a car. The main reason why I was able to keep a car was a parking slot by the Ministry of Foreign Affairs for which I did not pay anything myself.
- What does your own car give to you? It gave the possibility to come quickly from the living place to work and the trip was around 16 km.
- Does the weather outside influence your choice? No
- Value experience in a social context? No.

## 4. How?

- How often do you use the car? Every working day. At the weekend I used it for shopping, to cultural events.
- What is your typical trip? or would/could be your trip? I used to use it traveling from home to work and back home. Sometimes I traveled to my relatives.
- Is your day unpredictable and you use the car during the day? When I had my last car I was partly retired, but still worked in the Ministry of Foreign Affairs.
- Does your work influence the rhythm of how you move during the day? Yes, it did.
- Do you use it for work travel inside the Uusimaa? Yes, it did.

## 5. Car sharing

- Have you ever had a car-sharing experience, where? I have sold the cars, I found the option as a City Car Club. I found it accidentally on Museokatu, traveling to gymnastic class pilates there. I used to pay a monthly fee of around 23 euros. I could find a car in Toolo close to my home. After moving to Konala, I didn't use it at all. The company proposes itself to have a package without a monthly fee and pay more for the kilometer I traveled.
- Briefly tell the reason? The easiest way to get a car when I needed it. But of course, I could rent a car also if I needed it just in a normal way. I needed to visit my son at the hospital far from Helsinki around 50-60 km and hidden in the forest.
- What did you like? I liked the fact that cars of suitable size, in good order, worked well. They are both manual and automatic. It is very practical.
- What you didn't like?

- How was it? One orders a car by email, gets a password and registered a number of the car. One call to the office and they give instruction and say password and number of the car.
- Tell about the worst happened in experience:

#### 6. Dream catching

- How would you like everything to be organized with the car?
- How would you like the rent service to be organized? Nothing else. That model suits me very well. If one buys gasoline with their credit card, one gets a reduction from the whole price.

#### Respondent 8 ( live interview)

##### 1. Who? Personal case:

- Could you please say briefly about yourself? The owner of the company, 42 years old, male.
- Where do you live? (area) Easter Helsinki, Vuosaari.
- Where do you work (area) Home office?
- What is your family situation? Married, 2 kids: 6 years and 9 years.

##### 2. What? Car situation:

- What car do you have? Kia Niro 2017, first Hybrid by Kia.
- When a vehicle was produced? 2017
- How much do you pay per year for keeping the car? tax for cars according to pollution. It takes less gasoline, taxes around 100 e, maintenance 3 times, first 150 e, after 15000 km and maintenance 250-300 e, 1,6 liter, the electrical engine does not have an electrical charger from the supply. Benzine and electrical engines go together. In summer time if one drives slowly 4,2 liter per 100 km, in winter time it takes more gasoline 5,5 liter per 100 km. Hybrid works differently than the normal car. At winter heating the car the amount of gasoline necessary is more. Also, the temperature of the electrical charge is lower in the winter time than in summer time. For 2 years 50000 km per year, at summer time 45%. On my own economic side, I do not see any economical benefit. Almost the same class car would cost less for 7000 euros less, the tax would be a little higher and gasoline would be higher. But if one looks from a long perspective it would be the same.

##### 3. Why? The situation when a a customer uses a car:

- Why have you chosen this exact model? It was the model which I was able to negotiate with my wife. The second time I would not buy the same. The economical benefit I do not see in it. I would rather choose to pay less at the beginning and pay more later. Probably there is a future later, because of pollution and law dictates that. My wife chose that because of private preference and not at all ecological.
- What is the key factor why you have preferred car to public transport? Convenient, for my work I need a car. The places where I need to reach during my work I can faster reach that. Of course, I can reach by public transport.

- What does your own car give to you? Convenience, mobility, mobility habit as use that for 20 years.
- Does the weather outside influence your choice? Very rare
- Value experience in a social context?

#### 4. How?

- How often do you use the car? Every day and several times per day.
- What is your typical trip? or would/could be your trip? I need to solve lots of tasks relating to my family and work, visit the gym, and bring kids to hobbies.
- Is your day unpredictable and you use the car during the day? Unpredictable.
- Does your work influence the rhythm of how you move during the day? Yes.
- Do you use it for work travel inside the Uusimaa? Uusimaa, around 3 keha.

#### 5. Car sharing

- Have you ever had a car-sharing experience, where? I rented around the world. In Finland just once.
- Briefly tell the reason? Work and travel, to reach different points, and do not spend lots of time.
- What did you like? I liked Germany in Hertz mini class and they give higher class cars and do not ask to pay more. The cars are modern and almost new. There was a smell of a new car. That summer I rented in Sicily a car from a private car. On the web page, there was a new car but it was totally opposite. In Sardine they said that there is just one car and it is very old.
- What you didn't like? I did not like the fact that it was unpredictable how much it would cost. When I ordered in Spain they say around 30 euros cost, but then it can be higher. They do not tell the reason why the price has changed. The reason was that they needed to book a money deposit, they asked to give the credit card number and not debit. They can not freeze from a debit card but need just a credit card. Because of that one needs to buy additional insurance. I did not have a choice in that case. Because of that, I understood that I needed to change the company and use it more respectfully as Herts.
- How was it?
- Tell about the worst happened in experience:

#### 6. Dream catching

- How would you like everything to be organized in the car? If I had a choice again I would prefer a diesel car instead of a hybrid of the same class.
- How would you like the rent service to be organized? I could prefer car-sharing in some cases because it has definite parking slots. One can just take a car and do not bother how to come back. In some urgent cases with good and affordable prices, I could swipe to a rental car.

#### Respondent 9 (email interview)

##### 1. Who? Personal case:

- Could you please say briefly about yourself? 36 years old, Single female, IT professional works in the Food industry.
- Where do you live? (area) Lintuvaara Espoo.

- Where do you work (area)? Järvenpää & Helsinki.
- What is your family situation? Single.

## 2. What? Car situation:

- What car do you have? I have Toyota verso s.
- When a vehicle was produced? 2012
- How much do you pay per year for keeping the car? ~2400€

## 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred a car to public transport? I have to commute a lot for work since I live in Espoo but my workplace is in Järvenpää.
- What does your own car give to you? Mostly flexibility. And the price difference between public transport and cars is not that much.
- Does the weather outside influence your choice? Not all the time, but sometimes it does.
- Value experience in a social context? None.

## 4. How?

- How often do you use the car? I use the car on a daily basis.
- What is your typical trip? or would/could be your trip? My main trip is between home and workplace.
- Is your day unpredictable and you use the car during the day? No, most of the time my day is pretty predictable.
- Does your work influence the rhythm of how you move during the day? Yes.
- Do you use it for work travel inside the Uusimaa? Yes.

## 5. Car sharing

- Have you ever had a car-sharing experience, where? Yes, When going to work, and sometimes when coming home late at night.
- Briefly tell the reason? Most of my colleagues live around Helsinki or Espoo, so most of the time we carpool. It is ecological and saves some money.
- What did you like? I like that I spend more time with my colleagues outside of the office. And we are doing something ethical by not driving to work with our own independent car.
- What you didn't like? Maybe the part that the travel time is a bit more due to the driver has made a small detour to collect all travelers. However, in the case of car rental, I don't like the feeling that the rental company is pushing so hard to take the extra insurance coverage. For some reason, this happens to me most of the time.
- How was it? It was ok. I didn't experience anything that bad. Most of the time things went ok.
- Tell about the worst happened in experience: I don't have much to tell here.

## 6. Dream catching

- How would you like everything to be organized in the car? I always have a bad feeling when it comes to the cost and I worry a lot that it would end up being a lot when I return the car. So it would be great that I pay some fixed amount and I can use the car without worry.



- How would you like the rent service to be organized?

#### Respondent 10 (email interview)

##### 1. Who? Personal case:

- Could you please say briefly about yourself? I am a 40 years old, male, 2 child's father.
- Where do you live? (area) Nummela
- Where do you work (area)? Espoo.
- What is your family situation? Wife, two children, and cat.

##### 2. What? Car situation:

- What car do you have? I have two cars. Nissan Qashqai and Volvo V70.
- When a vehicle was produced? Nissan is 2016 and Volvo 2009
- How much do you pay per year for keeping the car? about 100 € /car / month + gasoline.

##### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred car to public transport? I live in the countryside and public transport is too slow to use.
- What does your own car give to you? Car is just a way to move. It doesn't give any other value.
- Does the weather outside influence your choice? Actually no.
- Value experience in social context? No, it doesn't.

##### 4. How?

- How often do you use the car? I use it daily.
- What is your typical trip? or would/could be your trip? Work or transporting kids to hobby.
- Is your day unpredictable and you use the car during the day? Usually no.
- Does your work influence the rhythm of how you move during the day? Usually no but sometimes it does.
- Do you use it for work travel inside the Uusimaa? I travel the whole of Finland by car.

##### 5. Car sharing

- Have you ever had a car-sharing experience, where? Yes, I have. Abroad I usually rent a car.
- Briefly tell the reason? Traveling with family is the easiest way to see the sights. But if we visit big cities like London we use public transportation.
- What did you like? I use well reputable car rental companies. It is easy to make a reservation and pick up the car. In other words, it is handy and easy.
- What you didn't like? Time to time cars are not big enough even car class is suitable for us. It depend on model and brand.
- How was it? 4-10 scale it is usually 8. Cars are clean and well maintained.
- Tell about the worst happened in experience: Once I rented a car from a "not so reliable" company and after I returned the car they told me I needed to pay some



extra because there was a dent which I didn't do. I didn't pay for someone else's mistake.

## 6. Dream catching

- How would you like everything to be organized with the car? I would like to make it more simple. If I make a reservation I would like to get it at my front door. Picking a car from 10-15km away is not practical.
- How would you like the rent service to be organized? Easy app for booking and delivery straight to me.

## Respondent 11 (live interview)

### 1. Who? Personal case:

- Could you please say briefly about yourself? 37 years old, female, 4 kids.
- Where do you live? (area) Viikki, Helsinki
- Where do you work (area)? Pihlamaki, Helsinki.
- What is your family situation? Married, 4 kids.

### 2. What? Car situation:

- What car do you have? Chrysler Cruiser PT 2000, but is going to change to a bigger car because I am waiting for my 5th baby. I previously had a Diesel car Jeep commander and the engine was around 4 liters. We paid a big tax for it, it also needed lots of gasoline. That is why we sold it.
- When a vehicle was produced? 2000
- How much do you pay per year for keeping the car? Gasoline per month 300-400 e, insurance, and tax 600 euros.

### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred a car to public transport? Because in this way I can handle lots of tasks I need to do. I drive for 15 years and I drive every day. It helps me to handle my busy day. Children dictate to have it because of their hobby, bikes, parties, weekend, and other different activities. My personal active social life also dictates that need. Often I also have lots of bags with gymnastic clothes for kids or other sports. I don't need to go home, rather just take a kid and bring them to the hobby place.
- What does your own car give to you? Time, freedom, additional physical opportunities to bring bags from the shop. Comfort as well, because in bad weather I would prefer to go by car. To look as I want, I don't need to put on ugly and warm clothes, rather put on a light jacket. Put on high heels, have a good hair do and make up. Also I personally do not like frost and have some allergy. In hot weather I can not travel in crowded buses because I start to feel sick. It is not only about comfort, but my personal feelings and condition. When I do have time, I would go for a walk, but hate to go by bus.
- Does the weather outside influence your choice? It can be one of the factors, but not key.
- Value experience in a social context? It helps me to have a socially active life, to meet lots of people. Because it gives additional free time.

#### 4. How?

- How often do you use the car? I use it daily. Every day, sometimes on weekends we use one car for the whole family.
- What is your typical trip? or would/could be your trip? In the morning I bring 2 kids to Easter Helsinki, then I drive to work or home or meet with someone. Then I work at home or at work. Also, I drive to the shop and buy food for my master classes and bring them to my work place. Then lately I pick up kids who study close to home and bring them to their hobby place, lately, at 17 take my daughter from kindergarten in easter Helsinki and bring her to her hobby, and then go to my evening master classes. In the evening I pick up everyone from hobby and bring home, lately may drive with my husband to the supermarket to buy food for home. If we take all kids we can say that almost every day they have some hobbies where I need to bring them by car. Theoretically, two sons could go themselves by bus but it takes 40 min for them, while I can bring them by car for 6 min. It is also such a place that there is no good road so that they could go by bike, but there are big roads so that it is not safe for kids. Also boys are so active that sometimes I need to bring them too far for example for skiing.
- Is your day unpredictable and you use the car during the day? Yes, I use it throughout the day.
- Does your work influence the rhythm of how you move during the day? My work dictates the rhythm to the way I move, but it also my kids.
- Do you use it for work travel inside the Uusimaa? Yes.

#### 5. Car sharing

- Have you ever had a car sharing experience, where? Yes in other countries mainly during vacation.
- Briefly tell the reason? We move a lot during vacation to see different places. For example to see cities close to Paris. We were with kids mainly. If we do not rent a car that means that we sit just at the beach area, but that happens rarely.
- What did you like? Cars were very good, almost new, clean. Also, the possibility to try and test other cars is fun. I really liked to test other cars.
- What you didn't like? In France I didn't like the service to bring back the car. It was necessary to go to the center of the city in order to drop off the car. It was inconvenient. Also there were some difficulties with insurance, it was too expensive. The drop was the worst experience. When one needs to bring a car to the center of Paris.
- How was it?
- Tell about the worst happened in experience:

#### 6. Dream catching

- How would you like everything to be organized in the car? Big car with 7 seats and big luggage compartment, hybrid, 3-5 years in use, not necessary to be new. Parking close to the home.
- How would you like the rent service to be organized? For me and in my case if somebody will bring the car and leave me close to home and then take it back in case of an urgent case I need. But personally I don't like to do that, I mean to take rental cars. I need to spend lots of time to install everything according to my height, to properly seat. It is a factor of stress. One needs to understand how everything works. In all cars mechanizes work differently and I don't prefer to test every time new and new. For me, it is more convenient to be familiar with

everything and don't stress additionally. Of course, I like to test but not to use it for a long time. I have so many tasks, and I need to think about lots of things, I don't want to think additionally how to switch on something along the trip.

In case the car would be within walking distance of 300-400 meters, then in case if my own car is broken, I would not go definitely by public transport and would rather take that affordable car. But if I need to make a trip to the center of the city, that is totally inconvenient for me. I would rather find another car from my friends or cancel some meetings or change places for meetings at home. Or would be a service of a driver for some part-time who would help me to handle some tasks.

#### Respondent 12 (email interview)

##### 1. Who? Personal case:

- Could you please say briefly about yourself? Working engineer, 46 years old, male :(
- Where do you live? (area) Sipoo
- Where do you work (area) Helsinki.
- What is your family situation? Married, no kids.

##### 2. What? Car situation:

- What car do you have? Ford Fiesta
- When a vehicle was produced? 2018
- How much do you pay per year for keeping the car? Now it depends so much on how you calculate. Maintenance maybe 300 €, gasoline 2000 €, + loss of car price (15% per year), tires etc.

##### 3. Why? The situation when customer use a car:

- What is the key factor why you have preferred car to public transport? Living in the countryside. Easy to go door-to-door by car and whenever you like.
- What does your own car give to you? Freedom
- Does the weather outside influence your choice? Always going by car (or motorcycle).
- Value experience in social context?

##### 4. How?

- How often do you use the car? I use it almost every day. Maybe 6 days/week.
- What is your typical trip? or would/could be your trip? Home-Work-Home and Home-Supermarket-Home.
- Is your day unpredictable and you use the car during the day?
- Does your work influence the rhythm of how you move during the day?
- Do you use it for work travel inside the Uusimaa? Yes.

##### 5. Car sharing

- Have you ever had a car-sharing experience, where? Car rental just a couple times. (Once a trip to Norway, a few times rented abroad).

- Briefly tell the reason?
- What did you like?
- What you didn't like?
- How was it?
- Tell about the worst happened in experience:

## 6. Dream catching

- How would you like everything to be organized with the car? Own car = freedom
- How would you like the rent service to be organized?

## Respondent 13 (live interview)

### 1. Who? Personal case:

- Could you please say briefly about yourself? 42 years old, male, in relations, engineer.
- Where do you live? (area) Rajamäki
- Where do you work? (area) Hyvinkää.
- What is your family situation?

### 2. What? Car situation:

- What car do you have? Volvo V40, in leasing car. Honda CRV - own car
- When a vehicle was produced? Volvo -2016, Honda 2008
- How much do you pay per year for keeping the car? Volvo: 85 e per month, the company covers the payments in case less the car pollutes the air. So I pay 400 e including everything, it's a diesel car. Honda- don't use it, don't register at the moment. But we pay basic insurance around 250e per year and no other expenses.

### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred a car to public transport? It is much easier to jump from home to office. The area I live in public transport is not so good. What we have are buses, but they really sucks. 1 or 2 buses in the morning and then in the evening. so it limits where you go. We have a kid living with us, we need to drive her to hobbies. It is not so cheap to use public transport in Nurmijärvi. If you don't have a car I need to go to work in Hyvinkää, it would cost me around 200 euros per month. And then you need to duplicate people living in the family.
- What does your own car give to you? freedom, convenience, easier to use, don't need to rely on bus schedules. especially in winter time whether they come or not. Time is very valuable. If you use the bus, you need to reserve more time.
- Does the weather outside influence your choice? yes definitely
- Value experience in a social context? Yeah, my brother lives in Jokela, in Tuusula. 15 km from Rajamäki, no bus between them. If I want to meet them, I need to go to Hyvinkää and take a train. Now I grab a car and easily meet my friends and relatives there.

### 4. How?

- How often do you use the car? every day

- What is your typical trip? or would/could be your trip? From home to work. Now while I study I often work, so at the weekend I am basically there. On weekends basically we also buy some groceries and food. 15000 km per year and most of that between my work and home. I would say 10000 between home and work.
- Is your day unpredictable and you use the car during the day? Most of the cases I am in the office. In the morning I am at work and in the evening back home.
- Does your work influence the rhythm of how you move during the day? Sometimes we have customers and we need to meet them, but that's around 1 per month. normal rhythm. I also have business trips to Germany and then I drive to the airport and my car stays there. Companies pay for parking in the airport area.
- Do you use it for work travel inside the Uusimaa? yeah, during summer time we quite often drive somewhere to Jyvaskylä. Basically in Uusimaa.

#### 5. Car sharing

- Have you ever had a car-sharing experience, where? In Germany I rent a car and drive to my destination and it's quite far from Hamburg.
- Briefly tell the reason? Business reasons. Never rent a car for personal reasons.
- What did you like? In company we have special constructs that regulate the choice. When you find the car you give the specifications. But I really don't care what kind of car I would have. But I like the normal procedure goes faster because the corporate contract belongs to the premium. It is really nice that it goes so fast. In Hertz, they send the message that the car is ready and keys are on the seat. That is really convenient
- What you didn't like? In Germany, I need to drive in an autoban. Once I had a Renault Clio with maximum speed of 120 km, and on the highway, it was impossible to drive on the highway.
- How was it?
- Tell about the worst happened in experience: Renault Clio with low speed on the highway. The second was when my car gave a beeping voice, but when I stopped driving at high speed and drove at 60 km per h, the noise stopped. There was a mistake in the engine and that bothered the trip. And when you return the car it takes a long time to proceed the return back, you need to wait and discuss the damage which in fact was already. I have a feeling that they wanted to find something. But that was in the past. Now they proceed that faster. You don't need to wait so much.

#### 6. Dream catching

- How would you like everything to be organized in the car? The place where I live now is mandatory to have it. If public transport really works in my area I would use it. If transport to Hyvinkaa works best I would get rid of it.
- How would you like the rent service to be organized? The possibility to pick any you want in rental service without any additional payments. It would be any service to test any different cars. To have a service and choose a car, pick it from the application and have experience with different colors. I personally like driving and like to test other cars too.

Respondent 14 (email interview)

### 1. Who? Personal case:

- Could you please say briefly about yourself? 33 y/o, male, leading design engineer at Finnish SME manufacturing company.
- Where do you live? (area) Vantaa.
- Where do you work (area) Vantaa.
- What is your family situation? Married, 2 underage children.

### 2. What? Car situation:

- What car do you have? Hyundai Getz
- When a vehicle was produced? 2009
- How much do you pay per year for keeping the car? Approximately 3000-4000 Euro per year, Tax 300 Euro, Insurance 360 Euro, Katsastus 50 Euro, Maintenance 1000-2000 Euro, Gas 1000-2000 Euro (25-40 Euro per week), Parking 180 Euro (15 Euro per month).

### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred a car to public transport? Immediate accessibility, free choice of destinations
- What does your own car give to you? Children transportation, medium to long-distance traveling with family. Otherwise, public transport is used.
- Does the weather outside influence your choice? Yes, sometimes
- Value experience in a social context? The possession itself doesn't give any value. Usage, however, may provide value in terms of traveling and helping others occasionally.

### 4. How?

- How often do you use the car? It depends, daily or sometimes weekly for children's transportation. Personally I prefer public transport for commutes.
- What is your typical trip? or would/could be your trip? Local, children transportation, shopping or medium to long-distance traveling.
- Is your day unpredictable and you use the car during the day? Quite predictable. Usually not used during the day.
- Does your work influence the rhythm of how you move during the day? No
- Do you use it for work travel inside the Uusimaa? Usually no.

### 5. Car sharing

- Have you ever had car sharing experience, where? Yes, car sharing in Helsinki, St. Petersburg, Moscow. Car rental in Italy, Austria, Croatia, Czech Republic, Oulu - Finland.
- Briefly tell the reason? Car sharing - general interest and service try out, using in the cities for short rides. Car rental during business trips and vacation for a longer period.
- What did you like? Overall simplicity, novelty, idea of using - not possessing, affordability.
- What you didn't like? Need to find the closest car (may be not so close), car evaluation and assessment for damage before the ride, refueling, sometimes laggy, and tricky car-sharing apps.
- How was it? In general, good. Sometimes technical issues or excessive waiting and paperwork.

- Tell about the worst happened in experience: Basically it is car unavailability or time wasting for different reasons. Or additional charges for options, car upgrade, or unexpected price increase in case of rental cars.

## 6. Dream catching

- How would you like everything to be organized in the car? Cars are expensive in terms of the purchase price, gas, maintenance, and possession. Public transport is OK. Car usage shall become similarly cheap. Car sharing can solve this, but it should be easily accessible, available at the needed point of time, affordable and easy to use in general.
- How would you like the rent service to be organized? Car is fully electric, hybrid, and auto-piloted. A car is available 24/7, comes on itself, or delivered to the desired point on the map at the required time by several clicks in a mobile app like Uber. In the cities, car-sharing shall be easily available or nearby. Cars can be left anywhere. Service itself is affordable, accessible, easy to use. It doesn't require long procedures before or after the ride.

## Respondent 15 (email interview)

### 1. Who? Personal case:

- Could you please say briefly about yourself? Woman, mother of two, 37 years old. Living the most hectic times in my life.
- Where do you live? (area) Uusimaa, Sipoo
- Where do you work (area) Itä Uusimaa, Porvoo
- What is your family situation? married, 2 kids

### 2. What? Car situation:

- What car do you have? Toyota Avensis
- When a vehicle was produced? 2006
- How much do you pay per year for keeping the car? too much, maybe round 2000€ (with service and insurance and all).

### 3. Why? The situation when customer use a car:

- What is the key factor why you have preferred car to public transport? I have had to prefer my own car because I've chosen to live in Sipoo in the countryside. I have 2 kids to take to/ and pick up in the afternoon from two different destinations; preschool and kindergarten every day + their hobbies 3 evenings a week. The distances between places are longer in the countryside and it would demand much more time and planning if I chose to use public transport. Another reason is that it would be more expensive for me to use public transport (I have to buy 2 different kinds of tickets to get somewhere). One reason is that it is comfortable, easier to go to the grocery store, and do errands. For safety reasons, if something happens I can act faster (eg. sick kid) than looking at a bus timetable or calling a cab.
- What does your own car give to you? Safety, comfortability, a way to make my weekdays smoother, mobility.
- Does the weather outside influence your choice? not really



- Value experience in social context? It makes it easier to see family and friends, makes it possible for my kids to have hobbies and see their friends.

#### 4. How?

- How often do you use the car? every day several times
- What is your typical trip? or would/could be your trip? Typical trip starts in the morning from home, taking one of my kids to preschool and the other to kindergarten. After that driving to work and after work driving home, pick up the kids, go home and take the kids to hobbies and back home.
- Is your day unpredictable and you use the car during the day? Not really, the exception is when I have to drive somewhere for work reasons for meetings. But the meetings and such are planned in advance.
- Does your work influence the rhythm of how you move during the day? Yes, I have meetings and customer appointments in different cities and places.
- Do you use it for work travel inside the Uusimaa? Yes.

#### 5. Car sharing

- Have you ever had a car-sharing experience, where? Rental car when my car is in the car service. I have used rental cars on vacations abroad.
- Briefly tell the reason? I needed a car instead of my own. Abroad it is a comfy way to move from place A to B.
- What did you like? I like it because it is usually a much newer model than my own car. It has been easy.
- What you didn't like? Having to take it back and not being able to keep it :)
- How was it? Easy and efficient. Good thing for example in car service is that you can order a rental car before and be sure of getting it when needed.
- Tell about the worst happened in experience: Once they had forgotten to fill the tank and I almost didn't make it to the destination.

#### 6. Dream catching

- How would you like everything to be organized in the car? I would prefer a leasing car, so that I just could concentrate on driving the car, no extra costs for car service or repair, every now and then the model could be changed to a newer model.
- How would you like the rent service to be organized? As easy as possible in an affordable way. And if I could afford it, of course, I could see myself using car-sharing/rental cars if I could have the car a longer time.

#### Respondent 16 (live interview)

##### 1. Who? Personal case:

- Could you please say briefly about yourself? 34 years old, male, student, partly working for BMW, don't work full time, married, no children.
- Where do you live? (area) Munich Germany
- Where do you work (area)
- What is your family situation?

##### 2. What? Car situation:



- What car do you have? BMW1 (benzine) had a car 4 years ago, owned for 1,5. But switched from owning the car to the car-sharing service.
- When a vehicle was produced? 2005
- How much do you pay per year for keeping the car? 200 e per month

### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred a car to public transport? We used the car just for shopping, for the weekend. Used occasionally. We didn't need it so much. We didn't get enough profit from it rather pay. We didn't switch immediately to the car-sharing service, but lately.
- What does your own car give to you? Cars help to manipulate with heavy shopping bags. Or if my wife is with friends and I need to pick her up late in the evening. I don't want her to freeze outside. It is faster, takes 15 min by car than 45 min by public transport.
- Does the weather outside influence your choice? Yes
- Value experience in a social context? Just convenient transport.

### 4. How?

- How often do you use the car? The intensity of using our ex own car and present car-sharing service is pretty the same.
- What is your typical trip? or would/could be your trip? A typical way with car-sharing Drive now depends on the availability of cars at the second point. I would check whether there would be available cars, evaluation of risk. If you park the car and leave it, somebody can take it. I would pay 0,15 per min for waiting than to have a risk of being without the car.
- Is your day unpredictable and you use the car during the day? We can immediately determine whether there is a close car and can book it quickly. Sometimes we plan to go to the airport, then I would check beforehand for several hours if there are enough cars close by. The first 15 min are free, after that the reservation costs something. But at night reservation is almost free of charge.
- Does your work influence the rhythm of how you move during the day? I can use drive now for corporate needs, It's written in my future contract which starts in March.
- Do you use it for work travel inside the Uusimaa?

### 5. Car sharing

- Have you ever had a car-sharing experience, where? Minich, Germany
- Briefly tell the reason? Basically we sold a car and switched to a car-sharing service.
- What did you like? Drive now: availability is good, the cars are high quality, premium cars. I personally like most of the cars are automatic transmission, it is written in application. with the same intensity of using the cars, the cost is cheaper to use Drive now than for having one. We used around 4000 km per year with our private car. It was written somewhere that if you use less than 10000 km per year it is cheaper to have a shared car.
- What you didn't like? when the cars are very dirty, sometimes people don't care. Availability at the present moment where I am could be always better. The limitation of kilometers. I can buy a package for 6 hours, but the limit of kilometers is less than what I want.

- How was it?
- Tell about the worst happened in experience: I have a summary of my trips at the end of the month. I had 7 trips and 10 euros per trip. It is still much cheaper than if we used our own with the same amount of usage. Drive now uses a tariff per minute, but if you stack in traffic jams then you pay for nothing. If you have pressure on time, me and my friends noticed that then you drive faster in order to save money. It can influence to the safeness, and make it less safe.

## 6. Dream catching

- How would you like everything to be organized with the car? To have my own car. If I can afford my own car I would prefer that. Drive now is best for short distances.
- How would you like the rent service to be organized? prefer not to have limitations in kilometers. For example having a package in 6 hours I would prefer not to think how long I am traveling, and not to think about kilometres and distance. Clean car. The premium status of cars can be as a surprise to have Drive now. In London instead of BMW they put Rolls Royce for the same price. It is better to avoid pressure to drive faster in order to pay less. Maybe tariff per kilometer if better as an option before one starts his trip.

## Respondent 17 (email interview) i

### 1. Who? Personal case:

- Could you please say briefly about yourself? 35year old male. I'm an engineer working and living in the middle of Helsinki. Our household consists of two people.
- Where do you live? (area) Helsinki, Punavuori.
- Where do you work (area) Helsinki, Ruoholahti
- What is your family situation? Common-law marriage (not married, but living together).

### 2. What? Car situation:

- What car do you have? No car at the moment, it's unnecessary expense as the public transportation works well, I have walking distance to work, finding parking spots is a nightmare and traffic is terrible around my home.
- When a vehicle was produced? I had two cars, produced 1990 and the other one 2015.
- How much do you pay per year for keeping the car? It was something like 5000eur perhaps.

### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred car to public transport? As mentioned above. Public transportation is faster, cheaper, more convenient, and more practical (finding parking places, annual services and inspections, changing of tires etc.) in my case today.
- What does your own car give to you? I own it physically, so I "pay for something". Businesswise the benefit is that I can regulate the costs by maintaining the car when needed, instead of lease payments. However,

business-wise just owning something does not make sense as such, so it's a soft value. "It's mine".

- Does the weather outside influence your choice? Yes to some extent, however I have so short distances that no, not today.
- Value experience in a social context? Well, in a way it does. However, at least today I would go with practicality and costs first, not the social value. I don't care what others think about my car.
- 

#### 4. How?

- How often do you use the car? Daily if going to work, if only to hobbies etc. Then several times per week but probably not every day.
- What is your typical trip? or would/could be your trip? Home to work, which is today 3km. It used to be my previous job 15km and there was no public transportation so I used the car every day. Another typical trips are to visit relatives during weekends and then during week some trips related to playing floorball etc. other hobbies.
- Is your day unpredictable and you use the car during the day? It might be unpredictable, but unless it's an end of the world, I can as well be spontaneous and take different buses and metros. The only problem would be if I would need to visit some places outside, or not practical to reach with public transportation.
- Does your work influence the rhythm of how you move during the day? Only occasionally. I sometimes need to visit our customers, which are located literally in the middle of forests. Otherwise, the rhythm is standard so no need to move out from the office.
- Do you use it for work travel inside the Uusimaa? Quite rarely, but sometimes.

#### 5. Car sharing

- Have you ever had a car-sharing experience, where? Rental cars are typical to business or holiday trips from the airports. I have thought about joining Drive now, but never got that far. Especially when and if I need to pay to register for the service.
- Briefly tell the reason? For example, this DriveNow sounds like a nice idea, but I don't want to have extra stress by thinking where I'm allowed to return the car (outside middle of Helsinki). Moreover, paying by the minute feels like driving a Taxi. I must admit I'm a bit old fashioned and I don't get too excited about these fancy sharing services. I, for example, haven't even tested the bicycle lease in Helsinki, however abroad I have done that.
- What did you like? I suppose the idea is good, but I just don't find it too appealing. Instead of learning a new system, I can as well use Uber.
- What you didn't like? Trying to find the car, and understand where I'm allowed to drive. I suppose the costs were ok but not that cheap that I would drive just for fun somewhere. Car rental, the old fashioned way, works fine. There's usually some stress because the rental is done in places I have never been previously and the cars are new. I would not like to scratch them, so any standard used car would work fine for me as well. Car sharing service I haven't tested in practice.
- How was it?
- Tell about the worst happened in experience: The windshield got scratches which I had to pay. In another case, my rental car was scratched in the parking

hall, which caused me extra stress when I was returning the car. However, I never had to pay any extra.

## 6. Dream catching

- How would you like everything to be organized with the car? I think private leasing would be more suitable for me. To pay a monthly fee and not to worry about insurances, maintenance or so. I would consider car-sharing when it would be as easy and convenient (or even more) than what public transportation is. I can be spontaneous and just jump to any closest bus stop to travel somewhere.
- How would you like the rent service to be organized? Well, as automatic as possible. I'm not interested in filling in papers. Ideally, I would be free from stress and trouble, and focus on arriving at the destination rather than stressing out what to do with the rent service after I have reached my destination.

## Respondent 18 (email interview)

### 1. Who? Personal case:

- Could you please say briefly about yourself? 44 years old male. Consultant, working normal office hours, hobbies during the weekdays and weekends.
- Where do you live? (area) Martinlaakso, Vantaa
- Where do you work (area) Pasila, Helsinki (Current assignment)
- What is your family situation? Married, two kids, 4 and 9 yo.

### 2. What? Car situation:

- What car do you have? No car gave away company leasing cars when changed jobs. Currently in the process of investigating options for own car or monthly subscription service.
- When a vehicle was produced? Until August 2016.
- How much do you pay per year for keeping the car? Leasing car cost was 550EUR/month, petrol: 120 EUR/Month, no additional fees, as everything else was covered by the leasing agreement.

### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred a car to public transport? Currently, train is the best option for daily work trips, as there is no free car park in the vicinity of the customs office. Previously the main reason for using the car was the amount of time needed for commuting; 25mins by car or 60 mins by public transport.
- What does your own car give to you? Freedom of schedules, easier to transport kids with any extra luggage, inconvenient schedules for late-night training sessions, it takes 20 minutes by car to the floorball practice and currently about 1 hour by bus.
- Does the weather outside influence your choice? Not usually, distance and schedule options are more important.
- Value experience in a social context? No, a tool to help/support daily routines.

### 4. How?

- How often do you use the car? On a daily basis, if you can park the car in the office, if not, then when there are no convenient schedules for public transport.
- What is your typical trip? or would/could be your trip? From home to work and to hobbies, shopping, especially when there is a need to take kids along.
- Is your day unpredictable and you use the car during the day? Used to be, when doing more sales related work, now more predictable in the current setting.
- Does your work influence the rhythm of how you move during the day? Not anymore.
- Do you use it for work travel inside the Uusimaa? Not anymore to the extent, it was in my previous job.

#### 5. Car sharing

- Have you ever had a car-sharing experience, where? Yes, investigating that currently, like DriveNow type of deals.
- Briefly tell the reason? Cost of operating vs cost of ownership, especially as the current assignment does not offer possibilities to park the car for free near the office.
- What did you like? The option to use the service only when needed.
- What you didn't like? The pricing is rather expensive compared to the options given the acquiring the leasing car through employers.
- How was it? No real experience of using it for now.
- Tell about the worst happened in experience:

#### 6. Dream catching

- How would you like everything to be organized in the car? Preferably changing the taxation from purchase based to usage-based.
- How would you like the rent service to be organized? Add more cities to the service, ref DriveNow is not available in Vantaa at the moment, offer more options for short time leasing, anything from 1 month to 12 months or more would be highly appreciated.

#### Respondent 19 (email interview)

##### 1. Who? Personal case:

- Could you please say briefly about yourself? Middle-aged engineer, male
- Where do you live? (area) Helsinki region
- Where do you work (area) Espoo
- What is your family situation? Married with kids

##### 2. What? Car situation:

- What car do you have? Dacia Logan
- When a vehicle was produced? 2014
- How much do you pay per year for keeping the car? fuel, insurance, and repairs so approx 1000 euro.

##### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred car to public transport? I have to get kids to daycare in the morning. Daycare is not walking distance away. That is why I mainly use the car.
- What does your own car give to you? We have two cars so my car seems actually just a burden.
- Does the weather outside influence your choice? No
- Value experience in a social context? No

#### 4. How?

- How often do you use the car? 2 times per day
- What is your typical trip? or would/could be your trip? to work and from work
- Is your day unpredictable and you use the car during the day? the day is not unpredictable
- Does your work influence the rhythm of how you move during the day? no, quite stable working hours
- Do you use it for work travel inside the Uusimaa? sometimes

#### 5. Car sharing

- Have you ever had a car-sharing experience, where? rental yes, car-sharing no. At trips abroad
- Briefly tell the reason? trip abroad
- What did you like? rental very nice
- What you didn't like? I do not like to fill the gas tank before returning the car. Nor do I like having to pay extra for not filling the gas tank before returning.
- How was it? car rental went well, especially when you can rent the car straight from the hotel and leave it on the hotel parking space.
- Tell about the worst happened in experience: nothing bad has happened

#### 6. Dream catching

- How would you like everything to be organized in the car? cars would drive themselves and nobody would need to own a car. You would pay for usage.
- How would you like the rent service to be organized? The car was brought to my yard and I can drive back to my yard. The rental happens through the internet with no phone calls. Like ordering pizza from pizza online...

#### Respondent 20 (email interview)

##### 1. Who? Personal case:

- Could you please say briefly about yourself? 30-year-old, Engineer, Male
- Where do you live? (area) Espoo
- Where do you work (area) Helsinki
- What is your family situation? One kid and significant other

##### 2. What? Car situation:

- What car do you have? Mercedes Benz
- When a vehicle was produced? 2007
- How much do you pay per year for keeping the car? 4000eur

### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred a car to public transport? Commuting time is way shorter. With a car, I can manage 30minutes time spent on traveling to work, while by public transportation it takes me 1,5hours.
- What does your own car give to you? I am able to follow my own time-schedules, and it saves me time daily by many hours.
- Does the weather outside influence your choice? No
- Value experience in a social context? No

### 4. How?

- How often do you use the car? I am using the car every day. I would like to use it less.
- What is your typical trip? or would/could be your trip? From home to work, 28kilometres.
- Is your day unpredictable and you use the car during the day? Usually not, but there are special occasions where it is unpredictable.
- Does your work influence the rhythm of how you move during the day? Sometimes.
- Do you use it for work travel inside the Uusimaa? Sometimes.

### 5. Car sharing

- Have you ever had a car-sharing experience, where? I have rented cars abroad only. Not in Finland.
- Briefly tell the reason? Travel
- What did you like? Got me from A to B...however that is the only good thing.
- What you didn't like? Well I think it's irritating that you never know what kind of car you will actually get. The advertising is misleading, and they only give you a picture of a "typical" car, which is usually too nice if compared to the actual outcome. Also, usually, the airport rentals are very crowded, and you have to wait for your car for hours, which is really annoying.
- How was it? Well, I think it's irritating that you never know what kind of car you will actually get. The advertising is misleading, and they only give you a picture of a "typical" car, which is usually too nice if compared to the actual outcome. Also, usually, the airport rentals are very crowded, and you have to wait for your car for hours, which is really annoying.
- Tell about the worst happened in experience: Worst case scenario is that you buy a sports car, and you get an Audi A4. This is just plain stupid. Also, the waiting time at the rental office is ridiculous usually. Another thing is the insurances and all the mambo Jambo that you have to fill in papers to get the car. It's too difficult and time-consuming.

### 6. Dream catching

- How would you like everything to be organized with the car? Instant access to cars, meet expectations with rigor, effortless experience over "delight".
- How would you like the rent service to be organized? Instant access to cars, meet expectations with rigor, effortless experience over "delight".



## Respondent 21 (live interview)

### 1. Who? Personal case:

- Could you please say briefly about yourself? I am a 35-year-old male from Finland. Have been driving my own car 15 000 - 30 000 km per year since age 18.
- Where do you live? (area) Northern Helsinki
- Where do you work (area) Southern Helsinki
- What is your family situation? Wife and two small children

### 2. What? Car situation:

- What car do you have? Skoda Octavia (primary, later "1"), Renault Laguna (secondary, later "2")
- When a vehicle was produced? 2013 (1) & 2004 (2)
- How much do you pay per year for keeping the car? (1) Loan payment (incl. Interests) ~3000 EUR, Depreciation of car's market value ~3000 EUR (value of the car goes down hand-in-hand with the loan payment, maintenance costs ~1000 EUR, taxes ~600 EUR, insurance ~800 EUR, gasoline ~1300 EUR, Tires ~400 EUR, regulatory inspection ~40 EUR (every second year 80EUR), other miscellaneous costs 200 EUR (1) Parking payment - company pays for a slot at work around 100 euros, and I pay at home for slot around 6 euros. (2) No loan payments, no depreciation (the car is inexpensive and old), maintenance costs 500 - 3000 EUR per year (minimum 500 EUR. There's a lot of stuff that is recommended to be fixed but has not been fixed due to too being expensive vs car value). IF the car breaks down completely, it will be likely demolished rather than fixed), taxes ~400 EUR, insurance ~500 EUR, gasoline 600 EUR, tires 0 EUR, regulatory inspection 80 EUR (every year), other miscellaneous costs 50 EUR (2)

### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred a car to public transport? Faster to reach usual destinations, no waiting time, always available (24/7), lot of cargo space (shopping items, travel luggage, etc.), private space vs shared public commuting
- What does your own car give to you? Freedom of movement, flexibility, comfortability
- Does the weather outside influence your choice? Not really. Only on special occasions (e.g. heavy rain, will take care instead of a bike or walk or bus)
- Value experience in a social context? Not really at the moment. In the past/before having a family, perhaps yes.

### 4. How?

- How often do you use the car? I normally use it daily and want to use it daily, but with some exceptions. I do remote work once a week, and in those days, I might not need to use my own car.
- What is your typical trip? or would/could be your trip? I also have a business-related traveling 2-4 times per month, usually via air travel. I then just need to get to the airport, either via taxi or own car.
- Is your day unpredictable and you use the car during the day? Usually not. Sometimes I do visit various partner companies, service providers, or our own



company's production sites, or participate in events and fairs in the Greater Helsinki area.

- Does your work influence the rhythm of how you move during the day? yes, on a work day it defines it
- Do you use it for work travel inside the Uusimaa? yes, 3-4 times per year

#### 5. Car sharing

- Have you ever had a car-sharing experience, where? I have never paid to have a car-sharing experience but I have often shared a car with friends or other close affiliates to travel to common destinations.
- Briefly tell the reason?
- What did you like? I have never had the need to use such services.
- What you didn't like?
- How was it?
- Tell about the worst happened in experience:

#### 6. Dream catching

- How would you like everything to be organized in the car? I have time periods when at least one of our two cars is idle for several days or even weeks. It could be interesting to have a service/app to "rent" the car for that period. The car would need to be returned to me after the rent period is over. If not returned on time, I would expect to get compensation for extra time.
- How would you like the rent service to be organized? I would definitely sell out my secondary car and use a car rental service instead if the following minimal conditions would be met: car would need to be available within max. 10min walking distance from my home; cars would be rented/leased for a short time (10min) or for a longer time (day or days), and paid per use. A longer period would need to be relatively less expensive than shorter time; the car could be left to another location (parking lot) than from where it was taken in use; car would need to have a child seat add-option (ISOfix etc.), no seats but sockets for them; overall yearly costs would have to be at least 20% less than total cost of ownership of the secondary car.

#### Respondent 22 (email interview)

##### 1. Who? Personal case:

- Could you please say briefly about yourself? 37, male
- Where do you live? (area) Espoo-Tapiola
- Where do you work (area) Hyvinkää
- What is your family situation? living alone now.

##### 2. What? Car situation:

- What car do you have? Ford
- When a vehicle was produced? 2010
- How much do you pay per year for keeping the car? 800 Euros+ the cost of fuel (almost 1000 Euro per year)

##### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred a car to public transport?
- What does your own car give to you? Free timetable, easier to manage time
- Does the weather outside influence your choice? This is important as my house doesn't have good bus or metro access.
- Value experience in a social context? I think it doesn't have that benefit. I can go and meet my friend even by bus, but I think it depends on where you are living.

#### 4. How?

- How often do you use the car? Every day.
- What is your typical trip? or would/could be your trip? Going to work and back.
- Is your day unpredictable and you use the car during the day? Mostly no.
- Does your work influence the rhythm of how you move during the day? No.
- Do you use it for work travel inside the Uusimaa? Just for going to work and back home.

#### 5. Car sharing

- Have you ever had a car-sharing experience, where? Not that much, or rarely.
- Briefly tell the reason? friends party and then go to the city center by taxi.
- What did you like? It's a good idea.
- What you didn't like?
- How was it? cheaper, saving time, being with friends, and arriving at the same time.
- Tell about the worst happened in experience:

#### 6. Dream catching

- How would you like everything to be organized in the car? Maybe more sharing possibilities, but I think this is a cultural problem that people like to be alone and have personal space. I hear that people don't like to go to the elevator when someone else is inside, so it may be difficult to ask them to share their car with others. but if the service is available and people try it, maybe they will like it.
- How would you like the rent service to be organized? the sharing in the way that the price will be reasonable, I don't mind sharing the car even for random people which I don't know. When the car has a place then why not. My idea is that cars also can have stop places like buses, and move people in a specific direction but faster than a bus. then people can share the car.

### Respondent 23 (email interview)

#### 1. Who? Personal case:

- Could you please say briefly about yourself? I am a 31-year-old engineer, male. Keeping myself busy with work, school and hobbies.
- Where do you live? (area) Martinlaakso
- Where do you work (area) Vuosaari
- What is your family situation? My girlfriend and I live together.

#### 2. What? Car situation:

- What car do you have? Volkswagen Golf
- When a vehicle was produced? 2013

- How much do you pay per year for keeping the car? I have had it less than a year, and only paid for gasoline so far. About 60€/month.

### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred a car to public transport? Saving time, convenience to go to work, hobbies, etc.
- What does your own car give to you? Freedom of going to different places when I want.
- Does the weather outside influence your choice? I will prefer public transport sometimes if the weather is horrible.
- Value experience in a social context? Easier to visit friends, go to restaurants, visit parents, travel to a cottage.

### 4. How?

- How often do you use the car? Almost every day.
- What is your typical trip? or would/could be your trip? Work trip 50km or hobbies 40km inside the Helsinki Capital area. Visiting parents 200km away.
- Is your day unpredictable and you use the car during the day? Predictable. I use it mainly outside of office hours.
- Does your work influence the rhythm of how you move during the day? Yes.
- Do you use it for work travel inside the Uusimaa? Yes.

### 5. Car sharing

- Have you ever had a car-sharing experience, where? Rented cars abroad a few times. I registered to DriveNow but never used the service.
- Briefly tell the reason? Easier to access towns and cities outside of the center.
- What did you like? There are various car rental spots in easily accessible places such as the airport. Rental cars have always been in very good condition and the rental process is easy.
- What you didn't like? Price is, in some countries, pretty high.
- How was it? I have been mostly happy, excluding the one case described below. Sometimes after a long flight, the paperwork and queuing before getting the car can be a little annoying. The process could be a little bit faster.
- Tell about the worst happened in experience: The rental service claimed that I had not filled the tank and tried to charge +100€ without reason. I needed to provide them receipt afterward.

### 6. Dream catching

- How would you like everything to be organized in the car? Better public transport connections that people don't need to own private cars. Even in the Helsinki Capital Area, it is often faster to bike from A->B than taking multiple busses. The situation is much worse outside of Helsinki.
- How would you like the rent service to be organized? That you can pick-up and return the car close to my location, without having to take a bus/train to reach the pick-up point. In addition, you can rent it for just a couple of hours, instead of a full day.

## Respondent 24 (email interview)

### 1. Who? Personal case:

- Could you please say briefly about yourself? Male, 36yrs, male, very stingy/prudent when it comes to the cost of living.
- Where do you live? (area) Helsinki
- Where do you work (area) Vantaa
- What is your family situation? Married, one child.

### 2. What? Car situation:

- What car do you have? Toyota Auris
- When a vehicle was produced? 2012
- How much do you pay per year for keeping the car? All expenses (gas, insurance, service, taxes, maintenance) roughly 3000€. Plus the annual ~800€ decrease in car value.

### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred car to public transport? Public transportation connections are very poor to my work. It would take over an hour per day extra with public transportation.
- What does your own car give to you? Little bit more spare time but a lot of expenses.
- Does the weather outside influence your choice? Not much, slightly.
- Value experience in a social context? No. I hate owning a car.

### 4. How?

- How often do you use the car? Daily. Would not like to own a car.
- What is your typical trip? or would/could be your trip? From home to work, 25mins and 18km.
- Is your day unpredictable and you use the car during the day? No
- Does your work influence the rhythm of how you move during the day? Not much
- Do you use it for work travel inside the Uusimaa? Yes

### 5. Car sharing

- Have you ever had a car-sharing experience, where? Sharing no, rentals many times when traveling.
- Briefly tell the reason? Rental cars are convenient or must be located.
- What did you like?
- What you didn't like?
- How was it?
- Tell about the worst happened in experience: Claim of damaging the car a few weeks after the trip. I did not want to start a fight so I paid the requested ~100€.

### 6. Dream catching

- How would you like everything to be organized with the car? The optimal situation would be that I could use public transportation on my daily commute. We would not own a car and only use rental/taxi when needed.

- How would you like the rent service to be organized? Easy, cheap, simple. Drive Now seems like a good solution for people living downtown Helsinki and not needing a car daily.

Respondent 25 (email interview)

1. Who? Personal case:

- Could you please say briefly about yourself? 43y old family man working in first newmedia (web development) and then marketing industry since late -90s. I have a degree in BSc on software development, Qualification in Business Administration (merkonomi) in marketing and Specialist qualification in Management (Johtamisen erikoisammattitutkinto).
- Where do you live? (area) Helsinki
- Where do you work (area) Marketing Department. In large FMCG companies (fast-moving consumer goods).
- What is your family situation? Wife and almost 13yo daughter.

2. What? Car situation:

- What car do you have? Yes, we have a car
- When a vehicle was produced? 2015
- How much do you pay per year for keeping the car? Somewhere around 2500-3500 including yearly maintenance, insurance and petrol.

3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred car to public transport? I don't prefer a car. I usually ride a bike or use public transportation. Cars are a tool for me to go to weekend markets or to sports events out of town. I don't use my car to go to work. The wife needs a car for her work so that's mostly why we still have a car.
- What does your own car give to you? possibility to go to shopping malls whenever we want and where ever. It gives the easy and choice to go somewhere on a whim.
- Does the weather outside influence your choice? Not usually.
- Value experience in a social context? not really. For me, a car is not a status symbol or statement of success. We have a run of the mill basic station wagon for transporting weekly grocery shopping bags.

4. How?

- How often do you use the car? 3-6 times a month
- What is your typical trip? or would/could be your trip? from home to the shopping mall 10-15km away.
- Is your day unpredictable and you use the car during the day? no, If I need to go somewhere unexpectedly during the workday I usually take public transport if I'm not commuting by bike.
- Does your work influence the rhythm of how you move during the day? yes, but usually all the meetings are in our office.
- Do you use it for work travel inside the Uusimaa? Sometimes.

## 5. Car sharing

- Have you ever had a car-sharing experience, where? on holidays we have rented a car but not in Finland except a van while last time we moved.
- Briefly tell the reason? We have had a car here in Finland and during the holidays we sometimes wanted to go to some places.
- What did you like? Driving a car in Spain or Greece is not that different than here. Just more hectic :D
- What you didn't like? It was okay.
- How was it? What can I say, we went to a car rental and left there with a rental car for a few days.
- Tell about the worst happened in experience: can't think of one.

## 6. Dream catching

- How would you like everything to be organized with the car? That depends, If you live in a large city like in Helsinki, Turku Tampere or Oulu people should gravitate more towards public transportation away from cars. The public transportation infrastructure allows that. But being a realist in small places with long commutes to work I really can not see a possibility how people could get to work in other means than in cars. My cousin used to live in a small village in Pohjanmaa and his commute to High School was about 50km.
- How would you like the rent service to be organized? I think the shared car systems like DriveNow could be the answer to urban centers.

## Respondent 26 (live interview)

### 1. Who? Personal case:

- Could you please say briefly about yourself? I am a teacher in the university of applied science, I am 45 years old, female, divorced, have a child, 7 years.
- Where do you live? (area) I live in Viikki, Helsinki.
- Where do you work (area) Leppävaara Espoo
- What is your family situation? Divorces have a child.

### 2. What? Car situation:

- What car do you have? No car, have a driving license. Because I don't have a parking lot close to my house. That is the reason why I don't buy a car.
- When a vehicle was produced?
- How much do you pay per year for keeping the car?

### 3. Why? The situation when a customer uses a car:

- What is the key factor why you have preferred car to public transport? A long trip to work which I do every day 5 times per week.
- What does your own car give to you? Freedom, ease, plan in a short turn, can be in many places. No limits in movement, short term planning.
- Does the weather outside influence your choice? Yes. When it is rainy, frost or snow outside I can't go to the swimming pool with my child. Because the bus stop is 300 m from the swimming pool and I need to wait until the bus comes. A child can freeze outside or get cold and be ill.

- Value experience in a social context? I would go to a friend and pick her up to go to another place. I would like to go to the forest and be there every weekend from spring to autumn, but can't do that, I need to change 3 buses.

#### 4. How?

- How often do you use the car? 5 days a week, working day, working hours and on Sunday from morning till evening.
- What is your typical trip? or would/could be your trip? 8 o'clock I would sit and drive from Viikki Helsinki to Vanha Maantie 6 Espoo. And back at 16 o'clock from Espoo. And the weekend at 11 o'clock Sunday and go to Luukki Espoo, at 17 o'clock back. Or another Tillanhoitajankaari 18 to Serena Espoo, or to Siipoo National park or to Kuusijärvi Vantaa.
- Is your day unpredictable and you use the car during the day? No
- Does your work influence the rhythm of how you move during the day? My work shapes everything. Sometimes I have evening hours a week, 4-5 times per month.
- Do you use it for work travel inside the Uusimaa? Almost never, rarely for company visits.

#### 5. Car sharing

- Have you ever had a car-sharing experience, where? Yes, Pihlajamäki Neste oil station. Best rent.fi.
- Briefly tell the reason? I have two reasons to use it regularly. Short trips on weekends to nature, for example Nuoksio. Weekend trips and summer holiday trips when I travel more than 100 km 3-4 days swim in the clean lake in summer time far away from Helsinki. To go to IKEA and buy some furniture or household items.
- What did you like? I had a funny experience. I chose the Best rent microbus because we have 3 seats in a row. We were traveling together as a family before the divorce or with a friend after husband, me and daughter. The second reason: it's affordable. Not very much but acceptable. There are lots of cars in Neste station, they are always available, that was the nearest for my home. Whenever I come there is a car and you can plan a trip in a short while. We decided, searched, booked online, and picked up. I also like that I can have a cup of coffee, it is a safe area, not on the road and I can enjoy coffee. It is also easier that I can pay by card and not do online payment. The price definitely is seen, I like their flexibility, flexible control. And even if we are slightly late, we just park the car and go home and not strict punishment. No cleaning. Personnel on petrol stations are very friendly. Simple application!!! At Best rent, it was easier to fill the tank. Also, I had an excellent experience in Tour France. Small rent company on the central railway station. There was personnel, she gave me a car, I signed a contract, she checked my license and slip off my credit card. The procedure was very fast. The assistant showed me a car, it was very close to the train station, 100 meters. That was the best experience with car rental.
- What you didn't like? I don't like the long distance to pick up a car. The best rent is it's a bit difficult to get there from home. The station is in Pukinmäki. I need to go by bus there. I don't have affordable Best rent close by in the walking distance. I don't have one close to my home.
- How was it? Was it convenient? yes.



- Tell about the worst happened in experience: worst experience happened in a tourist area. The personnel come to the hotel and sell the car but miss calculating the rent price. It takes time to call the person, then a time while he would come. Lots of discussion communication around that. Not nice to open the car when the car is far away and covered with snow. Another the worst experience if I need to fill the tank, and I don't know how to open the tank.

## 6. Dream catching

- How would you like everything to be organized with the car? have my car on the parking slot, which has a roof, and it would be available all the time, no ownership.
- How would you like the rent service to be organized? If a car were available, I would like it to be this. Locate in our house parking lot or neighboring, or close petrol station. But my dream is that every household would have a parking lot with one rental car. If it is not available at home, I can go to the neighborhood. I would like to have an easy application to book it. Where I can book the car, map where cars are available, reserve it in 15 min before. I am ready to bring it back, not drop it anywhere. I think the best system is fixed locations. I can introduce my schedule because my schedule is predictable. I would like to have a rental service of owning the car, maybe leasing. Sometimes I don't need it. Sometimes somebody else can use it. I am ready to fill it, to clean it. Or I can own the car with several families and share it with each other. I am ready to fill it with a particular petrol brand. I even imagine that it would be a match-making app that would find relevant users and we can share it. Like a match-making app. I introduce my address, and my schedule with people and they can use it during the day, and the app can find me a car.



## Appendix 5. Master Thesis validation report

	1) Need for a car: almost absent because of residence in the Helsinki central area and a big variety of public transport.	Need for a car: occasional use along the week with other passengers.	Need for a car: gain the outlying destination rather work or home not only in Helsinki city but in metropolitan Uusimaa area.	Need for a car: when the public transport route is longer than 40 min, not convenient enough and complicated.	Need for a car: reach office place in a more convenient way, drive in the morning and afternoon, car is parked in between.	Need for a car: spend leisure time at different locations, organize own activities or/with other family inside Uusimaa.	Need for a car: move between several destination points in a very flexible way, carry and keep necessary belongings.	Need for a car: maintain family-related activities especially with kids or other family members.	2) I am familiar with the car-sharing services.
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Topi		OK							OK
Manoj		OK		OK		OK	OK	OK	
Kai					OK		OK		OK
Majdouline		OK					OK		
Nina Loukina						OK			OK
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Mikko Nykänen		OK		OK		OK	OK	OK	OK
Juha			OK	OK	OK	OK	OK	OK	OK

Rantal a										
Tapani Raiko			OK		OK				OK	OK
Sanna Herma ns						OK				
Toni K				OK						OK
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Toni Rantal a			OK		OK	OK	OK	OK	OK	OK
Terho			OK	OK	OK	OK			OK	OK
Christi an B			OK	OK	OK	OK			OK	
Tia			OK	OK	OK	OK	OK	OK	OK	OK
Tatjan a	OK	OK		OK		OK	OK			
Irina Podos sinnik ova			OK	OK		OK	OK	OK	OK	OK
Valenti n			OK	OK		OK	OK		OK	OK
Nemat Dehgh ani			OK				OK			
Hanna S									OK	
Jurijus Kravic enka	OK					OK	OK			
Ritva Toivak ainen				OK		OK			OK	
Polina		OK	OK			OK	OK		OK	
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I am not familiar with the car-sharing services.	3) I may use a proposed car-sharing service to satisfy your personal needs.	I don't think that proposed car-sharing service may satisfy my personal needs.	4) It would be interesting for me to try a proposed car-sharing service.	I have no interest to try a proposed car-sharing service.	5) I would like to have available cars in my living area for rent based on per minute to drive along the Uusi maa area.	I have no desire to have available cars in my living area for rent based on per minute to drive along the Uusi maa area.	6) It would be most convenient for me to have available cars for rent close to the nearest K-market (Uusi maa area).	It would be most convenient for me to have available cars for rent close to the nearest TRAI station (Uusi maa area).	It would be most convenient for me to have available cars for rent close to the nearest SUBWAY station (Uusi maa area).	It would be most convenient for me to have available cars for rent freely distributed around the central part of Helsinki city.	7) I would like to have a navigation system in the car that can advise the fastest route and available parking possibilities	I don't have desire for a navigation system in the car.
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