Access vs. Ownership: Can electric carsharing shape the future of transportation in Budapest?

Sustainability analysis of GreenGo Car Europe Ltd.’s business model

Ádám Willing
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Thesis Supervisor: Dr. Krisztián Tibor Csubák
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1. Setting The Stage

1.1. The reason why I chose this topic

This paper is about the future of shared mobility in Budapest, Hungary. In the upcoming pages, I am going to deal with the question ‘Can electric carsharing shape the future of mobility in Budapest?’. Analyze, whether this innovative new model seems sustainably manageable in the long term or not. I will be searching for key findings through GreenGo Car Europe Ltd.’s business model.

I can mention two major reasons why I decided to write my bachelor thesis out of this topic. First, the simple fact that this rising phenomenon called ‘sharing’ amazes me. People tend to share their belongings more and more often while saving costs. Sharing helps preserve the future of our planet; it creates social added value & trust; and fosters innovation like nothing ever before. This is wonderful. Second, sharing is the future of business, regardless of the specific industry or sector. More and more businesses decide to participate in that emerging megatrend while it is still lacking a widely accepted conceptual background. In industries where sharing initiatives can find the appropriate business environment for operating, sales of non-sharing businesses are falling quickly.

Even though the first carsharing system launched roughly 70 years ago, a broader range of consumers has just appeared as shared-vehicle users in the past couple of years helping this segment of the sharing economy grow exponentially.

Carsharing is a quite new phenomenon in Hungary. The first carsharing operator, Avalon Ltd. appeared in the business in 2013 (Panker, 2013). With respect to the electric car utilized model of carsharing, it was first introduced by GreenGo Car Europe Ltd. less than a year ago, in 2016 (Budapest Business Journal, 2016).

I am really curious about the strategy implemented by GreenGo since the very first day they have started their operations in Budapest. Their business model and idea is really interesting and if they can successfully take advantage of first-mover opportunities that can shape the future of transportation in Budapest.
To obtain a deeper understanding about GreenGo and the shared vehicle market, I will examine the conceptual background of the sharing economy, analyze GreenGo’s strategy using widely accepted approaches, and research the consumer market in Budapest.

1.2. Goal setting

In Budapest, EV carsharing is a niche market yet. In this paper, I will look for answering the question: ‘After roughly one year of operation would GreenGo’s choice of running an electric carsharing business in Budapest is on track to be profitable in the future?’ To be able to provide indeed meaningful answer on this question, I will look for answers to the research questions listed in Table 1 first.

<table>
<thead>
<tr>
<th>Research Questions</th>
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<td>Q2</td>
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<td>Q3</td>
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Hopefully, the findings on the above research questions will provide me with relevant information to decide on whether my hypotheses should be accepted or rejected. Please see my hypotheses in Table 2 below.

<table>
<thead>
<tr>
<th>Hypotheses</th>
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<td>H3</td>
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1.3. Structuring

I found the most common structure appropriate for this paper to provide satisfying answers to the questions listed above. This thesis will be structured according to the rules of a deductive theoretical research (Bryman, 2012). After this short introduction, the theoretical background should be conceptualized first, followed by the methodology on data collection and observations. Then we get to the analysis section in which I will use theoretical approaches, primary and secondary research data and observations to present the way to the findings this paper is searching for. Finally, the conclusion as the last chapter is inevitable summarizing the findings of the research and close down this thesis.

1.4. How it is related to my studies

Analyzing the sustainability and feasibility of an innovative new business idea is related to my business management BA studies in many ways. To do so, I need to do a comprehensive strategic analysis, including analysis of the business environment, the business itself and its marketing strategy.

Moreover, as already mentioned above the sharing economy is a quite new world phenomenon. The increasing number of innovative sharing business models populating all over the world is a trend which may form the future of business. For me as a candidate to be a future business professional, analyzing trends that may determine the future of business is indeed essential. Additionally, sharing economy provides environmentally manageable business models which would let the economy go toward a more sustainable future.

In summary, this topic is in connection with many of the major courses accomplished during my Business & Management studies at Corvinus Business School. For just taking some examples: Business Policy & Strategy, Marketing, Environmental Management, Microeconomics, Macroeconomics and Operations Management.
2. **Collecting Ideas**

**Outline of Theory**

My theoretical background part will contain three major sections. First, answering questions ‘What is sharing economy?’, ‘How can we define sharing?’ and ‘What is electric vehicle (EV) sharing?’ is inevitable. In order to prepare for a deep business model analysis, I need to narrow down that wide category and define the sector in which GreenGo operates as precisely as possible. Second and third, business and marketing strategy related theories, definitions, axioms, and tools need to be collected afterward, in order to obtain a framework in which the analysis of GreenGo and its environment is executable.

### 2.1. What is EV sharing?

#### 2.1.1. Defining the sharing economy

First of all, before I would tell a single word about car sharing, the concept of sharing needs to be defined as precisely as possible. As there exists no generally accepted on sharing, a large pool of concepts are required for examination.

Resource sharing exists since the first men left their footprint on our planet. However, by the middle of the 20th century, sharing took a new context. In the digital age, information costs fell sharply and the coordination of inevitably important digital platforms of the newly contextualized sharing industry became much more feasible (Codagnone-Martens, 2016). Indeed the above mentioned two enhancements led to reconceptualization and rise of the sharing economy.

With regard to approaching sharing from a conceptual point of view, finding a single word on how to denominate this phenomenon scientifically is a challenge. Today, in the majority of the cases we refer to it by ‘sharing economy’ (Meelen-Frenken, 2015; OECD, 2016) but many different labels are in use like ‘collaborative consumption’ (Botsman-Rogers, 2010), ‘access-based consumption’ (Bardhi-Eckhardt, 2012), or ‘circular economy’ (Vaughan-Hawksworth, 2014).

According to Botsman and Roger ‘collaborative consumption’:
“[…] includes activities such as ‘bartering, lending, renting, gifting and swapping’ in three broad categories: ‘product service systems’ (access to products or services without need for owning the underlying assets), ‘redistribution markets’ (i.e. re-allocation of goods) and ‘collaborative lifestyles’ (i.e. exchange of intangible assets).” (Codagnone-Martens, 2016, p. 6)

Fleura Bardhi and Giana M. Eckhardt defined ‘access-based consumption’ as follows:

“[…] transactions that may be market mediated in which no transfer of ownership takes place. The consumer is acquiring consumption time with the item, and, in market-mediated cases of access, is willing to pay a price premium for use of that object (Durgee and O’Connor 1995).” (Bardhi-Eckhardt, 2012, p. 881)

Bardhi and Eckhardt added to their definition that through access-based consumption consumers get access to required assets the ownership of which was a question of money, space or preserving the environment for them (Bardhi-Eckhardt, 2012).

Belk disagrees with the previous definition and separates the concepts of ‘true sharing’ and ‘pseudo sharing’. He defines pseudo sharing as obtaining temporary ownership of an asset by providing compensation in exchange. In his opinion, true sharing exists when there is no compensation or fee required for using the particular assets, hence temporary ownership is not obtained (Belk, 2014).

The most commonly used ‘sharing economy’ expression is defined by Meelen & Frenken as follows:

“[…] consumers (or firms) granting each other temporary access to under-utilized physical assets (‘idle capacity’), possibly for money.” (Meelen-Frenken, 2015)

The same defined by PriceWaterhouseCoopers colleagues Vaughan & Hawksworth in 2014 as the usage of:

“[…] digital platforms to allow customers to have access to, rather than ownership of, tangible and intangible assets” (Vaughan-Hawksworth, 2014, p. 2).

As researched by Juliet Schor, professor of Sociology at Boston College asking sharing innovators what is included in sharing economy and what is not, resulted in pragmatic opinions
that it is self- or press-defined in the majority of the cases. She categorized sharing
economy related activities in four wide groups:

“[…] recirculation of goods\(^1\), increased utilization of durable assets\(^2\), exchange of services\(^3\),
and sharing of productive assets\(^4\).” (Schor, 2014)

Previous concepts have both similar and dissimilar features. One major similar point in the
definitions is the simple fact that sharing means getting access to something which was
previously under-utilized and/or owned by someone else.

Belk’s definition of true and pseudo sharing is the most critique on other sharing concepts. In
my opinion, we can distinguish between the two as separate activities but both are sub-
categories of sharing. I think so because of two reasons. First, I can see Belk’s point on claiming
that ‘temporary ownership’ is not real sharing, as ownership is obtained for some time.
However, psychologically people are not thinking of temporary ownership as it would be real
ownership, but rather as a ‘temporary access’ to something which is not owned by them.
Ownership in its casual meaning is owning a good or service up till the good is sold to someone
else or the contract for the service is terminated. Even though services are terminated or goods
are sold, I would denominate this definition as ‘permanent ownership’. The concept ‘temporary
ownership’ should be used instead when someone buys a good or service clearly for reselling
purposes. Second, sharing is about ownership, not about compensation in my opinion.
Consequently, it does not matter whether the provided asset shared in exchange for some kind
of a compensation or for free as the major point in sharing is increased utilization of otherwise
underutilized assets (Belk, 2014).

Based on all of the above, in this paper, I will use the labels collaborative economy and circular
economy as synonyms of sharing economy. Additionally, access-based consumption or
collaborative consumption as sub-categories of the sharing economy.

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\(^1\) Schor gave eBay as a typical example on reselling (recirculation of goods) (Schor, 2014).
\(^2\) Use of durable, under-utilized assets and goods more intensively, such like Zipcar does it. (Schor, 2014)
\(^3\) Time banking is an ideal example on this. (Schor, 2014) Basically it is about providing a service to another
member of a community and will be paid in ‘time credits’ instead of real currency. Later you can use this ‘time’
to buy services from others who can provide something you require (Timebanks USA, n.d.).
\(^4\) “… sharing assets or space in order to enable production, rather than consumption.” (Schor, 2014). A typical
example is an educational sharing platforms that enable member universities to get access to bigger databases of
knowledge. (Schor, 2014)
Just as the concept of economy, sharing economy includes both the demand and the supply side of product markets. Therefore, it is not only effective for consumption economics but production economics as well. However, production sharing (human capital sharing, production machinery sharing etc.) is outside of the scope of this paper, thus I will not write about it in more details.

In this paper I will define sharing economy as a category for the following activities:

- A legal entity\(^5\) obtains temporary access to another legal entity’s asset\(^6\) in exchange for compensation or for free, through a third party platform\(^7\) provider or directly.

- A legal entity obtains permanent access to an asset previously owned by some other legal entity, but it was under-utilized therefore resold or given to someone else for free, either through a third party platform provider or directly.

2.1.2. Categorizing sharing activities

With regard to what categories should be included or should not be included in sharing economy, I totally agree with the categorization of Cristiano Codagnone and Bertin Martens. They systematized sharing economy into three broad and many additional categories (these are the ones which are not fit in any of the basic three) (Codagnone-Martens, 2016).

a) Recirculation of goods (second-hand or surplus goods only) - includes for profit or not-for-profit\(^8\) marketplaces, selling-swapping or simply giving away underlying assets (Codagnone-Martens, 2016).

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\(^5\) In this paper I will refer to ‘legal entity’ as individuals, companies or other type of associations that can be either sellers or buyers in any transaction made.

\(^6\) As used in the definitions of sharing economy related concepts in the works of many authors, in this paper I will use the concept ‘asset’ to denominate underlying assets, either tangible or intangible, goods or services provided in a sharing transaction.

\(^7\) Third party platforms providers are often called as ‘Multi-sided Platform (MSP)’ providers. According to Hagiu & Wright MSPs have two key characteristics which should common in every MSP. “They enable direct interactions between two or more distinct sides” and “each side is affiliated with the platform” (Hagiu-Wright, 2015).

\(^8\) Examples: For-profit (FP) – eBay; Not-for-profit (NFP) - Freegive
b) **Increased utilization of idle assets** – providing temporary access to under-utilized assets (e.g. space, vehicles, labor, and heavy equipment) in exchange for some kind of a compensation or for free.\(^9\)\(^10\) (Codagnone-Martens, 2016).

c) **Exchanges of labor and services** – this includes the not-for-profit time-banking and the commercially positioned platforms for shared professionals like TaskRabbit (Codagnone-Martens, 2016).

The above categorization is mainly based on Juliet Schor’s classification of the sharing activities (Schor, 2014) but reshaped a little bit by adding certain elements of other conceptual approaches.

Platforms can be very diverse based on ‘buyer-seller’\(^11\) relationships. With regard to businesses, there are two different models based on ‘provider-receiver’ relationships. Business-to-Consumer (B2C) and Business-to-Business (B2B) sharing models (Klaidman, 2015). Additionally, Peer-to-peer (P2P) sharing is many times related to business operators as well.\(^12\) (Codagnone-Martens, 2016).

As it is extremely hard to categorize sharing activities precisely, Codagnone & Martens put together a two-dimensional matrix (Figure 1 in Appendix A) with a horizontal dimension that classifies platforms based on attitude to profits (FP or NFP), and a vertical dimension based on provider-receiver relationships (P2P or B2C) (Codagnone-Martens, 2016). The matrix diversifies the following groups of activities:


- **‘Commercial P2P sharing’**\(^14\) (P2P + FP) - This category contains most of the sharing economy related activities. It is about providers or owners of goods sell their under-utilized assets

\(^9\) The major underlying goals are the more efficient utilization of factor endowments and decreasing total costs or increasing total profits per unit of sales. (Codagnone-Martens, 2016)

\(^10\) Typical examples here are accommodation sharing (Airbnb), car sharing (Zipcar), and ride sharing (BlaBlaCar) or ride services (Uber). (Codagnone-Martens, 2016)

\(^11\) Or ‘provider-receiver’, as there is no need to exist a transfer of payments (or any other compensation) between the parties.

\(^12\) In these cases providers can get access to possible consumers by Multi-sided Platforms (MSP) maintained by business operators. (Codagnone-Martens, 2016)

\(^13\) Derived from Russel Belk’s article of “Sharing versus pseudo-sharing in web 2.0”. (Belk, 2014)

\(^14\) Sharing businesses associated with P2P sharing (for example Airbnb or BlaBlaCar) are usually using Multi-sided Platforms (MSPs) to match together demand (D) and supply (S) sides of the market (Side1: suppliers (S), Side2: consumers (D)) (Codagnone-Martens, 2016).
temporarily or permanently in exchange for some kind of compensation (Codagnone-Martens, 2016).

‘Empty set’ (B2C + NFP) - The reason why this set is empty is that businesses are profit-oriented by their very nature (Codagnone-Martens, 2016).

‘Commercial B2C’ sharing (B2C + FP) - This quadrant contains reselling activities rather than selling through a Multi-sided Platform (MSP) (Codagnone-Martens, 2016).

2.1.3. Collaborative mobility

Transportation is a major segment of the sharing economy. By now people started using collaborative platforms for sharing not only buses, coaches, trams, and trains; but bikes, rides or even cars as well. Public transportation (buses, trams, trains etc.) was the really first way of sharing mobility (Shared-use Mobility Center, n.d.). However, in the 21st-century bike sharing, car sharing and different ways of sharing a ride became very popular.

Today, there exists multiple modes of getting access to shared car mobility. The classification of collaborative car transportation providers is challenging. I have derived my classification from two different reports on the topic: the World Resources Institute’s (WRI) report ‘Carsharing’ (Lane-Zheng-Dhingra-Carrigan, 2015); and the European Commission’s JRC technical report on ‘Scoping the Sharing Economy: Origins, Definitions, Impact and Regulatory Issues’ (Codagnone-Martens, 2016).

In my categorization, there are four major broad categories for mobility sharing of cars (Table 3).

Table 3 – Classification of shared car mobility services

<table>
<thead>
<tr>
<th>Shared car mobility</th>
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<tbody>
<tr>
<td>Carsharing</td>
</tr>
<tr>
<td>Ridesharing (or carpooling)</td>
</tr>
<tr>
<td>Ridesourcing (or TNCs(^\text{15}))</td>
</tr>
<tr>
<td>Car rentals</td>
</tr>
</tbody>
</table>

* Own adaptation based on the works of Lane, Zeng, Dhingra & Carrigan, 2015; and Codagnone & Martens, 2016.

\(^{15}\) Transportation Network Companies (Horpedahl, 2015).
Identifying different groups in this sector is not as simple as in other cases since it is not able to build mutually exclusive categories. There is an open debate with regard to many businesses whether they are providing one service or another. Regardless of the many overlaps among categories, it is inevitable to at least try to define.

2.1.3. Carsharing
According to Imperial College London’s Scientific Advisory Group Report on carsharing, there is no “uniquely correct definition” (Le Vine-Zolfaghari-Polak, 2014, p. 3) for carsharing. However, there are multiple characteristics, which are true for all carsharing business models as discussed by Le Vine and associates. These typical features are as follows:

Table 4 - Common features of carsharing systems

<table>
<thead>
<tr>
<th><strong>Unique characteristics of carsharing systems</strong></th>
</tr>
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<tbody>
<tr>
<td>Pre-screening for driving past and identity checks are mandatory before access to the service is granted.</td>
</tr>
<tr>
<td>Usually, vehicles are accessible somewhere in a service zone (without the presence of any staff member) rather than on multiple single places (typical in the case of car rentals, the staff is present in every case).</td>
</tr>
<tr>
<td>Maintenance, servicing and cleaning responsibilities of the granted vehicles are owned by the business operator.</td>
</tr>
<tr>
<td>Temporary access to driving the particular vehicle is given to the end user (directly(^\text{17}) or indirectly(^\text{18})).</td>
</tr>
<tr>
<td>Fees are usually made of subscription/registration payments, on distance and hourly charges. In many cases, users are responsible for refueling the vehicle (not all the cases).</td>
</tr>
</tbody>
</table>

\(^{16}\) For example – Julia Eddington wrote an article on Quoted about the differences in ride-sharing and „ride-hailing“ (or ride services), and analyzed different characteristics of Über, Lyft and BlaBlaCar whether they can be classified into one category or the other. (Eddington, 2016)

\(^{17}\) If the customer and the end user of the service is the same (usually) individual – B2C carsharing (Le Vine-Zolfaghari-Polak, 2014).

\(^{18}\) If the customer and the end user of the service is not the same. The customer is a business that paid for the service in order to get access for the end user who is an employee of the firm – B2B or corporate carsharing (Le Vine-Zolfaghari-Polak, 2014).
The above-mentioned features are common for a typical carsharing system, not in the case of all carsharing systems. However, by using this framework created by Le Vine, Zolfaghari and Polak in 2014, we can determine whether a business shows any common characteristics of a carsharing mobility system (Le Vine-Zolfaghari-Polak, 2014).

Millard-Ball and associates made their own list of common features in vehicle sharing systems. According to them, operator groups need to have at least one keyless shared vehicle which is accessible without the presence of an operator, temporary access is granted only for a short period of time and needs to be reserved in advance, payments are made on hourly or distance basis. Furthermore, the other two features enlisted by Millard-Ball and team are the necessity to have a “decentralized network of parking locations” (Millard-Ball et al, 2005, p. 2.1.) and “an organized group of participants” (Millard-Ball et al, 2005, p. 2.1.).

I would prefer the features listed by Le Vine & associates. The reason why I prefer their definition is simply due to the fact that I feel it more up-to-date. As the carsharing sector changed a lot in the past 12 years since Adam Millard-Ball et al published their book.

Based on O.K. Mont’s article on ‘product-service systems’, according to Liridona Sopjani carsharing can be identified as one of a kind (Sopjani, 2015). Product-service systems are joint sales of a product and a service together by providing temporary access (not ownership) to the product as a service to the end user (Mont, 2001).

2.1.3.2. Ridesharing
The concept of carpooling as defined by Furuhata and associates in 2013 is a mobility form in which the owner of the asset and other passengers are sharing a ride while paying for travel expenses together. This is a very convenient way of transportation as it is mutually beneficial for the provider of the car and those who enjoy the provided temporary access to it. The owner can share travel costs with other passengers, while not parting ways with the ownership on the shared-vehicle, while other travelers can enjoy the benefits given by car mobility (Furuhata, et al., 2013).

Shared rides can be organized or unorganized. In the case of organized carpooling a business, operator matches demand and supply usually through a multi-sided platform (MSP). Contrary, unorganized ridesharing, or ad-hoc ridesharing is about individuals share their vehicles with
their acquaintances or with complete strangers (sometimes referred as hitchhiking) (Furuhata-Dessouky-Ordonez-Brunet-Wang-Koenig, 2013).

2.1.3.3. Ridesourcing
Ridesourcing conceptualized by Lisa Rayle et al in ‘Just a better taxi? A survey-based comparison of taxis, transit, and ridesourcing services in San Francisco’ as follows:

"Ridesourcing dynamically matches supply and demand by allowing travelers to request car rides in real-time from potential suppliers using a smartphone application. Distinct from ridesharing, ridesourcing drivers operate for-profit and typically provide rides not incidental to their own trips. Ridesourcing is distinguished from traditional taxicabs by its use of smartphone technology and a dynamic matching algorithm [...]” (Rayle-Dai-Chan-Cervero-Shaheen, 2015, p. 1)

Jeremy Horpedahl used the terminology ‘Transportation Network Companies (TNCs)’ on ridesourcing (which is used by legal institutions in the United States) and highlighted the below common features:

“(TNCs), which operate through smartphone apps [...] allow consumers to bypass traditional taxicabs, offering the potential of lower prices, faster service, higher quality, and services when people might not have used a traditional taxicab.” (Horpedahl, 2015, p. 360)

2.1.3.4. Car rentals
Car rental companies are providing a different service from carsharing operators even though the two are similar with regard to many characteristics. However, in the case of car rentals locations where cars are accessible are multiple single places like garages, airports, typical rental places. Usually, these companies are not using mobile applications or online platforms for booking and a member of the staff is almost always present at the moment when consumers getting the keys. Furthermore, in the majority of the cases, car renting is for longer distance and time interval than carsharing (Le Vine-Zolfaghari-Polak, 2014).

According to the above-defined theories, GreenGo is a carsharing operator as the majority of the typical carsharing features are true for their business model (further details in the analysis). Therefore, in the upcoming pages, I will concentrate on this segment of the collaborative mobility industry.

19 Although, it is a rising phenomenon that car rental companies are implementing online platforms.
2.1.4. Carsharing business models

Carsharing models are divided into two groups by Clayton Lane of WRI Ross Center for Sustainable Cities and associates according to the departure and arrival locations of the shared-vehicle under service. These two subcategories are ‘one-way’ and ‘two-way’ (Lane et al, 2015).

One-way trips are like the customer picks up the vehicle at one location (at a station or in a given zone) then leaves it at a second different from where they picked it up. Contrary, in the case of two-way or ‘round-trip’ services the departure and the arrival location can be the same (exact station or zone) (Lane et al, 2015).

Based on the location where the cars are accessible, a second classification can be defined. Both one-way and two-way carsharing trips can be classified into either ‘station-based’ or ‘free-floating’ services (Le Vine-Zolfaghari-Polak, 2014).

Free-floating or ‘flexible’ carsharing enables customers to get access to the vehicle at one place and drops it off at another place in the same (round-trip) or in a different (one-way) geographic zone which had previously defined by the service provider (Le Vine-Zolfaghari-Polak, 2014).

Station-based carsharing is not as flexible as the free-floating model. Consumers need to drive back the utilized vehicles to the very same location where they picked them up (two-way) or to a pre-specified other station (one-way) (Le Vine-Zolfaghari-Polak, 2014).

2.1.5. Adding electricity to the concept

The concept of electric vehicle (EV) sharing is the same as that of carsharing just adding that all of the cars utilized in a fleet are electric cars. Electric carsharing systems are usually B2C or B2B, however, there are initiatives for the P2P model as well21.

EV sharing makes expensive electric cars more affordable to consumers by temporary accessing shared-vehicles provided by CSOs22.

20 I would like to set up an additional rule here. It is considered as a two-way trip if the customer departs and arrives to the same geographic area regardless of where the exact location is in that area. This needed to be specified as many literatures consider the free-floating model as a one-way service only mode and there is no consensus on this.

21 In March, 2017 the first P2P electric carsharing network started in Portland, United States (EfficientGov Staff, 2017).

22 Carsharing Operators (CSOs) (Lane et al, 2015).
Liridona Sopjani from Uppsala University further analyzed the concept in her master thesis as follows:

“Electric vehicles (EVs) emit less greenhouse gases [...] The concept is considered as a potential alternative that may hinge many urban issues such as traffic congestion, pollution, and noise by promoting a sustainable and environmentally friendly transport solution.” (Sopjani, 2015, p. 1)

EV carsharing is maybe our best alternative toward a more sustainable future of mobility. However, maintaining EV sharing systems in many countries is still a challenge, as charging utilities are still underdeveloped even in the countries of the developed world.

2.2. Strategic tools and concepts to be utilized

In this section, I am going to collect all the necessary strategy theories & strategic tools which later will be used in the practical part. I will use, several generally accepted strategic tools which are covered in our course of ‘Business Policy & Strategy’ or by our course book ‘Exploring Strategy’ by Johnson et al.

2.2.1. Defining strategy

Strategy is defined as “the long term direction of an organization” (Johnson-Whittington-Scholes-Angwin-Regnér-Pyle, 2014, p. 4) in our course book, Exploring Strategy by Gerry Johnson and associates (Johnson et al, 2014).

However, Michael Porter defined competitive strategy differently in HBR, in 1996:

“Competitive strategy is about being different. It means deliberately choosing a different set of activities to deliver a unique mix of value” (Porter, 1996, p. 64)

Henry Mintzberg defined it as a “pattern in a stream of decisions” (Mintzberg, 2007, p. 3).

Barney and Hesterly defined a firm’s strategy from a different point of view as a firm’s “theory about how to gain competitive advantage” (Barney-Hesterly, 2012, p. 4.).

2.2.2. Exploring Strategy Model

I will utilize the strategy model provided by the authors of Exploring Strategy. It is a three-part model that “includes understanding the strategic position of an organization; assessing strategic choices for the future; and managing strategy in action.” (Johnson et al, 2014, p. 10)
2.2.3. Positioning strategy

Analyzing the strategic position of an organization is about searching for opportunities and threats in the environment, and for capability related strengths and weaknesses in the organization. Therefore the aim of the corresponding section in the practical part will be to execute a SWOT analysis (Johnson et al, 2014).

As for environmental analysis, the wide environment should be analyzed to find opportunities and threats first. I will use a generally accepted analysis tool, called the PESTEL framework to analyze the macro environment. PESTEL is about the comprehensive analysis of political, economic, socio-cultural, technological, ecological and legal environments of an organization (Figure 2 – Appendix A) (Johnson et al, 2014).

Second, the micro-environment of the industry the specific business operates in should be analyzed. This will be done by using Michael Porter’s Five Forces Framework (Figure 3 – Appendix A). The framework requires analysis of the bargaining power of buyers and suppliers; the possible threats of substitute products or services and potential entrants to the market; and the level of competitive rivalry in the industry (Porter, 1998).

“The power of the five forces typically varies with the stages of the industry life cycle.” (Johnson et al, 2014, p. 49)

After opportunities and threats are collected, a firm-specific analysis should be executed as well. In this section, I will use two widely accepted strategic tools. First, a VRIO framework to identify valuable, rare, and inimitable strategic capabilities which are supported by the organization itself (Figure 4 – Appendix A) (Barney-Hesterly, 2012; Johnson et al, 2012). After that, I will do best-performer benchmarking to compare strategic capabilities and identify critical success factors because of which other businesses are successful (Johnson et al, 2014).

After all the above a SWOT summary can be put together, by which the strategic position is established.

2.2.4. Choosing strategy

According to Michael Porter there exist three major generic strategies by which a company can make sustainable competitive advantage. These three are ‘cost leadership’, ‘differentiation’ and ‘focus’ (Figure 5 – Appendix A). Cost leadership strategy is about seeking to be the lowest cost operator in the business and generate the most output out of the cheapest input. Therefore the
cost leader can offer the same product at a cheaper price and still have the same profit margin as others. Contrary, in the case of differentiation strategy, the focus is not on costs and prices, but the unique nature of the product which aims to satisfy unfulfilled consumer demand. Customers value this uniqueness higher and willing to pay a higher price for the product offered by the differentiator. Focus strategies target a previously selected narrow segment (niche) and not trying to obtain overall competitive advantage in the whole market. Companies using focus strategy can target buyers either by cost focus or by differentiation focus in the given segment (Porter, 1998).

Porter also claimed that if businesses fail to obtain competitive advantage out of any of the three strategies they would 'stuck in the middle' and lose against competitors who managed to make a competitive advantage either way (Porter, 1998).

With regard to innovative and entrepreneurial strategies, the innovation diffusion and concept of the ‘diffusion S-curve’ (Figure 6 – Appendix A). Innovation diffusion is the mechanism by which consumers get to know about the new innovations and start using it. In other words, the degree of market awareness. The diffusion S-curve is about this process. Usually, the growing process for new innovations for which there exists market demand is exponential. There is a ‘tipping point’ at an early stage of the diffusion, which indicates the point in time when demand explodes for the product and starts to grow fast. Also, there is a ‘tripping point’ when demand starts to collapse for the particular product (Johnson et al, 2014).

Being the first in an industry is debatable whether better or worse than being a follower. There are many advantages of being the first-mover such as experience curve benefits, reputation, scale benefits or buyer switching costs. The possible drawbacks are free-riding of followers and the lack of previous records on what works and what not in a specific industry (Johnson et al, 2014).

Analyzing using the above mentioned strategic options we can identify whether the strategic direction we are about to choose is the good choice or not. In the analysis, I will analyze GreenGo through these choices and evaluate whether they choices were good and how are they positioned now, almost one year after these decisions were made.
2.1.5. Evaluating strategy

Analyzing and evaluating different strategies is a very interesting part of strategy. However, as this paper is focusing on the questions closely related to the strategic position and the choice of strategy, this is out of the scope. The reason why I do not want to shift focus on evaluating the strategic performance is that GreenGo is in the business for less than a year. Therefore, deep findings on whether a strategy works or not, cannot be derived from the data available.

2.3. Segmentation, targeting, positioning (STP)

Strategy makers’ task is to decide on the direction the company should go toward on the corporate level. On the business level, marketing people advocate the corporate plan by creating a marketing strategy to capture customer value. Marketing strategy is about making decisions on which customers to target and how to position products or services in a way that satisfy customer needs. This process is called STP strategy (Figure 7 – Appendix A): market segmentation, targeting and positioning (Kotler-Armstrong, 2012).

A market can be divided based on geographic, demographic, psychological and behavioral patterns. Different segments determined by any of the listed segmentation methods have different needs and wants, therefore they should be targeted by different product placements. Market segmentation is to divide up the whole market into smaller segments representatives of which have the same characteristics, wants and needs. Targeting is about deciding on which segments to serve. According to Kotler and Armstrong: “A company should target segments in which it can profitably generate the greatest customer value and sustain it over time.” (Kotler & Armstrong, 2012, p. 49). Market differentiation and positioning are about deciding on where to place our product on the market. Products cannot be placed exactly like other competitors products, differentiation from those products is inevitable. After the decision on differentiation was made, the product needs to be positioned in the mind of the customers, differently from that of competitors (Kotler-Armstrong, 2012).
3. **SETTING THE RULES ON RESEARCH**

**Outline of Research Methodology:**

In the previous section, the necessary conceptual background has settled for the research and the analysis. In this part of my thesis I will describe my research methodology and provide answers to the following questions: ‘What kind of methodology will be performed?’ ‘How will it be executed?’ and ‘What are the advantages and possible disadvantages of this research approach?’.

**3.1. Chosen methodology**

As already mentioned in the introductory part, this paper is structured as a deductive theoretical research. Deduction is one of the typical characteristics of quantitative research. However, in this thesis, I have chosen to carry out both quantitative and qualitative research methods (Bryman, 2012). Different hypotheses set for analysis in the first part require different methods of research. However, I can only execute primary research (DeVault, 2017) for those it is possible. Initially, I have planned to accomplish a quantitative survey and a qualitative in-depth interview as well, but unfortunately, GreenGo’s management have no capacity nowadays to deal with interviews and they rejected my request for the interview. As a consequence I have decided to replace the content could have been derived from the primary interview by secondary interviews already available online.

**3.1.1. Secondary data collection**

I will start my research with a literature review. With regard to certain research questions, searching for already existing data collected by others is essential in order to identify trends and find studies which are in scope of my research (Bryman, 2012). This will be the secondary research part (DeVault, 2017), which is collected to complement my primary data. This information is needed because there are trends and data which I was not able to collect myself, but needed in order to answer my research questions more accurately.

**3.1.2. Primary data collection**

My primary data will be derived from one major source: a quantitative online questionnaire, publicly distributed on Facebook (Kumar, 2011).
3.1.2.2. The survey
I voted for the online questionnaire for gathering relevant market information. The simple reason behind this decision is that it is publicly distributed on the internet, which means there is a bigger chance of receiving a larger sample with higher level of confidence. The survey has distributed on Facebook, and reached people in different closed and open groups, through sharing and posting. All of the questions in the survey are close-end questions with all the possible options are given. This is required in order to enable me to carry out a quantitative analysis of the collected data. The survey was put together using Google Forms.

Basically, the questionnaire was structured to measure consumer behaviors; beliefs and perceptions about electric carsharing in Hungary. Should you interested in more about the questionnaire itself, please see Appendix B.

3.1.2.3. The survey design
According to the latest statistics from the World Bank for 2016, the population of Hungary is around 9.87 million people (The World Bank Group, 2017a). The survey was done via Facebook. Therefore the population of the research needs to be adjusted regarding this fact. As of the data published by Eurostat, the 66% of Hungarian individuals between the age of 16 and 74 use the internet for participating in social networks (Eurostat, 2017a). Based on that, please let me make an assumption that the proportion of those using social networking sites, but not using Facebook is infinitesimal. Therefore, in order to get the actual population of the research, we need to multiply the Hungarian population (9.87 million) by the proportion of social network users (66%), which is approximately 6.52 million. This makes up the population of my research. To calculate the required sample size for a statistical research with at most 5% margin of error and 95% confidence level I have used my Statistical and Mathematical studies learned during the course. (Appendix C).

As result of the calculations made in Appendix C, I am required to have a sample of at least 385 observations in order to be able to claim by the end of the research that I am 95% sure that the results are valid within a +/- 5% confidence interval. Based on that, all the research observations will be visible on the charts and in the corresponding parts of the analysis are subject to +/- 5%

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23 “Participating in social networks: creating user profile, posting messages or other contributions to facebook, twitter, etc.” (Eurostat, 2017a)
24 9,871,960 x 66% = 6,515,493.6 → as the population size needs to be a natural number (denotes number of people), it should be rounded up to 6,515,494.
variations (margin of error) if the actual population samples are greater than or equal 385 for the particular question.

3.1.2.4. Characteristics of the population sample

*Note: All the respective charts referred to in this section can be found in Appendix D. Furthermore, all proportions presented below are subject to variations of at most +/- 5% due to standard error in order to reflect reality more precisely.

I received 472 filled questionnaires through Facebook distribution. Out of this sample, 58.90% were representatives of the 17-25 age group (Chart 1) and the majority of the people are either university/college students or already have a degree (Chart 2). About 83.05% of the surveyed ones have a driving license and additional 11.04% plans to soon have one (Chart 3). Regarding city mobility habits 1.35% of the repliers claimed that they never travel to the capital city (Chart 4). Those who are either do not have a driving license and not planning to have one in the foreseeable future, or never visit the capital are irrelevant from the research perspective as cannot provide with relevant data for the remaining parts of the survey. Consequently, the sample size applicable for further analysis is 440.

3.2. Advantages and drawbacks of research methodology

3.2.2. For and against online questionnaires

The biggest advantage for online surveys is the anonymity. As there is no researcher present, respondents are bolder to share information in connection with the topic. It is cost and time efficient contrary to other quantitative research methods. Online surveys are also characterized by high level of accessibility and convenience to respondents (FAO, n.d.; Bryman, 2012). It is a very quick method for gathering data and generating rapid turnaround, and ideal for notifying trends which are true for a large population out of a significantly smaller sample (Creswell, 2014).

Many of the drawbacks of online questionnaires are the same as the advantages of interviews. There is a very limited interaction (usually no interaction at all) between the researcher and the respondents. Hence, interviewees might understand questions differently and bias the final results. It is very limited to research about complex issues via online questionnaires due to the quantitative nature of close-end questions. According to Kumar, usually, the response rates are quite low. There is a “self-selecting bias” (Kumar, 2011, p. 149) as well, as not everyone fills in the survey who have the opportunity. Maybe those who filled in have common “[...] attitudes, attributes or motivations that are different from those who do not.” (Kumar, 2011, p.
Additionally, if there exists a self-selecting bias and the response rate was low, we cannot be sure that results of the survey are consistent with reality (Kumar, 2011).

3.2.3. For and against secondary data collection

The biggest advantage of secondary data sources is clearly the fact that research part has already carried out by someone else, therefore it is time-consuming.

With regard to the possible drawbacks of this method, the validity and reliability of the data need to be examined very carefully, the necessary data might not available, or interpreted differently (biased) in a source which affects our interpretation as well (Kumar, 2011).
4. SEARCHING FOR ANSWERS

Outline of Analysis

The emphasis of this section will be on searching for key findings. All the analysis of the reviewed literature and research data will be carried out here. First, GreenGo needs to be portrayed and conceptualized as the major theme for analysis. After that, I will execute a SWOT analysis, starting with looking for macro-, and micro-environmental opportunities and threats, followed by firm-specific strengths and weaknesses. Then the next step is going to be GreenGo’s marketing strategy analysis. Finally, I will draw a picture of the current consumer market for GreenGo.

4.1. GreenGo - company overview

4.1.1. What is GreenGo?

Near the end of the year 2016, the first electric carsharing business launched in Budapest, Hungary. The business is called ‘GreenGo’ and it was started by Hungarian entrepreneur Bálint Michaletzky and associates. EV sharing is an exceptionally challenging form of carsharing since the concept is quite new and there are many optimization problems which are added to the simple carsharing model. Some of these optimization problems are the proximity of charging stations, electric vehicle shortest path problems (in order to be cost-efficient), vehicle relocations or battery swap related issues (Brandstätter et al, 2015). Moreover, the charging station infrastructure in Budapest is quite under-developed with respect to other cities, where EV sharing businesses are operating.

4.1.2. Why electric?

GreenGo is committed to providing an alternative to environmentally friendly transportation. Their quest is to facilitate the rise of electric vehicles, to help increase the number of electric charging stations and the popularity of green license plates in Budapest. This mission positions GreenGo as an innovative business that puts environmental consciousness to support a greener future as its major goal (GreenGo Car Europe Ltd., “About GreenGo”, n.d.).

Furthermore, GreenGo using electric cars for sharing, since they are not just environmentally friendly (low greenhouse gas emissions, low pollution, resource efficiency), but quiet as well.
This is important as noise pollution due to the high level of traffic in the cities is a major problem for citizens as well. Consequently, GreenGo tries to provide solutions for many urban problems which are mentioned by Liridona Sopjani as EV sharing might help on them.

4.1.3. Why shared?
Regarding sharing, GreenGo claims that they “believe in the power of community and that there is a chance for humanity to continue flourish in a livable future: Eco sharing” (GreenGo Car Europe Ltd., n.d.). This further advocate the vision of a greener future.

4.1.4. Conceptual background for GreenGo
In the classification of Codagnone & Martens, GreenGo belongs to the ‘increased utilization of idle assets’ category. In their case, the cars are the under-utilized assets, for which the utilization increased since shared through a carsharing operator (GreenGo itself). This is environmentally friendly not only because the cars utilized are electric, but due to material efficiency as well (assuming that car owners would postpone or cancel car sales, sell their own cars).

GreenGo is a commercial carsharing organization since the company is driven by profit maximization. They are providing service both for individuals (B2C) and corporations (B2B – corporate carsharing). Precisely what they provide is not a service, but rather a ‘product-service system (PSS)’. They provide temporary access to a product together with a service just as O.K. Month described such kind of systems.

The product-service system offered by GreenGo also corresponds to other unique characteristics of carsharing systems described by Le Vine and associates. For just taking some examples, the maintenance, servicing and cleaning responsibilities are on the operator; fees consist of a one-time registration fee, monthly subscription fees, and minute based charges.

4.1.5. How does it work?
GreenGo cars are accessible through an Internet-based smartphone application. To get access to the application or the site the individual needs to register on the website needs to have a driving license which is at least one year old, and needs to visit the central office of the company to verify themselves. Cars can be reserved 30 minutes in advance and their location can be identified through the map available in the mobile application. All the cars are Volkswagen e-Up’s installed with an automatic transmission and GPS systems that help tracking them.
Cars can be used both for one-way tours, so does for round-trips. GreenGo chose to operate a free-floating business model. What is given is a restricted area in which the cars can be dropped off anywhere convenient for the end-user. In a GreenGo, clients can go anywhere in Pest county paying attention to battery levels (at least 10% should be maintained by the end of the trip). However, dropping off the car is only acceptable according to the rules. This area is a 27 km² territory in the heart of Budapest shown in the mobile application. The parking location should be a legally acceptable and governmental parking fees do not apply as in Budapest parking with electric cars is free of charge (Michaletzky, 2017a; Michaletzky, 2017b).

Now, the company has conceptually described and a bigger picture has given about what is the service GreenGo provides. As a next step, I can start searching for answers on my initially proposed questions and the analysis of the company strategy.

4.2. Analyzing the strategic position & choices of GreenGo

4.2.1. Analyzing the business environment – The PESTEL framework
The external business environment of GreenGo needs to be analyzed in order to receive a bigger picture about doing a business in the European Union, more precisely in Budapest, Hungary.

4.2.1.1. Political environment
The country is a parliamentary democratic republic, member of the European Union since 2004, which has many political and legal effects on doing business in Budapest. Political control is quite stable in Hungary as Fidesz, the biggest party in the parliament controls the legislature in a coalition with the Christian-democrats since 2010. The political direction in Hungary shows a more paternalistic governance which requires a higher level of interventionism (BMI Research, 2017). Additionally, recent years’ Hungarian politics provide for serious threats for doing business as reported by the researchers of BMI Research, member of the Fitch Group:

“[…] unpredictability of the regulatory environment – along with policy instability, corruption, lack of government transparency and excessive bureaucracy – will be key deterents […] a high public debt […] implies […] that government spending will not be an important driver of growth.” (BMI Research, 2017, p. 24)

25 At the time of the parking at least for 7 more days. The parking place needs to be owned by a public authority (Michaletzky, Kipróbáltuk a GreenGót, 2017b).
The European Union’s approach to the collaborative economy is quite positive. In their perspective sharing creates many positive opportunities for EU citizens and advocates the organization’s sustainability agenda because of the higher utilization level of idle assets and resource efficiency. Additionally, the European Commission introduced a Communication about the regulations that are effective for the sharing economy as businesses must be aware of them (European Commission, 2016). However, the European Union not provides with a comprehensive regulatory framework for the sharing economy, as many decisions are made at the country level (Codagnone-Martens, 2016).

With regard to car-sharing, there were initiatives offered by the European Commission to advocate this segment of the collaborative economy in order to enhance European culture of mobility. MOMO Car-sharing projects were launched as part of the Intelligent Energy – Europe (IEE) program and aimed to support innovative transportation and setting guidelines for business operators and states. The project ran from 2008 till 2011 and as a result, they succeeded in increasing the awareness of carsharing and providing a guideline for country-level public authorities in assisting operators in Europe (European Commission, 2014).

In summary, the political environment of doing a business in Hungary is more challenging than prosperous. The European Union clearly supports car-sharing, but the lack of supranational regulations and the threatening case of Uber in Budapest make it more dangerous.

4.2.1.2. Economic environment

Hungary is experiencing a constant real GDP growth between 2013 and 2016 based on the statistics provided by Eurostat (Eurostat, 2017b). On average GDP grew by approximately 2.8% during this time span. BMI Research forecasts further GDP growth up till 2026 (BMI Research, 2017)\(^27\). GDP per capita, PPP grew every year between 2013 and 2016 (Chart 22 – Appendix D) as well according to the data published by the World Bank regarding Hungary (The World Bank Group, 2017b). BMI Research forecasted to grow further each and every year till 2026 (Chart 23 – Appendix D) (BMI Research, 2017).

Currently, the base interest rate set by the Hungarian Central Bank is at 0.90% and it has fallen continuously since the 31\(^{st}\) of October, 2013 (Magyar Nemzeti Bank, 2017). The most important

\(^{26}\) The operations of Uber restricted by new governmental regulations accepted and implemented after Hungarian taxi service providing companies stepped up with a common voice against Uber. As a consequence later in year 2016 Uber left the Hungarian market (Than-Fenyő, 2016).

\(^{27}\) For more details on actual real GDP growth rates please see Chart 21 in Appendix D.
effect of this change is the fact that savers are losing on their money, hence propensity to save fell as well. Consequently, willingness to consume or invest increased accordingly.

Based on these statistics, supposedly a recession period (that would have harmful effects on market demand and consumption) is not expected in the upcoming years, although economic cycles are often unpredictable. I would conclude that the economic environment in Hungary looks advantageous for starting-up.

4.2.1.3. Socio-cultural environment
Now, there are around 9.87 million (The World Bank Group, 2017a) people living in Hungary. Our population has been decreasing each and every year since 1981 (The World Bank Group, 2017a). This represents an aging demographic structure for Hungary which is a huge problem of developed countries. However, as GreenGo only operates in Pest County, mainly in Budapest and its agglomeration, this region delivers more important information to us. This region had a population of approximately 2.58 million people in 2016 (UNdata, 2017). Since 2008 the population of Budapest and its agglomeration increased by 3.65% despite the decreasing trend in the overall Hungarian population. However, the percentage change in the population of that area stagnates with minor fluctuations since 2011 (UNdata, 2017).

Based on the ‘Better Life Index’ of the OECD, the average Hungarian disposable income was USD 15,614 per year in 2016. This is hardly more than the 50% of the OECD average (OECD, 2017a). Regarding the time span between 2013 and 2015, the net annual growth rate of the disposable income of households was positive year-on-year (OECD, 2017b).

Cultural attitudes toward sharing shifted in the past couple of years. Global sharing giants like Airbnb, Über, and BlaBlaCar targeted Budapest and the Hungarian people as well. These sharing platforms spread quickly by providing cheap, easily accessible products and services to clients. Carsharing is showing an emerging trend in Hungary as well, and people tend to shift toward it.

The social environment in Budapest provides for many opportunities and significantly fewer threats. The spread of smartphone usage maybe provides the biggest opportunity for GreenGo operating in Hungary.
4.1.2.4. Technological environment
As globalization significantly speeded up the flow of technology across the world, new technologies are reaching the Hungarian market more quickly than ever. The spread of smartphone usage, the reaching of almost 100% internet coverage in Budapest helps GreenGo to provide online application based service. Moreover, according to the Statista.com in 2016, there were 4.61 million people in Hungary owning a smartphone. As GreenGo can only be used through an online smartphone application the forecasted constant growth in smartphone ownership provides a huge opportunity for the company in the future. It is forecasted by Statista.com that by 2022 the total number of smartphone users in Hungary is going to be 5.93 million (Statista.com, 2017). I assume that, although there is lack of data regarding this, the proportion of smartphone users in Budapest and its agglomeration is even higher. According to the research of Andrew Perrin of Pew Research Center, the proportion of smartphone users in urban territories is 10% higher than that of in rural areas in the United States (Perrin, 2017).

As already mentioned before the charging infrastructure for electric vehicles has not been at an optimal level in Hungary yet. This is understandable as full-electric vehicles (FEVs) have just started to spread in the past few years in Hungary. As of June 2017, there were 2456 vehicles registered in Hungary with green license plate number, and about 50% of them were pure electric cars (Anonymus, 2017). Charging stations can be constructed for wired plug-in charging, induction charging or battery swapping (Amsterdam Roundtable Foundation and McKinsey & Company, The Netherlands, 2014). Currently, there are around 100 charging stations in Hungary, at least half of them in Budapest (Kovács, 2017). In 2014, the Ministry of National Economy created the Jedlik Ányos Cluster which launched the Jedlik Ányos Plan. The plan’s main objective is to facilitate the further spread of electric vehicles in Hungary. Their main target is to improve the Hungarian charging infrastructure (Vörös, 2015).

In summary, regarding the level of digital development, the business environment is satisfying. However, the current state of the charging infrastructure is concerning and need to pay more attention to it regardless of existing future initiatives which adumbrate a promising vision of the future.

4.1.2.5. Ecological environment
The European Union is on track to achieve its 2020 targets regarding energy and climate policy. The 20/20/20 targets for 2020 is about reducing greenhouse gas emissions (GHG) by 20%, increasing the share of renewable energy usage by 20%, and improving energy efficiency by
20% (all three are compared to 1990 levels). As of the latest forecast in 2014, all three targets will be overachieved by 2020 (European Commission, 2014). The European Union is committed to the doctrine of sustainable development, and continuously updating policy objectives in order to achieve future targets. The 2030 Energy Strategy targets 40% cut in GHG emissions, at least 27% share of renewable energy resources usage, and 27% more efficient energy consumption compared to 1990 levels (European Commission, n.d.).

In summary, the European Union steps up with a common voice against climate change, and these targets are binding for each and every Member State of the European Union and they are reviewing the progress in every two years. Additionally to that, national governments need to provide a structured action plan for achieving those targets (Kerebel-Horl-Stoerring, 2017).

European Union directives about sustainable development are advantageous for GreenGo to start its operations in Hungary, as their company vision is totally compatible with those directives.

4.1.2.6. Legal environment
As part of the Jedlik Ányos Plan, Hungarian legislature constantly working on creating a supportive regulatory environment for EV owners to support the spread of electric cars in Hungary. On the 2nd of December, 2015 the Parliament accepted a legal proposition about making parking free in Budapest for full-electric, plug-in and long distance hybrid and zero-emission car owners. These cars can be registered for getting a green license plate, by which parking is free in the city (MTI, 2015; Wodraschke, 2016).

Additionally, electric car owners can charge their vehicles free at public stations. However, according to an article written by Zoltán Suhajda of Origo, free charging will be abolished by the Hungarian government. This legislative direction change is necessary in order to make charging station maintenance related investments profitable for the investors and increase market interest in developing charging infrastructure 28 (Suhajda, 2016). In order to make charging applicable for payments, a general regulatory framework and tariff system needs to be constructed which is expected by the end of 2017 (MRT, 2016).

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28 Additionally, maintaining a charging station is around 50 to 100 thousand forints a year, not to mention the initial investment and the fact that these costs are going to rise for sure as the number of electric cars increases in Hungary. The Hungarian government cannot allow these costs to debit the budget (Suhajda, 2016).
The making of a common regulatory framework in which collaborative businesses can operate fairly and efficiently is on the agenda of the European Commission. In 2016, Codagnone and Martens got to the conclusion that most of the policy concerns are related to the peer-to-peer sharing activities. This is advantageous for GreenGo as they provide only B2C and B2B services and regulations are expectedly target P2P sharing, which platforms can challenge GreenGo on the market. However, as P2P collaborative platforms are not regulated yet, unfair competition from their end is a threat to the operation of B2C CSOs (Codagnone-Martens, 2016).

In summary, free parking and free charging are very beneficial for GreenGo’s operations. They are saving a lot of money due to these regulations. However, the threat that these public goods are expected to be paid services in the future is challenging for GreenGo on the long run. I would say that the legal environment is acceptable for starting a new business regardless of future threats.

**4.1.2.7. Taking advantage of megatrends & identifying weak signals**

The spread of sharing economic activities all over the world is a huge megatrend rising just right before our eyes. Sharing is sustainable. It has positive effects regarding pollution & waste, scarce resource efficiency, and making social bonds. According to a 2016 research, undertook by Lancefield, Hawksworth, and Vaughan of PriceWaterhouseCoopers between 2013 and 2015, the value of sharing related transactions grew by 77% while collaborative platform revenues by 97% (Lancefield-Hawksworth-Vaughan, 2016). Additionally, they forecasted very promising compound annual growth rates for sharing industries in Europe up till 2025. Regarding carsharing, the projected CAGR is 23% (Lancefield-Hawksworth-Vaughan, 2016; Le Jeune, 2016).

For GreenGo and its application based service offering, the fact that the digital revolution is just taking place is very favorable. Access to information technology and online communication is increasing, while the costs of doing so are falling continuously (Le Jeune, 2016).

The worldwide rise of electric car sales can be considered one important trend as well. Even though car-sharing businesses are thriving all over the world, the electric carsharing business model has just reached the pilot stage, and there exist only a few business operators whose fleets are pure electric. Hence, I would not say that electric carsharing is a megatrend, but it provides a weak signal for companies that it will shape the future of car-sharing.
In my opinion, the founders of GreenGo successfully identified these important trends and created a product-service offering that would take advantage of them.

### 4.2.2. Analyzing the business industry – Porter’s Five Forces

>“An industry is a group of firms producing products and services that are essentially the same.” (Johnson et al, 2014, p. 41)

The industry needs to be specified in advance of any analysis made about the micro-environment of the business. GreenGo is operating in the on-demand car-access industry. Services provided in the industry have many substitutes in the market, but in my opinion, their customer needs are different. Consumer wants in this industry are like getting temporary access to a car in order to enjoy its many advantages: do the shopping, dealing with everyday tasks, delivering big amount or heavy items, or just be mobile in the city if needed.

Based on the above, the main competitors for GreenGo are other carsharing operators and car rental companies. However, I would take car rental companies out of the picture, and put them into the substitutes’ box. The reason why is simply because targeting strategies are majorly different. They are not targeting ordinary Budapest citizens who need access to a car to do the shopping but renting cars for tourists and for longer trips or period. Thus the specific industry is rather the Budapest carsharing industry.

#### 4.2.2.1. Competitive rivalry

The carsharing industry in Budapest is oligopolistic. There is only one core competitor to GreenGo, Avalon Car(e)sharing. This is due to both companies are first mover innovators. On the one hand, Avalon was the first company started a carsharing business in Hungary. On the other hand, GreenGo was the first mover in EV sharing. This industry has reached the development stage of the industry life cycle yet. At this stage, it is typical that there are only a few competitors in the market with low level of rivalry present. Usually, product-service offerings are highly differentiated at this early stage of the cycle (Johnson et al, 2014). Market trends and the forecasted global CAGR of 23% (Le Jeune, 2016) adumbrates high level of future growth in the carsharing industry.

#### 4.2.2.2. Threat of entry

Entering the carsharing industry requires high initial investment, which is a quite significant barrier for entering the business. Furthermore, by the time new entrants decide to enter the market, Avalon and GreenGo will certainly have established businesses and deeper knowledge
about the market thanks to experience curve effects. Biggest threat regarding new entrants is in connection with global carsharing giants. Zipcar is a subsidiary of the American giant car rental company Avis Budget Group (Bloomberg L.P., 2017). They are continuously penetrating the European market since 2010. Today, they are present in 4 EU countries (UK, France, Germany and Spain) and in Turkey (Zipcar, 2017). Global expansion was made majorly through acquisitions, which means that the company likely has enough capital to enter into further EU markets (Fehrenbacher, 2012). Big automobile brands like Daimler (Car2Go) or BMW (DriveNow) have launched their own carsharing systems as well. Regarding initial investment needed to enter new markets, Car2Go and DriveNow have high advantages above others, as they can obtain their fleets from their giant parent companies (vertical integration). As of today, Car2Go is present in 5 EU countries in 13 different cities, whereas DriveNow operates in 9 European Union countries’ 13 big cities (DriveNow, 2017; Car2go, 2017). It seems it is just a matter of time until they target Budapest as a potential location to start a new affiliate.

4.2.2.3. Threat of substitution
Contrary to the advantageous core competition, the threat of substitution is quite high in Budapest for CSOs. Different products or services can substitute separate needs satisfied by carsharing. Car rental companies, taxi services, ridesharing and ridesourcing companies are all among those who provide products with similar benefits. Public transportation and shared bicycle mobility can take some customers from share-vehicle providers as well. Additionally, the still increasing level of the proportion of automobile owners in Budapest and the trending electric and hybrid vehicle sales are dangerous for electric carsharing just like vice versa.

4.2.2.4. The power of buyers
There exists a rather low level of buyer concentration in the carsharing industry. Most of the daily customers are individuals, not companies, therefore, they cannot have that much influence on prices and profit levels. However, a stronger position in negotiations can be obtained by consumers due to low switching costs in the market. As mentioned above, there are many services provided in the market by which consumers can substitute carsharing.

4.2.2.5. The power of suppliers
The major suppliers of electric carsharing operators in Budapest are the government who provides the charging infrastructure (at least yet), automobile manufacturers who provide the cars and mobile application mediating companies such as Apple, Google or Microsoft. As consumer targeting needs to be independent of smartphone preferences, application
intermediaries have high bargaining power, as GreenGo needs to make their digital platform accessible through any type of smartphone, regardless of its operating system. Because there is an increasing trend for automobile manufacturers to launch their own carsharing businesses (Ford, Daimler, BMW already have one, Toyota plans to have) the market for buying cars is tending to be restricted to a few providers. Even though there are still many providers left in the market, it seems GreenGo has chosen Volkswagen since their whole fleet consists of only Volkswagen e-Up type cars. This would give Volkswagen quite a significant bargaining power, as switching would mean a huge amount of extra expenses for GreenGo. Until there is no alternative for governmental charging stations the government has a monopoly in the Hungarian EV charging industry. Backward vertical integration could be a solution for this, but a deal with the government should be done before GreenGo can start building own stations as these chargers reasonably can only be built into public areas.

4.2.3. Identifying strengths & weaknesses – The VRIO framework & benchmarking

4.2.3.1. Strategic capability analysis using VRIO
The below table was constructed according to Barney & Hesterly’s VRIO framework conceptualized in their book, Strategic Management, and Competitive Advantage published (Barney-Hesterly, 2012).

<table>
<thead>
<tr>
<th>Resource or competency</th>
<th>valuable?</th>
<th>rare?</th>
<th>inimitable?</th>
<th>supported by the organization?</th>
<th>competitive implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>brand popularity</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Competitive disadvantage</td>
</tr>
<tr>
<td>GPS technology for mapping cars</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>Competitive parity</td>
</tr>
<tr>
<td>Website</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>Competitive parity</td>
</tr>
<tr>
<td>digital platform</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td>Temporary competitive advantage</td>
</tr>
<tr>
<td>environmental paternalism</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td>Temporary competitive advantage</td>
</tr>
<tr>
<td>full-electric carfleet</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td>Temporary competitive advantage</td>
</tr>
<tr>
<td>own charging infrastructure</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Unexploited sustainable competitive advantage</td>
</tr>
<tr>
<td>operating a free-floating model</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Sustained competitive advantage</td>
</tr>
</tbody>
</table>

Based on the above table strengths and weaknesses of GreenGo as an organization can be clearly identified. Their know-how in managing the operations of a free-floating business model is clearly one of their biggest strengths. Additionally, environmental paternalism, the digital
platform provided for smartphone users, and their full-electric car fleet can be identified as strengths as well. However, the last-mentioned strengths are not sustainable in the long-run, and competitive parity may be reached in the future.

Their almost lonely weak point is their brand. Their brand is not popular enough to represent significant value. However, foreseeably this will change in the future as GreenGo is a first mover innovator in an industry which is still far from maturity. Moreover, their innovative product-service has not diffused over the market yet.

### 4.2.3.2. Benchmarking to best performers

There are common characteristics which make global and local best performers in the carsharing industry successful. The reason why Zipcar is so prosperous globally and managed to enter the European marketplace is due to their financial resources and managerial knowledge about entering markets by acquisitions (*horizontal integration*). Available financial capital is one of the most fundamental strengths of best performers as carsharing is a capital-intensive market. CSOs launched by giant car manufacturing companies (DriveNow, Car2Go) are special due to vertical integration. These companies supply themselves with their own vehicles, own servicing and repairing services, own small parts, and other related accessories. The Paris based local EV sharing operator, Autolib’s biggest strength is in connection with vertical integration as well, however, they are supplying themselves with an own charging infrastructure rather than automobile supplies.

### 4.3. GreenGo’s STP Strategy

#### 4.3.1. S&T for segmenting and targeting

GreenGo utilized multiple segmentation bases in order to identify their target segment more specifically. First, geographic segmentation needed to be carried out. GreenGo’s targeted geographic segment is the Budapest citizens. Secondly, it was necessary to segment the market demographically as well. Their demographically segmented target group is men and women belongs to the age group ranges from 20 to 45. Lastly, a behavioral segmentation was inevitable as well, more precisely to segment the market based on benefits consumers seek in given products. The targeted segment belongs to one or more of the below categories and seeks GreenGo’s product-service offering to fulfill their wants accordingly (Kotler-Armstrong, 2012; Michaletzky, 2017a; Michaletzky, 2017b).
Their target customers are those who live in the city, work in the city or need to be mobile in the city; have a job requires to run around the city; have both their homes and work located inside the city; do not want to neither pay for parking, nor hunt for free parking lots; do not want to bother about cleaning, maintaining or servicing a car; want to have access to a car when and where they need; do not have a car but want to enjoy its benefits; or do not utilize their car every day or park it somewhere during the day (Michaletzky, 2017a; Michaletzky, 2017b; Nagy, 2016).

This target group is highly undifferentiated, which means positioning is required on a very large scale, in a market where there are many other businesses competing for more or less the same customers.

**4.3.2. P for positioning**

To specify how GreenGo’s offering differentiates from that of its competitors and substitutes, it needs to be positioned in the marketplace. As already mentioned above, GreenGo provides electric carsharing services to its consumers. They differentiate themselves from others in the market by the word ‘electric’. GreenGo is an environmentally responsible business that supports the doctrine of sustainable development. Based on that they do not aim to be the cost leaders, but try to penetrate the market by implementing differentiation strategy. Additionally, what is unique and innovative in the market is their free-floating carsharing model. There are no other companies in Budapest with a model like that, and contrary to environmental paternalism this provides a more sustained competitive advantage to them. As Bálint Michaletzky said in an interview to Lokál Média, GreenGo differentiates their product-service offering from car rentals on the duration of the rental, as GreenGo cars can be rented for a significantly smaller period of time, therefore they target different customer behavioral segments (Michaletzky, 2017b).

**4.4. The Budapest mobility market through the lens of customers**

*Note: All the respective charts referred to in this section can be found in Appendix D. Furthermore, all proportions presented below are subject to about variations due to standard error in order to reflect reality more precisely.*

**4.4.1. City transportation habits**

85.91% of the population sample answered that they are not staying at one location, but need to be mobile in the city (Chart 5). Meanwhile, 65.45% of the surveyed people use public transportation for mobility, which is proportionately almost the double of those using their own car for traveling (Chart 6). Consequently, it is not a surprise that the most basic disturbing
factors regarding city mobility are parking or public transportation-related (37.73% & 31.36%) (Chart 7). The remaining 30.81% are disturbed by traffic jams or are not annoyed by any of the listed issues. This means that GreenGo’s offering can provide solution for all the problems that are the most annoying according to almost 70% of the repliers.

As I expected, the reasons for the surveyed representatives of the population would use car in the city are quite diverse, even though, the ‘to do the shopping’ answer emerged as favorite (Chart 8). This explains why GreenGo should target such an undifferentiated market segment, as by targeting only some niches would cost them the opportunity of attracting many potential users.

4.4.2. Hungarian people & carsharing

The survey resulted in that out of the 440 people who provided relevant samples for carsharing, 81.82% have already heard about carsharing (Chart 9). However, the proportion of those who have a deeper understanding of what carsharing exactly means is hardly more than half of the population sample. After some details had been provided to the interviewees, 41.36% of the people said they would use carsharing to deal with their tasks if it was affordable for them (Chart 10). The three biggest objections against carsharing were that repliers have an own car, they can deal with everything via public transportation, and parking would still be problematic (Chart 11). Out of those whose excuse was the problematic parking, 64.71% would change for carsharing if parking would be free of charge and there would be fix parking lots for carsharing users (Chart 12). Regarding the most voted features people search for in carsharing are cheap prices, a wide variety of locations where the cars are accessible, and in-advance-reservation options (Chart 13). Based on the data collected, the fact that more than 40% of the people would use carsharing for an affordable price vision a very bright future for CSOs. Furthermore, one of the major issues of those who would not use carsharing is parking. It is clearly advantageous for GreenGo since they can provide resolution.

4.4.3. Hungarian people & GreenGo

In one of my questions, repliers had the freedom to pick one or two types of cars they would prefer to get access to by carsharing if all would be provided at the same price. I was interested about how many of them will choose the full-electric and some other type, only the electric, or

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29 Categorization was made based on the type of the fuel, the car uses (gasoline-driven, diesel-driven, hybrid, or full-electric).
do not prefer electric cars at all. The results showed that 71.36% chose the FEV as one of the two options preferred, and 23.18% preferred only the FEV (Chart 14). The first data is very promising, as Hungarian people are tending toward electric cars, however, as only the 28.63% (Chart 13) picked environmental protection as one of the most important features in carsharing services. Therefore, many votes received by FEVs are likely subject to media influence or fashion.

With regard to GreenGo, only 47.27% of the interviewees have heard about the brand (Chart 15). This is significantly less than the 81.82% (Chart 9) who said they heard about carsharing. This also indicates that their electric carsharing innovation has not diffused the whole market yet. However, as their service is new, innovative, and they entered the market less than a year ago, innovation will diffuse and the tipping point is expected to be reached at some time in the future.

From those who heard about GreenGo, a concerning 41.35% says that they do not want to try it in the future which is not much less than the 48.08% who plans to (Chart 16). Additionally, only 10.58% of them have tried the service already, and only 5.77% of them can be considered as users. All in all, only 2.73% of the population sample can be considered as a user of GreenGo. Unfortunately, usage and awareness rates are showing that the data collected is a subject of replier bias. As mentioned in the methodology part, according to Kumar, one of the biggest disadvantages of the surveys is the possibility of a self-selecting bias. It is simply not realistic to have a population user rate of 2.73% for GreenGo, nor to have a 47.27% awareness rate (not even with standard error). Therefore, I will handle this data very selectively, and do not make relevant conclusions from exact numbers.

As for prices, obviously, consumers consider much lower prices as affordable for GreenGo’s service than the company itself. However, it is worrisome that only 3.18% would consider an hourly rate of 3,000 – 5,000 HUF acceptable, which is approximately the real tariff for renting a GreenGo for one hour (Chart 17). Only 6 out of the 182 answerers, who said they would have

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30 Used it several times, or using it continuously.
31 There are two packages available for buyers. One contains monthly membership fees (990 HUF) and minute based tariffs (65 HUF/min for driving, 15 HUF/min for parking). The other one does not contain membership payments, but the higher minute rates (80 HUF/min for driving, 20 HUF/min for parking (GreenGo Car Europe Ltd., “Prices and fees”, n.d.). Therefore, the most an individual can pay one hour of service is 4,800 HUF (80 HUF x 60 min). With the other package it is 3,900 HUF (65 HUF x 60 min). With parking these can be reduced per hour, but the average needs to be around 3,000 – 5,000 HUF/ 60 min.
used carsharing, claimed that a 3,000 HUF or above hourly rate would be affordable. This is 3.30%.

Both those who have not yet tried GreenGo, and those who have already obtained some experience selected option ‘no free car available near my location’ as their biggest fear/problem with the product-service offering (Charts 18 & 19). The main difference is in the proportions, as 81.82% of the users selected this option as one of the most problematic, contrary to 65.45% of non-users.
5. **ANSWERING QUESTIONS**

**Outline of Conclusion:**
In this section I will go through all three hypotheses and answer all the research questions during this process.

**5.1. **H1: The Hungarian business environment is more dangerous than advantageous for GreenGo to operate in.**

As for the SWOT analysis, I will use a scoring system ranges from 1 to 10, with 1 indicating the lowest score and 10 the highest. I will assign scores to all the macro- and micro-environmental factors which can provide opportunities or threats. High numbers (6-10) will denote opportunities, while low scores (1-4) threats. Score 5 means parity.

**5.1.1. The macro-environment**
- The political environment is much more dangerous than ideal for starting a new business. Hungarian political unpredictability and lack of transparency are serious issues, which cannot be offset by successful EU initiatives until a supranational framework is not in action. [3]

+ The economic environment is clearly advantageous. Economic indicators are showing an increasing trend as of forecasts. No signs indicate an upcoming recession period. [9]

+ The social environment is featured by many opportunities such as increasing disposable income levels or cultural favorability toward sharing. Although, some opportunities are offset by threats of the Hungarian aging population or the generally low level of disposable income compared to the OECD average. [7]

- The technological environment carries many advantages like great internet coverage, increasing number of smartphone users, or global technology diffusion. However, the spread of FEVs and the under-developed status of the charging system is worrisome. [4]

+ The ecological environment cannot be better, European Union initiatives and legally binding targets against climate change are more than ideal for sustainably positioned businesses to launch. [10]
+ The legal environment is optimal in Hungary, yet. However, as the regulatory framework has already started to change, the future might carry a lot of challenges and threats for businesses. [6]

5.1.2. The micro-environment

+ The competition in the business is more than ideal. At such an early stage of the industry life cycle, rivalry is low and differentiation is in the focus. [10]

- As trends show, (regardless of high entry barriers) global giants can enter the business anytime, as many of them have already started excessively penetrating European markets. [4]

- The threat of substitution is quite significant, as the mobility industry in Budapest is very concentrated with many possibilities and low switching costs. [2]

+/‐ Buyers have generally low bargaining power due to lack of unionism and low concentration level. However, consumer orientation is required due to low switching costs. [5]

- Basically, almost all of the suppliers have strong negotiating positions. In many cases, switching is not an option (government or application intermediaries), in others it costs a lot (Volkswagen). [2]

5.1.3. Opportunities vs. Threats

Average score - macro-environment: 6.5 (Figure 8 – Appendix A). The macro-environment provides more opportunities than threats.

Average score - micro-environment: 4.6 (Figure 9 – Appendix A). The micro-environment is a bit more dangerous than it is advantageous. However, we need to take into account first-mover advantages and possible future benefits derived from them. Moreover, there are many question marks regarding upcoming new entrants, whether they will enter or not. These two factors may rebalance threats and opportunities up to at least parity (5.0).

Conclusion: I would reject my initial hypothesis (H1) based on the analysis, as in my opinion, the business environment seems more prosperous for GreenGo than disadvantageous.
5.2. **H2: Regardless of the current state of the business environment the entry decision was established from a strategic point of view.**

Full-electric carsharing models are rather new phenomena even in developed countries, as these models are generating more problematic issues than simple models. This industry is at an extremely early stage of the life cycle model, however identifying *weak signals* can make companies entered the market early (like GreenGo) very successful by taking advantage of *first mover’s experience curve benefits*. Emerging *megatrends* of the sharing economy and the spread of full-electric vehicles (consequently charging infrastructure developments) advocated GreenGo’s decision to enter the business.

The founders of GreenGo perfectly positioned the company in the market. They implemented *differentiation strategy* to obtain a competitive advantage against rivals. Regarding company specific capabilities, their strengths clearly overweigh their weaknesses, not to mention that they succeeded in obtaining sustained competitive advantage in the market by their innovative free-floating operative model of carsharing. Furthermore, by establishing an own charging infrastructure (either on public or on private territories) they can further strengthen their competitive position. It clearly seems they are not on track to ‘*stuck in the middle’*. 

**Conclusion:** I would accept my initial hypothesis (H2), as if the business model chosen by GreenGo works out properly they can overcome all the threats of the business environment by capitalizing on strengths and minimizing weaknesses.

**Q1: Was their decision of starting-up established from a strategic point of view?**

– Based on the above analysis, it seems it was.

5.3. **H3: There is no existing consumer demand that would make it profitable for GreenGo to operate in the short run, but future trends facilitate long-term prosperity of the business.**

At such an early stage of the industry life cycle, where *innovation diffusion* effects are not considerable, demand usually not making any business profitable. This stage is about pilots and differentiating products. Once the basis of differentiation is established, and the pilot successfully carried out, diffusion can start out. Regarding GreenGo, the diffusion has not
reached the *tipping point*, which means demand has not exploded for their product yet. Therefore, future demand in numbers is highly dependent on customers’ willingness to adapt to the new innovation.

Comparing the STP strategy of GreenGo with the findings of my research, the company’s marketing strategy is appropriate for undifferentiated targeting. GreenGo can provide solutions for problems which are identified as most disturbing by more than 70% of the repliers of the survey. GreenGo’s basis of differentiation is highly related to full-electric car offerings and sustainable development. There is a general tendency toward preferring FEVs in Hungary, as 71.36% of the respondents of the survey would prefer using EVs. Environmental protection was not one of the most important issues among the respondents, however, it was quite trendy.

Regarding brand awareness, almost half of the surveyed people have already heard about the brand, which is promising, however, data can be subject to *self-selecting bias*. What is more important, more than half of those people who have heard about it, but have not tried it out yet are planning to test it in the future. Although, the fact that only 3.30% of the whole population sample would consider current pricing affordable is worrisome.

**Conclusion:** I would accept my initial hypothesis (H3), as although there are more promising signs than worrisome regarding current market demand, I would be very much surprised if the company can generate considerable net profits as of today. However, all the economic tendencies and consumer attitudes are pointing toward a much brighter future, as electric carsharing has the potential for high future growth.

**Q2:** Is there an existing consumer demand which would facilitate the sustainability of the business? – *Based on the above analysis, likely there is no.*

**Q3:** How expected future trends of carsharing advocate or prevent the expected success of the business? – *Based on the above analysis, future is very bright as the industry shows signs of high future growth.*

**After roughly one year of operation would GreenGo’s choice of running an electric carsharing business in Budapest is on a track to be profitable in the future?** – *The answer we were looking for all the way down here is YES.*
APPENDICES

Appendix A - Figures

Figure 1 – *Sharing matrix by Codagnone & Martens*

![Sharing matrix by Codagnone & Martens](image)

* Source: Codagnone & Martens, 2016, p. 12

Figure 2 – *PESTEL framework*

![PESTEL framework](image)

* Own adaptation

Figure 3 – *Porter's Five Forces framework*

![Porter's Five Forces framework](image)
Figure 4 – VRIO framework

<table>
<thead>
<tr>
<th>Is a resource or capability:</th>
<th>Valuable?</th>
<th>Rare?</th>
<th>Costly to imitate?</th>
<th>Exploited by organization?</th>
<th>Strength or weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>No</td>
<td>Weakness</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>—</td>
<td>—</td>
<td>No</td>
<td>Strength</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>—</td>
<td>Yes</td>
<td>Strength and distinctive competence</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Strength and sustainable distinctive competence</td>
</tr>
</tbody>
</table>

* Source: Barney & Hesterly, 2012, p. 84
Figure 5 - Porter's generic competitive strategies

Source: Johnson et al, 2014, p. 193

Figure 6 - Diffusion S-curve

Source: Johnson et al, 2014, p. 306
Figure 7 - *STP Strategy*

* Source: Kotler & Armstrong, 2012, p. 191

Figure 8 – *PESTEL scores for GreenGo in Budapest, Hungary*

* Own adaptation
Figure 9 - Porter 5 Forces for GreenGo in Budapest, Hungary

* Own adaptation
Appendix B – The online survey

I have used Google Forms to build up the survey. I would like to say thank you to Alphabet, Inc. and the developer team for the opportunity to do my research using their online site!

Hungarian version (original):

[Image of a Google Form for an online survey about Hungarian energy consumption]
Mi a legmagasabb iskolai végzettséged? *
○ Általános iskola
○ Középiskolás vagyok
○ Középiskola
○ Főiskolás vagy egyetemiista vagyok
○ Főiskola vagy egyetem

Van jogosítványod? *
○ Igen
○ Még nincsen, de a közeljövőben tervezem, hogy megcsinálom.
○ Nincs

Gyakran jársz Budapesten a belvárosban? *
○ Soha
○ Nagyon ritkán
○ Egyszer-kétszer egy hónapban
○ Egyszer-kétszer egy héten
○ Általában minden hétkoznap
○ Majdnem minden nap
A belvárosban általában egy helyen tartózkodsz vagy gyakran kell utaznod több helyre is egy napon belül? *

☐ Általában egy helyen tartózkodom
☐ Általában egy helyen, de alkalmanként el kell mennem ügyeket intézni
☐ Gyakran megyek egyik helyről a másikra
☐ Az egész napom egy rohanás a városban egyik helyről a másikra

Amikor utazol a városban azt milyen közlekedési módon teszed az esetek többségében? *

☐ Saját autóval
☐ Kölcsönzött autóval
☐ Taxi-val
☐ BKV-val
☐ Biciklivel
☐ Egyéb (vonat, távolsági busz, stb.)

Az alábbiak közül melyik sokkott a leginkább zavarni a városi közlekedéssel kapcsolatban? *

☐ Ha autóval megyek alig lehet parkolóhelyet találni
☐ Ha autóval megyek akkor mindig nagyon sokba kerül a parkolás
☐ Kényelmetlen a tömegközlekedés, nagy a tömeg
☐ A tömegközlekedés kiszámíthatatlan, sok a késés és ritkán járnak a járatok
☐ Dugók, dugók, dugók
☐ Egyik sem zavar különösebben
Főleg mikre használsz / használnál autót a belvárosban? (Jelölj meg legfeljebb 4-et.) *

☐ Napközben személyi ügyintézésre (posta, bank, egyéb ügyek)

☐ Elintézni a bevásárlást (nagybevásárlás, bevásárló körutak, plác)

☐ Vonat-, metró-, buszállomások elérésére / Munkahely, iskola, egyéb célpont megközelítésére a vonat-, metró-, buszállomásokról

☐ A belvárosban lakom, így mindennapi közlekedésre

☐ Munkára, mert gyakran megyek ide-oda a városban munka ügyben

☐ A kényelmetlen tömegközlekedés elkerülésére

☐ Arra, hogy ne kelljen a kiszámíthatatlan tömegközlekedéshez igazodni a mindennapokban

☐ Munkára, mert gyakran el kell mennem olyan dolgokért (árú, alkatrészek, stb.), amiket csak autóval lehetséges elszállítani

☐ Nem használnék autót a belvárosban, mert drága a parkolás

☐ Nem használnék autót a belvárosban, mert sehol nem lehet leparkolni

☐ Esős és hideg napokon megfelelő utazási mód lenne a bicikli helyett

Hallottál már az autómegosztásról? *

☐ Igen - és tudom mit takar

☐ Igen - hallottam, de nem tudom pontosan mit takar

☐ Nem

Amennyiben nem, kérlek olvasd el az alábbi néhány mondatot:

Az autómegosztással foglalkozó cégek saját autókat elhelyezik a városban (valamilyen módon kijelölt helyeken), amiket különböző feltételek mellett egy telefonos applikációból kérhet és egy bizonyos folyamat zónán belül használhatja véhet déj fizetés ellenében. Ezeket az autókat általánosságban városi ügyintézésre, rövidéb utakra vagy vásárlásra szokták igénybe venni az emberek. Ezzel olyanok is hozzájuthatnak az autók adta lehetőségekhez, akiknél nincs a családban gépjármű.
Ha ezekkel az autókkal el tudnád intézni napi ügyeidet a városban megfizethető áron igénybe vennéd-e a szolgáltatást? *

- Igen
- Nem - mert saját autóval járok és nem cserélém le
- Nem - mert mindent meg tudok amúgy is tömegközlekedéssel oldani
- Nem - mert biciklivel eléggé mobilis vagyok, ahhoz hogy ne legyen rá szükségem
- Nem - mert taxival is meg tudom ezeket oldani
- Nem - mert nem akarok hozzájárulni a városi szmog és zajszennyezéshez
- Nem - mert a parkolás ugyanolyan problémás lenne (drága vagy nincs hely)

Ha ingyenes lenne a parkolás és fix parkoló helyek lennének biztosítva bizonyos pontokon az előző kérdésre "igen" lenne-e a válaszod? (Ha az előző kérdésre NEM a "Nem - mert a parkolás ugyanolyan problémás lenne" választ adtad kérlek hagyd ki ezt a kérdést.)

- Igen
- Továbbra is nem

Ha egy autómegosztó szolgáltató egyik autóját vennéd igénybe az alábbiak közül melyik tényleg lennének számodra a legfontosabbak? (Jelölj meg legfeljebb 4-et!) *

- Minél jobb áron legyen a szolgáltatás
- Minél jobb minőségű legyen a szolgáltatott autó
- Minél több helyen legyen elérhető autó
- Minél kevésbé legyen káros az autó a környezetre
- Családi autó legyen (min. 5 fő)
- Áruszállításra alkalmas legyen
- Automata váltós legyen
- Le lehessen folyamatos előre az autót
- Lehessen házikedvencet szállítani benne
Az alábbi autótípusok közül melyiket vennéd igénybe, ha ugyanolyan áron lennének elérhetőek az autómegosztó szolgáltatások terén? (Jelölj meg 1-et vagy 2-öt!) *

☐ Benzinés autó
☐ Dízeles autó
☐ Hybrid autó
☐ Elektromos autó

Hallottál már a 'GreenGo'-ról? *

☐ Igen - folyamatos használat vagyok
☐ Igen - sokszor használtam már
☐ Igen - néhányszor kipróbáltam már
☐ Igen - még nem próbáltam, viszont tervezem
☐ Igen - még nem próbáltam, de nem is tervezem
☐ Nem

Amennyiben nem, kérlek olvasd el az alábbi néhány mondatot:
A GreenGo Magyarországon, Budapesten az első automalom autómegosztó vállalkozás. Az autók 100%-ban elektromosak, és csak egy kijelölt 10 órájáig területen belül vehetők igénybe (belvárosban). Mivel autók elektromosak így a parkolási kedvezményes áron történik velük és több olyan kijelölt helyen is meg lehet velük állni, ahol egyébként nem engedélyezett. Egy mobi applikáció keretében lehet 30 perc előre előre autót foglalni, amit egy Budapest térképről lehet kiválasztani, ami mutatja az összes elérhető autót a városban. Foglalás után kap egy pénzkódot a belől, ahová a helyszínen ki tudja nyitni az autót.
☐ Elolvastam!

Óránként milyen díjat tartanál elfogadhatónak LEGFELJEBB egy 'GreenGo' autó 1 órára való bérbévételére? *

☐ 1 000 - 1 500 HUF
☐ 1 500 - 2 000 HUF
☐ 2 000 - 3 000 HUF
☐ 3 000 - 5 000 HUF
☐ 5 000 - 10 000 HUF
☐ 10 000+ HUF
☐ Nem vennék bérbe semennyéért.
English version:
1. Which age group do you represent?

- 0-16
- 17-25
- 26-35
- 36-50
- 51-65
- 65+
2. What is your highest level of education?
- Elementary school
- I am high school
- High school
- I am doing my University/College studies
- University/College degree

3. Do you have a driving license?
- Yes, I have
- Not yet, but hopefully I will make it soon
- No, I don’t have

4. How often do you come into Budapest downtown?
- Never
- Just occasionally
- Once or twice a week
- Once or twice a month
- On every weekday
- Every day

5. Do you stay at one place or touch different locations when you are in the city?
- I usually stay at one place
- Usually, at one place, need to travel to other places occasionally
- I often travel between different locations
- My whole day is a rush, I am always on the road and go from one place to the other

6. Which mode of transportation do you usually use in the city?
- Own car
- Renting a car
- Taxi
- Public transportation
- Bicycle
- Other (train, long-distance bus, etc.)

7. Which disturbs you the most in downtown mobility?
- When I go by car, I can hardly find free parking place
- When I go by car, I always pay a fortune on parking
- Public transportation is uncomfortable, it is crowded and smelly
- Public transportation is unpredictable, buses are usually late and come rarely
- Traffic jams
- None of the above disturbs me

8. For what reasons do or would you use a car in the city? (Please choose at most 4.)
- To deal with personal tasks during the day
- To do the shopping (supermarkets, shopping round-trips, markets, etc.)
- To reach subway, long-distance bus, train stations
- I live in the city, so for everyday transportation
- To work with, as I often need to be mobile in the city
- I wouldn't use a car in the city since it is not able to find free a parking place
- To work with, as I often need to carry heavy things (inventory, small parts, etc.)
- I wouldn't use a car in the city because parking is too expensive
- To avoid uncomfortable public transportation
- It would be a perfect mode for mobility on rainy, cold days instead of bicycle
- To avoid unpredictable public transportation

9. Have you already heard about carsharing?
- Yes & I know what it means
- Yes, but I do not know what it means
- Not yet

10. If you can deal with your daily mobility tasks for an affordable price using carsharing in the city would you use that?
- Yes
- No, because I can deal with them using public transport
- No, because parking would still be problematic
- No, because I have an own car and I would not replace that
- No, because I am mobile enough by bicycle
- No, because I do not want to contribute to city pollution
- No, because I can handle them by taxi
11. If parking would be free of charge and there would be fix parking lots would your
answer be 'Yes'? (Only applicable if you replied by 'No because parking would still be
problematic' for the previous question.)
- Yes
- Still no

12. Which ones of the below listed would be the most important to you in a carsharing
service? (Tick at most 4.)
- Family cars available for rent (min. 5 people)
- Wide variety of locations where the cars can be accessible
- To have automatic transmission cars available for rent
- High quality of the car provided
- Low price for the service
- Suitability of the car for carrying cargo
- Less harmful effects of the cars on the environment
- In advance reservation options
- Pet-friendly cars available

13. Out of the below-listed car types which one would you use if all would be available at
a carsharing operator for the same price? (Choose one or two)
- Gasoline-driven
- Diesel-driven
- Hybrid
- Electric
14. Have you heard about GreenGo already?

- No
- Yes, I have not tried it yet, but I plan to do so
- Yes, I have not tried it yet and do not plan to try
- Yes, I have tried a couple of times
- Yes, I am a user!
- Yes, I have used it many times

15. How much would you consider AT MOST acceptable for renting a GreenGo car for one hour?

- I would not pay for renting a GreenGo
- 1,000 – 1,500 HUF
- 1,500 – 2,000 HUF
- 2,000 – 3,000 HUF
- 3,000 – 5,000 HUF
- 5,000 – 10,000 HUF
- 10,000+ HUF

16. Out of the below listed which ones would be your (or are your) biggest problems regarding using a GreenGo? (Please pick exactly 2.)

- No free car available at near my location
- I cannot go to the external territories of Budapest
- It is an electric car and I am afraid that it will discharge
- Cannot use the application as I am not familiar with smartphones
- Too expensive

17. If GreenGo would fit your needs, which one would you act out of the below listed?

None of them

- I would delay the purchase of our first car
- I would cancel the purchase of our second car
- I would consider selling our second car
- I would consider selling our third car
- I would consider selling all our cars, except for the first one
- I would consider selling our only car
Appendix C – Sample size calculation

I have set the objectives of getting a population sample by the end of the research which is 95% confident and has a standard error of maximum 5%.

I have used the below equation for my calculations on the sample size (Kovács G. I., Exam Booklet, 2015a):

\[
n = \left( \frac{z_{\alpha/2}}{SE} \right)^2 pq
\]

The Finite Population Correction Factor

Use the finite population correction factor when \( n/N > .05 \).

* Retrieved from Gabor Kovács, Ph.D.‘s Exam Booklet, 2015, p.8 - document distributed during the course of Statistics I (293NSTAK146B), spring semester of the 2014/2015 academic year.

The Standard Error (margin of error - \( SE \)) is given with 5%. Its square is 2.5%

\( Z_{\alpha/2} \) can only be determined by using a Standard Normal (Z) Table. 100(1-\( \alpha \)) % is the 95% confidence interval, and added to the equation that a two-tailed test needs to be done here, with \( \alpha/2=2.5\% \) the z score we are searching for is 1.96 (please see the snapshot on this) (Kovács G. I., z,t,x_tables, 2015b).

* Own adaptation based on the table retrieved from Gabor Kovács, Ph.D.’s "z,t,x tables", 2015, p. 1 - document distributed during the course of Statistics I (293NSTAK146B), spring semester of the 2014/2015 academic year.
Unfortunately, the last variable the ‘p’ cannot be determined beforehand (as exact final proportions cannot be estimated in advance). So I decided to go for the highest possible value of p*q as it would result me the highest possible sample size holding everything other constant:

**Calculation:**

\[ q = 1-p \]

\[ p*q = p * (1-p) = p-p^2 \]

\[ f(x) = p-p^2 \rightarrow \text{the first derivative of } f(x), \ f'(x) = 1-2p \]

The curve of \( p-p^2 \) is downward U-shaped, which means that it should have an absolute maximum where \( f'(x) = 0 \).

\[ 1-2p = 0 \]

\[ -2p = -1 \]

\[ p = 0.5 \]

\[ q = 1-p = 1-0.5= 0.5 \]

Based on the calculation above, the value of p*q has on its maximum when \( p = 0.5 \) and \( q = 0.5 \).

Now, using the sample size equation I can determine the value of \( n \), which is 384.16. After rounding up the sample size, as it needs to be a natural number in this case, because we examine people, \( n=385 \).

The only questions remained unanswered is whether the sample should be adjusted using the finite population correction factor or not.

\[ n/N= \frac{385}{6,515,494} = 0.000059 \]

The population is finite if the \( n/N > 0.5 \) (Kovács G. I., Exam Booklet, 2015a). In this case, it is not through, thus we do not need to adjust \( n \) by the correction factor.

A sample of 385 with \( p \) and \( q \) of 50-50% each means that the proportion of the results will only be subject to an at most +/- 5\% standard error (even if the \( p = 0.5 \), where the U-shaped graph has its maximum value) by 95\% confidence level.
Appendix D - Charts

Chart 1 – Age distribution
1. Which age group do you represent?

![Age distribution chart]

Chart 2 – Level of education
2. What is your highest level of education?

![Level of education chart]
Chart 3 – Driving license

3. Do you have a driving license?

Chart 4 – Downtown traveling habits

4. How often do you come into Budapest downtown?
Chart 5 – In-city traveling habits

5. Do you stay at one place or touch different locations when you are in the city?

Do you stay at one place or touch different locations when you are in the city?

- Always rushing from one place to another: 5.45%
- Usually at one place: 14.09%
- Often travel from one place to another: 39.33%
- Usually at one place, but occasionally travel to others: 40.91%

Chart 6 – Mode of city mobility

6. Which mode of transportation do you usually use in the city?

Mode of mobility in the city

- Own car: 32.27%
- Public transportation: 65.45%
- Bicycle: 0.91%
- Other (train, long distance coach, etc.): 0.45%
- Taxi: 0.91%
Chart 7 – Annoying issues in city transportation

7. Which disturbs you the most in downtown mobility?

**The most disturbing issues in city mobility**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the above disturbs me</td>
<td>8.18%</td>
</tr>
<tr>
<td>Traffic jams</td>
<td>22.73%</td>
</tr>
<tr>
<td>Expensive parking</td>
<td>14.09%</td>
</tr>
<tr>
<td>Lack of free parking lots</td>
<td>23.64%</td>
</tr>
<tr>
<td>Uncomfortable public transportation</td>
<td>20.91%</td>
</tr>
<tr>
<td>Unpredictable public transportation</td>
<td>10.45%</td>
</tr>
</tbody>
</table>

Chart 8 – City car usage

8. For what reasons do or would you use a car in the city? (Please choose at most 4.)

**Car usage in the city**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>It would be a perfect mode for mobility on rainy, cold days instead of bicycle</td>
<td>82</td>
</tr>
<tr>
<td>To avoid uncomfortable public transportation</td>
<td>152</td>
</tr>
<tr>
<td>I wouldn’t use a car in the city because parking is too expensive</td>
<td>80</td>
</tr>
<tr>
<td>To work with, as I often need to carry heavy things (inventory, small parts, etc.)</td>
<td>54</td>
</tr>
<tr>
<td>I wouldn’t use a car in the city, since it is not able to find free a parking place</td>
<td>112</td>
</tr>
<tr>
<td>To work with, as I often need to be mobile in the city</td>
<td>104</td>
</tr>
<tr>
<td>I live in the city, so for everyday transportation</td>
<td>20</td>
</tr>
<tr>
<td>To reach subway, long distance bus, train stations</td>
<td>106</td>
</tr>
<tr>
<td>To do the shopping (supermarkets, shopping round-trips, markets, etc.)</td>
<td>236</td>
</tr>
<tr>
<td>To deal with personal tasks during the day</td>
<td>122</td>
</tr>
</tbody>
</table>
Chart 9 – Carsharing?

9. Have you already heard about carsharing?

Have you heard about carsharing?

- Not yet 18.18%
- Yes, but I do not know what it means 27.27%
- Yes & I know what it means 54.55%

Chart 10 – Carsharing for city transportation?

10a. If you can deal with your daily mobility tasks for an affordable price using carsharing in the city would you use that?

Would you use carsharing to deal with your daily tasks if it would be affordable?

- Yes 41.36%
- No 58.64%
Chart 11 – No for carsharing, why?

10b. Why don’t you prefer to use carsharing?

**I don't prefer carsharing:**

- Because I am mobile enough by bicycle: 2.33%
- Because I can deal with them using public transport: 28.66%
- Because parking would still be problematic: 26.36%
- Because I have an own car: 39.53%
- Because I do not want to contribute to city pollution: 1.55%
- Because I can handle them by taxi: 1.55%

Chart 12 – What if there would be free parking and fix places provided?

11. If parking would be free of charge and there would be fix parking lots would your answer be 'Yes'? (Only applicable if you replied by 'No because parking would still be problematic' for the previous question.)

**Would you use carsharing if parking would be free & fix lots are provided?**

- Still no: 35.29%
- Yes: 64.71%
Chart 13 – Important features in carsharing services

12. Which ones of the below listed would be the most important to you in a carsharing service? (Tick at most 4.)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pet friendly cars</td>
<td>50</td>
</tr>
<tr>
<td>In advance reservation options</td>
<td>252</td>
</tr>
<tr>
<td>Less harmful effects of the cars on the environment</td>
<td>126</td>
</tr>
<tr>
<td>Suitability of the car for carrying cargo</td>
<td>48</td>
</tr>
<tr>
<td>Price of the service</td>
<td>364</td>
</tr>
<tr>
<td>Quality of the car provided</td>
<td>192</td>
</tr>
<tr>
<td>Automatic transmission</td>
<td>46</td>
</tr>
<tr>
<td>Wide variety of locations where the cars can be accessible</td>
<td>382</td>
</tr>
<tr>
<td>Family cars (min. 5 person)</td>
<td>18</td>
</tr>
</tbody>
</table>

Chart 14 – Preference for electric cars?

13. Out of the below-listed car types which one would you use if all would be available at a carsharing operator for the same price? (Choose one or two)

Which car type would you prefer in carsharing, if all would cost the same? (Choose one or two)

None of the chosen is the electric car 28.64%
Chose only the electric car 23.18%
One of the chosen is the electric car 48.18%
Chart 15 – GreenGo?

14a. Have you heard about GreenGo already?

**Have you heard about GreenGo?**

- Yes: 47.27%
- No: 52.73%

Chart 16 – Heard and use GreenGo?

14b. The proportion of users out of those who have heard about GreenGo:

**Those who heard about GreenGo**

- I am a user: 1.92%
- I have used it many times: 3.85%
- I have tried a couple of times: 4.81%
- I have not tried it yet, but I plan to do so: 48.08%
- I have not tried it yet and do not plan to try: 41.35%
Chart 17 – Acceptable hourly rate for GreenGo
15. How much would you consider AT MOST acceptable for renting a GreenGo car for one hour?

**Acceptable hourly rate for a GreenGo car**

Chart 18 – General fears regarding GreenGo usage
16a. Out of the below listed which ones would be your (or are your) biggest problems regarding using a GreenGo? (Please pick exactly 2.)

**Generally identified threats & problems regarding GreenGo**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too expensive</td>
<td>206</td>
</tr>
<tr>
<td>Cannot use the application as I am not familiar with smartphones</td>
<td>20</td>
</tr>
<tr>
<td>The car discharge</td>
<td>134</td>
</tr>
<tr>
<td>I cannot go to the external territories of Budapest</td>
<td>232</td>
</tr>
<tr>
<td>No free car available near my location</td>
<td>288</td>
</tr>
</tbody>
</table>
Chart 19 – Users problems with GreenGo’s service

16b. ONLY USERS’ ANSWERS - Out of the below listed which ones would be your (or are your) biggest problems regarding using a GreenGo? (Please pick exactly 2.)

**Consumer's identified problems with GreenGo's service**

- Too expensive: 36.36%
- The car discharge: 18.18%
- I cannot go to the external territories of Budapest: 63.64%
- No free car available near my location: 81.82%

Chart 20 – Access vs. ownership

17. If GreenGo would fit your needs, which one would you act out of the below listed?

**Carsharing effects on car ownership**

- None of them: 57.73%
- Delayed purchase of the first car: 22.73%
- Cancel the purchase of the second car: 9.55%
- Consider selling the second car: 5.91%
- Consider selling all our cars, except for the first one: 1.82%
- Consider selling our only car: 0.45%
- Consider selling our third car: 1.82%
Chart 21 – Real GDP growth in Hungary (experienced past & forecasted future)

Real GDP growth rates for Hungary (2017 onwards forecasted by BMI Research)

* Own adaptation based on the data collected from Eurostat (2017) and BMI Research (2017, p. 8) (Eurostat, 2017b; BMI Research, 2017)

2013 – 2016 real GDP growth rate (%) average calculation:

2.1% + 4.0% + 3.1% + 2.0% = 11.2%

11.2% / 4 (years) = 2.8%
Chart 22 – GDP per capita, USD amounts 2013-2016, Hungary

* Retrieved from the website of The World Bank, Web on 30th of Sept, 2017. data.worldbank.org:

Chart 23 – GDP per capita, HUF forecasted amounts 2017-2026

* Own adaptation based on the data collected from BMI Research, 2017, p. 10
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