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Urban, Port and Transport Economics

How to incentivize shared mobility in the Netherlands?

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Abstract

The aim of this research is to see which kind of strategies there are to incentivize sharing mobility and how well different stakeholders agrees on these strategies. Shared mobility could be a potential solution to address different kind of aspects, such as modal shift, less trips, less need for parking spaces and it has a positive environmental effect if the electric vehicles are incorporated. Former literature shows that in order to incentivize shared mobility, public institution should take responsibility for regulation in favour of shared mobility, planning and management of the infrastructure and intervening by market failure. Furthermore, it is important to focus on the behavioural side, such as providing information and creating awareness and a strong collaboration between different stakeholders is preferred. Last but not least is the advancement of ICT, which brought new concept such as MaaS. To see whether the different stakeholders agreed on these strategies from the literature, interviews were conducted. Based on the interviews, a survey was spread among the experts to achieve a larger scale of respondents and the strength of consensus (sCns) was calculated. During the interview the answers of the respondents were in line with the former literature. The focus from the respondents were mainly on a clear policy, strong collaboration, providing an interoperable mobility service, making the car less attractive and more availability and visibility. Overall on most of the statements there was a medium consensus, which means that there is still room for improvement. On two statements there was a weak consensus, these statements covered whether the government should subsidize and if the variety in different types of vehicles should be improved. This research does not provide an answer on which strategies are the best for implementing the shared mobility, it only gives suggestions of different types of strategies and how well different stakeholders agrees/disagrees on these topics.

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1. Introduction

Sustainable mobility is nowadays a topic that is well discussed among various levels of governance from EU and national to the local policy arena (Isaksson, Antonson & Eriksson, 2017). The transport sector is causing a severe environmental degradation in a wide range of areas, examples of these areas are global warming, acidification, human health as well as social sustainability aspect connected to transport such as equality, accessibility and safety (Hargelius & Alm, 2018). In the Netherlands 21 percent of the CO2 emissions is caused by the sector traffic and transport. Road traffic, which consumes the most fuel, has the biggest share in the emissions of traffic and transport with 78 percent (CBS,2018). Policy measures are developed during the past two or three decades by researchers and policy makers, these measures are guidelines that help the current transport system to transform to a more sustainable direction. Typical strategies comprise reducing the impact of vehicles and improving the efficiency; pushing for more sustainable modes of travel; and implementing initiatives to reduce the need to travel (Isaksson, Antonson & Eriksson, 2017). However, these tasks are getting harder due to the fact that inhabitants are more likely to live in the city than in the suburb (Pwc,w.d). The number of inhabitants in Amsterdam and Utrecht is expected to grow with 20% from 2019 till 2035. For the Hague and Rotterdam, the number of inhabitants is expected to grow with 15% (Cbs, 2019). Urbanization and urban growth are major drivers for socio-economic growth, but they also have a substantial negative environmental impact. Urban transport is a critical factor for both the positive and the negative attributes of urbanization. Thus, cities have to provide transportation for the growing number of inhabitants while avoiding the associated problems and drawbacks (Kovachev et al., 2018).

Shared mobility could be a potential solution to address different aspects. such as modal shift, less trips, less need for parking spaces etc (Machado,Claudia, Soares, et al, 2018). In addition, the sharing mobility could also have a positive environmental effect if the electric vehicles are incorporated, due to their potential to run without emissions. Despite that these positive environmental effects are mostly well known under the consumers; the acceptance of such service is still lacking. However, acceptance is an important pre-condition for making use of an alternative mobility system and it improves the likelihood of a successful adoption process. The most important factor that influences the acceptance of a new service is experience. Furthermore there are also other factors such as individual factors (e.g., education and income) and service-related factors (e.g., type of car of price) (Gunter,Muller-Blumhagen & Krems, 2016).

Different Dutch organisations among which national and local authorities, nature and environment organisations and suppliers signed the Green Deal Autodelen in June 2015. The goal of this deal was to achieve a network of 100.000 shared cars and making the consumers more aware of the possibility of car sharing by collaborating with each other. The goal was not achieved, but there was more awareness for carsharing and the collaboration between different parties started to roll. The sequel to this Green Deal Autodelen was signed on the 4th of October 2018: Greendeal Autodelen II. The ambition was an expected network of 100.000 sharing cars in 2021 with 700.000 users (Zuid-Holland,2017). In 2019 the total amount of sharing cars was 51.149, however there can also be seen that there is a levelling of the growth, which means that more growth is needed in order to achieve the target of the green deal (Crow,2019). With the knowledge of positive environmental effects of the sharing mobility and potentially solving urban transport problems and the lack of growth of this service, this leads to the following research question:

"How can we incentivize sharing mobility in the Netherlands? "

According to former literature public institutions plays an important role in successfully implementing sustainable ways of transport (Hull,2008). Few examples of this is by lowering the risk for service providers (Hull,2008), providing (non)-financial incentives (Seign & Bogenberger, 2013) or influencing the consumer (Geerken & Borup, 2017). Influencing the consumer should not only be the responsibility of the public institutions, but it is something for all the parties. Informing people at certain life changing points in their life might be important in order to attract new customers (George,2017) and also targeting at certain groups who are more likely to use the sharing mobility in the first place might also be a strategy (Seign & Bogenbergher, 2013). Furthermore, technology could also play an important role in the implementation of the sharing mobility, technology can be used to make it easier for the consumer to travel (Goodall et al.,2017)

A great example of this is Shanghai, which has well adapted sharing economy innovations in the automobility, EV and two-wheelers are well-adapted and fundamentally changed business practices, policy making and everyday life in Shanghai. 13 million residents are registered users of the app-based bike sharing business service by June 2017, this covers more than 50% of the population of Shanghai (Zhou,2018). The great success of the adoption in Shanghai is due to several factors for example a high amount of investment by private and public investors in several "sharing economy" concepts, the use of big data and internet of things to increases efficiency of such services. Furthermore, there is a strict car ownership control, which has led to high prices and car ownership has become more a privileged badge of identity. Besides these factors, a strong collaboration between providers and governments is needed in order to make the adoption real successful and sustainable (Ma et al.,2018). Often there can be seen that different stakeholders share the same goal of achieving more sustainable transport, in this case more shared mobility, however they might have a different way of achieving this goal or interpreting this goal (Bostrom et al.,2018). This leads to the sub question:

Sub question: How strong is the consensus between the different stakeholders about the different strategies to incentivize sharing mobility?

This study will provide insights in the view of different stakeholders in the field of (sharing)mobility. The focus is especially on how to successfully implement sharing mobility in the Netherlands. Due to the fact that there are different stakeholders in this field, it is interesting to see whether the vision of these different stakeholders is in the same direction. The following chapter includes a theoretical framework about the need for sharing mobility concept, the different vehicles and ways to implement it. After that, the data & methodology is discussed, which exist out of interviews and a survey. Based on the literature, interviews questions are drawn up and hold. After the interviews, a survey is conducted and spread among experts, this way a larger scale of respondents could be achieved and the sCns was calculated. Consequently, the results will be discussed, and this study is finalized with a discussion and conclusion on the results.

2. Literature framework

2.1 Background information

2.1.1 Urban planning

Urban planning is indispensable, especially when there is a huge amount of people and complicated technology systems involved such as traffic systems (Levy,2016). According to Keeble (1969) the definition of urban planning is: "*The art and the science of ordering the use of land and the character and siting of buildings and communication routes so as to secure the maximum practicable degree of economy, convenience and beauty*" (p.1). Urban planning is a complex system with huge complexity and interconnectedness (Levy,2016). It is a process where the future of the area is mapped out and all the related questions are discussed. Not only buildings are discussed, but also several topics like education, job opportunities and transport are brought into the discussion (Ahmad & Bawja, 2005). This is also were the interconnectedness lies in the urban planning; if urban land is used for building a shopping centre, this will have a different effect on characteristics and traffic of the neighbourhood than if it is used for a villa. There can be seen that a decision about a small amount of urban land, will not only influence that specific part, but also the traffic and everyone in/around the area. The complexity of urban planning lies in the fact that planning is a responsibility of the government, if the community is big, the department of planning might also be big. There may be different specializations, like environmental issues, societal issues or zoning (Levy,2016). The government is responsible to ensure that the construction of buildings and the use to which land and buildings are put conforms to already established policies. Furthermore, it should be ensured that the surroundings are not unnecessarily spilt and that the public services such as water and public transport are not overloaded (Ahmad & Bajwa, 2005). Not only is the government involved in urban planning, there are also a lot of private parties involved (Levy,2016). Urban planning is used to stimulate positive socio-economic changes, for example the sustainability of a city. In order to do this, there should be a public-private partnership. This has made the government an "enterprise state" with the goal to attract investment through place marketing. This shifted the role of the government from conventional regulators to entrepreneurial developers (Lu,2012).

2.1.2 Urbanisation

Only two percent of the world's population lived in cities in 1800, in 2007 more than half of the population was living in cities. Even today the number of people that are moving to big cities is increasing rapidly, in 2030 it is expected that sixty percent of the population will live in urban regions (Pwc,w.d).Urban planning is coping with a lot of challenges nowadays due to the massive population migrations in cities all over the world. The reason behind the migrations to cities is due to the agglomeration effect in cities. An increase in population leads to increase in economic power, creative output and localized peaks of human activities (Dunn,2019). The massive population migrations can also be seen in the Netherlands, where the number of inhabitants in Amsterdam and Utrecht is expected to grow with 20% from 2019 till 2035. For the Hague and Rotterdam, the number of inhabitants is expected to grow with 15% (Cbs, 2019).

2.1.3 Demand for a sustainable mobility system.

This large concentration of human activity within a city, comes with a challenge for the urban planners to implement effective urban liveability and mobility strategies (Dunn,2019). The growth of cities comes with congestion, which is a problem that affects everyone (Guzman et al.,2020). Urban planning is needed in order to reach better quality of life and productivity. A society should be created where the design of a local neighbourhood should be around the

people and not the cars (Dunn,2019). Therefore, transport is an important part of the urban planning, it has a major impact for the locations of cities, their size and their structure. Furthermore, there are a lot of factors influencing the demand for transport such as political, economic, environmental etc (Hull,2008). A lot of different public and private organizations are trying to implement sustainable mobility habits (Guzman et al.,2020). However, the complexity of the urban mobility systems lies in the fact that there are several agents (individuals and institutions) who are optimizing their own objectives. In such a mobility system there is the main infrastructure, which are the physical aspects such as rails, roads, pedestrian areas, parking spaces etc. The main services are the motorized transport services, examples of these are services related with vehicles or training and education for self-services modes such as the sharing mobility. And last but not least there are the main agents, which are the authorities, users of the different transport modes or the operators. If one of these agents is making a decision, the overall environment of the mobility will be influenced (Macario,2011). The complexity of these urban mobility systems shows that transition to a more sustainable way of transport is quite hard to reach.

In the past decade, car ownership has increased. In Europe the passenger car fleet grew by 5,7 % from 2012 – 2017 (ACEA, 2018). The historical and social cultural perspective is defining the current car culture and driving behaviour (Diekstra,2016). However, having a car is quite inefficient, due to the fact that an average car is parked 90 to 95 % of the day and only 1,5 out of 5 seats are occupied. In addition, if the land use of a car is compared to public transport, this will be 10 times bigger per person (Janasz,2018). Not only are they inefficient, cars are also not available for everyone (for example, people with a low income). Due to the inefficiency and exclusion of the car and the growing population in cities, there is an increasing demand for a more sustainable mobility system. Future cities must increase shared and mobility services in order to cope with the scarce resources such as space and energy (Dunn,2019). In China this trend can already be seen, where car owners are changing their attitude towards the car as a status symbol. Especially the younger and techy generation is making more use of the sharing mobility and might be seen as trendy nowadays (Zuev,2018).

2.1.4 Sharing economy/mobility

In the past few years the attitude towards consumption have shifted. More people are aware about the societal, ecological and developmental impact of their consumption. The “sharing economy” addresses the concerns about climate changes and the desire for social embeddedness by localness and communal consumption (Hamari et al., 2016). Especially for cities who are facing challenges such as population growth and increasing density, the concept sharing economy is quite interesting (Cohen & Kietzman, 2014). Sharing mobility is a subset of the larger sharing economy (Cohen et al.,2020). Shared mobility is dealing with scarce resources such as space and energy and a growing density of population (Dunn,2019). To define the sharing economy, two definitions are combined. According to Frenken (2019) the definition of the sharing economy is: *“consumers granting each other temporary access to under-utilized physical assets, possibly for money”*. To complete this definition another part is added, because according to Hamari (2016) the sharing economy is: *“a peer-to-peer activity of obtaining, giving, or sharing the access to goods and services, coordinated through community-based online services”*. People are feeling less urge to have an ownership, instead they rather have access to goods and prefer to pay for the experience of temporarily accessing them (Bardhi,2012). A great example of this is the platform Airbnb, the renter owns the house, but can rent it to another person when he is on vacation for example. The moment that the owner is on vacation, the house is under-utilized (Frenken,2019). The trend sharing mobility exist due

to the fact that products are bought, for example a car, but they are not used 24/7, which makes them under-utilized. Sharing these products would be more beneficial and in the last few years this phenomenon has been growing. This growth is not due to the fact that the society has suddenly embraced sharing for ethical reasons, but mostly due to the improvements of technology which has made sharing easier (Sundararajan,2016).

2.2 Different kind of sharing mobilities

The popularity of sharing mobility has been increasing in the past few years. Sharing mobility can take various forms, depending on the actual demand in the urbanized areas (Turon & Sieprinski,2018). An attractive urban mobility system for in the future would be one that offers a wide range of transport mobilities, such as high-quality public transport, an attractive bike-environment and a range of automobile options such as carsharing (Ruhrort et al., 2014). An example of this is that the smart bike sharing systems serves as a complement to the existing public transport system, to connect the existing point of public transport to the desired destination (Midgley,2009). Also referred to as the "last mile" (Shaheen et al.,2010). Furthermore, the car-sharing should also be part of a wider transportation package, such as transit, walking and cycling. It cannot compensate for auto-oriented land use policies on its own, it is more a complement to other alternatives to the private automobile (Millard-ball,2005). This shows the importance of taking sharing mobility as a whole package, instead of individual transport modes. In this research the focus will be on the Dutch market, which means that the following concepts will be discussed; bike sharing, carsharing and scooter sharing. In table 1 an overview can be seen of the sharing mobility in the Netherlands.

Table 1: Overview sharing mobility in the Netherlands with some examples of suppliers

Car Sharing	**Bike Sharing**	**Scooter sharing**
Classic car sharing *(Mywheels,Greenwheels)*	Pick & drop at the same station *(NS bike)*	Free floating *(GoSharing, Felyx)*
Free floating *(Car2Go, Amber)*	Multiple docking stations *(Donkeyrepublic, Urbee)*	
Peer 2 peer *(Snappcar)*	Free floating (only in dedicated parking spaces) *(Mobike, Flickbike)*	

**Updated on 14-8-2020*

2.2.1 Bike sharing

Bike sharing is not a new concept of this era. There are already three generations of bike-sharing systems. The first generation started in Amsterdam in the year 1965, this wasn't a huge success as most of the bikes were thrown into the canals or the bikes were stolen (DeMaio, 2009). In 1933 the second generation of bike sharing systems was launched in Denmark. Compared to the first generation there were improvement such as docking stations and better bikes, payment was done through coins, however there was still a lot of theft due to the anonymity of the users (Shaheen & Guzman,2011). The third generation was launched in 1996, this generation was made smarter through technological improvements such as electronically-locking racks or bike locks, mobile phone access etc (DeMaio,2009). In addition, personal information should be provided before using the bike sharing system, such as their credit card, which discourage vandalism and theft (Midgley,2009). More than 400 cities worldwide are having a third-generation bike sharing system (Faghih-Imani et al., 2017). The principle of bike-sharing is

simple. Individuals can rent the bike when they need it, without the costs and responsibility that a bike owner is facing. The bike sharing rent period is short and reservations, pickup and drop-off are self-service. Due to the short-term use, the system is flexible and allows users to access public bicycles at unattended bike stations (Shaheen et al.,2010). There are three different ways of bringing the bike back. The first option is to bring the bike back to the same location as where it was picked up, the second option is where there are multiple docking stations and the bike can be returned to multiple places, the last option is free floating where the bike can be dumped everywhere. The last options brings a lot of flexibility, but it also causes nuisance due to the fact that the bikes are parked everywhere (RWS,n.d). In the Netherlands the last option is not possible anymore, the users are restricted to a certain area where they have to park the car.The systems operate with smart technologies to keep the users up to date with the reShaal-time bike availability. According to the research of Zhang and Zhifu (2018). the bike sharing system in Shanghai has contributed to a saving of 8358 tonnes of petrol, 25,240 tonnes of CO2 emission and 65 tonnes of NOx emission. Other potential benefits that arise from bike-sharing are greater environmental awareness, increased health benefits, reduced traffic congestion and fuel use, cost savings from modal shift, reduced traffic congestion and fuel use, an increase in the use of public transit and alternative modes due to the last mile solution (Shaheen et al.,2010). In addition, bike sharing system seems to have a positive effect on bike usage in cities with pre-existing low cycling use, it is raising the bike mode share with 1-1,5 percent (DeMaio, 2009). Due to the fact that bike-sharing is an on-demand service with a decentralized structure, it is also facing several challenges such as unequal distribution of the bikes (due to the uncontrolled and uneven demand). This results in empty bike stations or the opposite, that it is too full to even dump your bike at the station. Bike redistribution is needed in these cases and this could be done by truck drivers who are moving bikes around the city (Yang et al.,2016). Some cities are also facing challenges such as topography and climate, which makes the implementation of such a bike-sharing program complicated. In these cases, electric bike scheme's might be a solution, which is already used in Stuttgard, a hilly city (Midgley, 2009). Currently in the Netherlands, the most popular bike share is the OV fiets. In 2018 there are 300 locations with OV bikes with more than 750000 subscribers. With the OV bike the bike needs to be returned at the place where it is picked up, this makes the bike less flexible than the other bike sharing systems. Other popular suppliers in the Netherland are Urbee, Mobike, Flickbike, Hopperpoint and Donkeyrepublic (Jansen, 2019)

2.2.2 Car sharing

The private automobile, which has a lot of benefits such as convenience and reliability, also has a lot of negative effect. In the united states automobile usage is a major source of air and noise pollution, it contributes for 70% of the carbon monoxide, 45% of the nitrogen oxides and 33% of hydrocarbon emission. In addition, 67% of the petroleum is consumed by the transport sector (Katzev,2003). Car sharing provides a flexible alternative for the private automobile, due to the fact that it also provides the benefit such as convenience, which can't be always offered by public transport (Shaheen et al.,2007). Car sharing addresses challenges such as pollution, congestion and it decreases the average vehicle kilometres travelled (Boyaci et al.,2015). Car sharers are riding 15-20% less than car owners and one shared car replaces 9-13 cars (Autodelen,2016). According to Baptista (2015) it also decreases vehicle ownership. In addition, it also brings a societal benefit due to the fact that it doesn't exclude the economically disadvantaged group (Boyaci et al., 2015). Furthermore, electric cars are often used as a sharing transport mode, this leads to even a bigger step towards a low-carbon urban transport system and a good way to introduce the electric vehicles (Ruhrort et al., 2014). In Beijing for example electic vehicle car sharing is actively promoted by the governance and is becoming trendy by

the younger generation (Zuev,2018). Car-sharing is a service that provides individuals access to vehicles on an hourly basis. Individuals should become a member and if they're member, a car that is nearby can be reserved online or by the phone (Millard-ball, 2005). There are several ways of sharing a car. First there is the classic car sharing, where the suppliers own a fleet of cars and where the cars often have a fixed parking spot/area, sometimes the car should be brought back to the place of issuance. Compared to the other car sharing systems, the renting period is relatively longer for the classic car sharing. Another way of car sharing is the one-way, also referred to as "free-floating", which means that the car can be picked up at some point and handed in at destination (Crow, n.d). At this way there is a lot of flexibility, however similar to the free-floating bike system, they are facing the challenge of an imbalance of demand for vehicles, both at the origin of the trip and at the destination (Boyaci et al.,2015). There is also the peer-2-peer carsharing, where individuals can rent out their own car via an online platform which brings demand and supply together. This results in a great diversity of cars that is offered; however, these cars should also be brought back to the point of issuance (Crow, n.d). In the Netherland there are quite a lot of suppliers of the car-sharing service, the most popular ones are Greenwheels, Connectcar, Mywheels, Car2go and Amber for the one-way or two-way and there is Snappcar for the peer2peer service (Deelauto,n.d). In the beginning of 2019, the Netherlands has over the 51.000 sharing cars and around de 515.000 subscribers to a car sharing platform (CROW,2019).

2.2.3 Scooter sharing

Scooter sharing is one of the youngest systems of sharing mobility. In September 2015 there were only two scooter sharing systems in Europe, which were Motit in Barcelona and Enjoy in Milan. Also, in the U.S there were only two scooter sharing systems, Scootaway in Columbia and South Carolina and Scoot Networks in San Fransico and California (Chan, 2016). In 2018 Europe was leading the scooter sharing market, more than 60 cities had scooter sharing schemes and more than 20.000 scooters were available for this service (Psmarketresearch,2019) . The principle of scooter sharing is simple and is similar to the bike sharing system, it allows individuals to have access to a fleet of scooters at various locations when they subscribe to the organization. The scooter service typically provides electric charge/gasoline (Cohen,2019). Most of the scooter sharing systems are used for an one-way trip. The scooters are now only used for urban areas, because due to the lower speed they need to stay at city streets and can't be used for the highways. Similar to the bike it can be used for the first- and last-mile connections to public transit. It could increase transit ridership, because scooters require less parking space at public transit stations than cars (Chan,2016). There are several benefits of the scooters, compared to the bikes they have faster transit times and are experienced as more convenient and compared to the motor vehicles they are more environmentally friendly (most of the time electric scooters are used for scooter sharing) (Sikka et al., 2019). In June 2020 there are three suppliers of scooters in the Netherlands, which are the Felyx, Go Sharing and Check.

2.3 Implementing sharing mobility

At the end of 2017 there were 23,8 million subscribers to a car-sharing system and at the end of 2018 there were 1608 bike-sharing systems and 18,2 million bicycles available worldwide. In the United States the sharing systems are quite popular, for example a shared bike is used for 36,5 million trips and 38,5 million trips were made on a shared scooter (Torun & Sierpinski,2019). Based on these statistics, there can be seen that the sharing mobility is valued by the society. However, there are still various barriers for the implementation of the sharing mobility. For example, there is an attitude-behaviour gap, whereby people are aware of the positive effects but do not translate it into a personal action and there is also a lack of experience in the business models of the suppliers (Meng et al.,2018). In the Netherlands the goal is to have 100.000 shared cars at the end of 2021 and a population of 700.000 users (CROW,2019). However, in order to achieve this goal, what is necessary to incentivize the sharing mobility?

2.3.1 Public institutions

A character of mobility infrastructure is that it is a public good, which can used by everyone and it is paid via taxes or a ticket. Mobility solutions are provided to consumers by public institutions most of the times, but the services and products are delivered by private enterprises (Geerken & Borup, 2017). Therefore, public institutions play an important role in the implementation of sharing mobility. They are necessary for achieving optimal usage of the new sustainable mobility through reduction of service duplication and through coordination of the planning and management of infrastructure investment (Hull,2008). From a financial perspective transport should be cost-effective and continuously responsive to the changing demand (Gwilliam & Shalizi, 1996). In addition, the uncertainty for service providers should be reduced by shouldering the main risk and costs of major infrastructure provision (Hull,2008). Furthermore, public institution should regulate in favour of the adoption of sharing mobility, private car ownership should be disincentivised and electric vehicles should receive either non-

financial incentives (such as preferred parking or bus lane usage) or financial incentives such as free charges or tax incentives (Seign & Bogenberger,2013). In case of market failure, public institutions should also intervene by providing the service to groups who are poorly served due to their social group or geographic location (Hull,2008). Public institutions could also help to reduce the needs and wants of the consumers, hereby a lot of different parts of the society should be touched, for example labour regimes and leisure regimes. It touches many other non-mobility areas, which request good cooperation (Geerken & Borup, 2017). However, it is a challenge to develop a coordinated approach by several institutions. Especially in urban areas an integrated policy is needed, in order to be effective a range of interventions needs to be coordinated as part of a comprehensive strategy for integrating transport into land use and development programs (Gwilliam & Shalizi,1996). Not only are public institutions important, the cooperation between the public institutions and private sector is also of great importance (Ma et al., 2018). Often transforming towards a more sustainable society is seen as a conflict-free process, whereas different stakeholders have the goal. However, in practise there are often disagreements between different stakeholders on how to achieve this sustainable goal (Bostrom et al.,2018). Evidence from Shanghai shows that a dynamic business ecosystem composed of different stakeholders, including the government, competitors, industrial players, industrial associations and customers, is needed for a successful adoption of the sharing mobility. All these stakeholders will ease their commercialization process before the industry evolves (Ma et al., 2018).

In the Netherlands such a cooperation can be found in the Green Deal Autodelen. In this Green Deal Autodelen there are 42 different kind of organizations who are busy with car sharing and are working together towards 100.000 shared cars and 700000 users by the end of October 2021 (Greendeal, n.d). They've also set up recommendations for the national government in order to successfully implement the sharing mobility. The main recommendations are making carsharing an integral part of the long term mobility policy, provide a framework with concrete handles for decentralized authorities (a distinction can be made for urban and rural municipalities), creating campagna's for making carsharing more popular (in collaboration with municipalities, suppliers etc), increase business car sharing by providing other fiscal rules to make it more attractive and use carsharing as a transition to electric driving (autodelen,2016).

2.3.2 Behavioural aspects

There are several personal factors that could influence the choice for a transport mode, first there are the external factors such as sociodemographic and income (Busch-Geertsema & Lanzedorf,2015). According to previous research several sociodemographic variables such as highly educated, male and living in the city centre significantly increase the probability of car sharing usage (Ferrero et al, 2018). Another research also stated that sharing service were more often used by younger people, well educated, higher income, employed and living in higher density neighbourhoods (Dias et al.,2017). The younger generation are living in urban areas, having less children and are consuming less than previous generations at the same age, the decline of private car use by millennials is likely influenced by the economic situation, which raises the question if their preferences will be permanent or it is just a delay of car purchase (Cohen,2019). A strategy is to focus on this specific market and by satisfying this adopter-group through specific marketing. This strategy might be necessary for the implementation due to the fact that a broad market scope and cost-leadership are not achievable. This might help reach a critical mass of adopters from which point further adoption is self-sustaining (Seign & Bogenberger,2013).

There are also the internal or attitudinal factors such as attitudes, norms, needs or preference which influences the choice of transport mode (Busch-Geertsema & Lanzedorf, 2015). According to research (Meng et al., 2018), there is a gap between the attitude and the actual behaviour. Attitude can be seen as a person his belief, feelings or behavioural tendencies towards a social object, group, event or symbol (Busch-Geertsema & Lanzendorf, 2015). However, to actually change travel behaviour individuals needs to be aware of their current and past behaviour, as well as about the existence of possible past and future alternatives (Weiser et al., 2016). Most of the time people start to evaluate this at the time of a life changing event such as a child or moving to another city (George,2017).Before the life changing event travel behaviour is mainly guided by routines, after the life changing event the mobility conditions changes and habits may not work anymore due to change of opportunities and abilities. When these habits and routines are weakened, deliberate decision making comes to the front (Busch-Geertsema & Lanzendorf, 2015). Therefore, providing information and creating awareness about the sharing mobility during these life changing events is of great importance. Especially for the younger generation, who is probably more likely to share vehicles because their attitude towards the automobile is different than their older generations (Ferrero et al.,2018). "*The possession of a car tends to be replaced by the idea of connecting to the social network*" (L'Hostis et al., 2019). However, owning a vehicle still holds sway for many people, but marketeers could build on the symbolic value of sharing a vehicle (Cohen,2019). Environmental awareness seems to have less impact on the adoption of carsharing, customers are seeing it as a side benefit but not the primary motive (Seign & Bogenberger, 2013). Cost and convenience were more important for the usage of sharing instead of the environmental benefits (George, 2017). Making consumers more aware of the cost of owning a private car could be a strategy to change their transport mode. People tend to underestimate the cost of owning a car, due to the fact that costs like maintenance, parking cost and depreciation are often forgotten (Cohen, 2019).

2.3.3 Technology

As already mentioned in order to change behaviour, individuals need to be aware of their past and current behaviour and about the past and future alternatives of transport modes. Technology such as mobile phones could play an important role in this process, they could directly support decision making on the spot (Weiser et al.,2016). In the past few years the amount of transport services has increased such as carsharing, scooter sharing etc (Li & Voege, 2017). The advancement in technology and information and communication technologies (ICT) has also increased in the past few years, these two trends brings a new concept to life which is called the Mobility as a Service (MaaS) (Jittrapirom et al.,2017). The goal of this concept is to make travelling easier for users which hopefully leads to consideration of giving up personal vehicles for city commuting. Not with the idea that they are forced to, but because the alternative is more appealing (Goodall et al., 2017). The demand for multimodal transportation could increase due to the linking of new transportation business models and incentives (convenience and cost savings) with advanced technologies such as mobile phones (Wagner & Shaheen, 1998). ICT can be seen as the main component for the MaaS systems. They are collecting, transmitting, processing and presenting the information to determine the best transport solutions for user's needs (Jittrapirom et al.,2017). There are some basic conditions in order to develop and operate MaaS, such as a wide range of availability of different transport modes, operators who are willing to share their data and allowing a third party to sell their service (Li & Voege, 2017). Currently the MaaS is at an early stage in its development, with much innovation and

experimentation (Goodall et al.,2017). There are still a lot of challenges with this concept, according to researches decreasing car ownership is most of the time due to changes of lifestyle, increasing concerns about health and sustainability and improved services and facilities of sustainable transport modes, those who do not have a private car already uses the sharing car and bike etc and are most of the time familiar with the various options and costs (Li & Voege, 2017). MaaS could have great potential to attract more users for the sharing mobility due to the convenience of multimodality, however it is still too early to say something about it.

2.4 Conclusion

Urban planning is a complex system with huge complexity and interconnectedness, it is used to stimulate positive socio-economic changes such as sustainability of a city. In the last decade a trend can be seen where people are moving toward the city and this will only increase in the future. This brings a lot of challenges for the urban planning and there is a greater demand for a sustainable mobility system. A great sustainable urban mobility system should include a wide range of mobility options such as public transport, attractive bike-environment and a range of automobile options such as carsharing. Bike sharing and scooter sharing could be used for the last mile of the public transport. Whereas, the bike and carsharing have been existing for a while, the usage of it is still not enormous. In order to incentivize sharing mobility there are some aspects which should be improved:

- Public institutions
    - Regulation in favour of the adoption of sharing mobility
    - Planning and management of the infrastructure
    - Intervening by market failure
- Behavioural aspects
    - Focus on a specific market
    - Providing information and creating awareness, especially during life changing events
- Technology
    - The advancement of ICT and mobile phones could be use as an advantage of the sharing mobility
    - Mobility as a service (MaaS)
- Collaboration between different parties

These themes: public institutions, behavioural aspects, technology and collaboration will be used for the empirical part of this research.

3. Data & Methodology

The aim of this research is to discuss various strategies in order to incentivize sharing mobility in the Netherlands and if these strategies are in line between the different parties ranging from the government till the suppliers. Therefore, the research questions have been investigated by using a qualitative and quantitative methodology and analysis.

3.1 Qualitative analysis

3.1.1Philosophy behind the methodology

There is chosen for the qualitative research in order to understand the phenomena that are not well defined, especially in a complex area of shareholders (Patton, 2005). In addition, qualitative research is useful in order to unbundle variations in the behaviour of various people across different organizational and industry context (Birkinshaw et al, 2011). It can be used in order to understand the viewpoint/perspective of the different organizations on a successful implementation of sharing mobility (Fletcher et al, 2016).

In order to get a deeper understanding of the strategies related to sharing mobility, semi-structured interviews were conducted with different parties; (a) people working for the (national) government, (b) (sharing)mobility providers and (c) consultancy firms. There were two goals by obtaining these semi-structured interviews, namely (a) obtaining information about the market and the various strategies for a successful implementation of sharing mobility in the Netherlands, where possible confirming insights and information collected in the literature framework and (b) obtaining information about the difference between the various parties and the cooperation between them. In order to obtain these information, descriptive and divergent semi-structured interviews are used. This type of interview is to contrast perspectives of different groups of knowers, whereby the interviewees functioned as informants (McIntosh & Morse, 2015). Furthermore, by interviewing different groups, it was possible to obtain multiple sources of evidence, which increases the power of the evidence of the research by using so-called triangulation (Flick,2004)

3.1.2 Data collection

As mentioned earlier, for this research semi-structure interviews are used. According to Marruster (2013) these interviews provides great understanding of the respondent's environment, including their experiences and perspective which adds in-depth data to this research.

For this research three different groups have been interviewed which can be found in table 2: (a) policy makers, (b) consultants and (c) (sharing)mobility providers. Behind that the number of interviews is noted and a short explanation why these groups are included in this research.

Table 2 : Interviewees

Role of the interviewee	**# interviews**	**Why is this group chosen?**
Policy makers	4	Understanding the policy around (sharing)mobility and the future visions

Consultants	4	Have an overview on the field and advice the policymakers
(Sharing)mobility providers	6	Understanding the supply side of the (sharing)mobility and their future vision

The participants fort his study were actively approached via LinkedIn. They are chosen based on their previous/current experience in the field (sharing)mobility. In the first contact, the research was briefly explained, and they were asked if they would be interested in participating in an interview. If they would agree to an interview, meetings were arranged with the person. All the meetings were held virtually due to COVID-19. During the interviews, there were some interesting recommendations of persons that could contribute to my research, in total two persons were approached via this way.

There were 14 semi-structured interviews. All the interviews were conducted via phone, Microsoft teams or Google meet. The interviewees all agreed to the recordings. At the beginning there was a short introduction of the researcher and the research and the interviewee was asked to give a short introduction of themselves and the company or institution they work for. After the introduction the questions were asked, however the questions, which can be found in the appendix A, were just a guideline for the interview. The interview is based on the literature where the following four themes came forward: public institutions, behavioural aspects, technology and collaboration. The questions were open, in order to let the interviewee speaks in free manner. All the interviews were hold in Dutch, because all the interviewee are native Dutch speakers. The interviews were recorded and transcribed in an anonymous way after the interviews were conducted. Due to the fact that the interviews are conducted in Dutch, this might cause unintended personal interpretations.

3.2 Quantitative analysis

3.2.1 The survey

The relevant literature and the preliminary interviews with all the different parties were used in order to develop a survey. Based on the previous literature and the interviews, several subjects were chosen where there were some disagreements about the strategy. Eleven statements were created, where each statement was scored on a five-point Likert-scale ranging from “strongly agree” to “strongly disagree”. The survey is distributed among experts in the field of (sharing)mobility (Appendix B).

The first four statements cover policy making. The first statement covers whether the value added tax (VAT) should be lowered from 21 percent to 9 percent, just like public transport. The second statement investigates whether the government should be subsiding more as regards to (sharing)mobility. The third statement investigates whether the policy of the government should be more efficient, so that the requests of suppliers could be processed faster, and they can start implementing the sharing mobility more quickly. The fourth statement investigates whether the cooperation between different parties could be better as regards to (sharing)mobility.

Statement 5 till 8 covers the supply side. The fifth statement investigates whether there should be a higher number of vehicles as regards to sharing mobility. The sixth statement investigates

whether if there should be more diversity in vehicles as regards to sharing mobility. The seventh statement investigates whether an application programming interface (API) link (in order to exchange data between different suppliers/parties) is necessary to bring sharing mobility to a higher level. The eighth statement investigates whether a platform like MaaS, where a customer can find all the suppliers in one application, is a condition in order to successfully implement the sharing mobility.

Statement 9 till 11 covers the consumer side. The ninth statement investigates if anticipating on life changing events such as moving or a new job, is the strategy to make consumers more aware of sharing mobility. The tenth statement is whether the responsibility is for the employer to encourage their employees to use sharing mobility. The last statement investigates whether the consumer should be more aware of the costs of car ownership, in order to grow the usage of sharing mobility.

Finally, respondents were asked in which branch they were working. This gives a clear distinction between the different stakeholders among experts in the (sharing)mobility world.

The following roles were differentiated:
- Local government
- National government
- (sharing)mobility providers
- Consultancy
- Knowledge institute

If the respondent answers with local government, they get the additional question in which province they are working.

The survey is shared via LinkedIn and actively approached if they could fill in the survey. Furthermore, the interviewees were contacted if they could fill in the survey and share it with their colleagues.

3.2.2 Analysing the data

Based on these statements, the strength of consensus and the direction of the consensus can be determined. Consensus is a function of shared team feeling towards an issue, this issue is captured through an ordinal scale, specifically the Likert scale, which measures the extent to which a person agrees or disagrees with the statement (Tastle et al,2005).

To analyse the data, the first step is preparing the data in STATA. After the preparation, a frequency analysis in STATA was conducted, in order to evaluate the total number of respondents per statement and Likert scale item. After that a cross-tabulation analysis is conducted in STATA in order to investigate the difference in answers per group. In order to interpret the ordinal scales, the strength of consensus (sCns) is calculated. The sCns was calculated for the total of all respondents as well as differentiated by role.

The strength of consensus measure (sCns) is defined as:

$$sCns\ (X) = 1 + \sum_{i=1}^{n} p_i log_2 \left(1 - \frac{|X_i - \mu_x|}{2d_x}\right)$$

In this formula X is any finite discrete random variable with probability distribution p(x). $\mu_x$is the mean either forced to 1 (strongly disagree) or 5 (strongly agree) and d_x the range of scale ($(X_{max} - X_{\min})$

The interpretation of the sCns is based on previous research, however for this research a medium consensus is added, in order to make a better distinction between the different results (Buffat,2010):

- A sCns from 0.5 to 0.69 means no consensus ✓
- A sCns from 0.7 to 0.79 indicates a weak consensus ✓
- A sCns from 0.8 to 0.89 indicates a medium consensus ✓
- A sCns from 0.9 to 1 indicates a strong consensus ✓

Table 3: *Example sCns*

Strongly disagree	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly agree**	**sCns**
0	0	0	0	20	1
0	0	0	10	10	0.90
0	0	5	15	0	0.75
4	0	8	8	0	0.55

*Tested against mean strongly agree

4. Results

4.1 Interviews

In this part of the thesis, the results of the analysis of the semi-structured interviews are discussed. The main objective of this thesis is to understand what kind of strategies there are to implement the sharing mobility in the Netherlands. These strategies are discussed from different perspectives, from the supplier till the national government. First the current situation in the Netherland is explained in the field of sharing mobility, followed by discussing different strategies on how to successfully implement the sharing mobility. Furthermore, the role of the government is discussed and finally the collaboration between different parties.

4.1.1 Current situation:

Overall the interviewees agreed that sharing mobility has just passed the beginning in the Netherland. Shared mobility has been in the Netherlands for quite a while and since then there have been a lot of improvement in systems and technology.

"It's not quite in its infancy, we've been busy for quite some time. Shared bicycles have been around for a long time and car sharing less. The worst teething troubles are over now. We have a clear system with multiple providers, both free floating and stationary based providers" - Policymaker

There are a lot of initiatives, however not all of them are successful and more time is necessary to figure that out. Car sharing has grown very slowly and very carefully, yet sine SnappCar has entered the market the positive numbers have been up. With the advent of the peer-to-peer car sharing, the threshold is much lower to offer a shared car and as a result the distribution across the Netherlands has grown. However, the sharing mobility is still only used by a small group of people.

"Car sharing is getting interesting if you can provide a service for a bigger group, currently it is offered for a group that needs the car only once in a while" – Consultant

The shared mobilities are already there, however the acceptance of these shared mobilities is lagging behind. The next few steps are there to incentivize these shared mobilities.

"*This says something about the concept of sharing, it has been built up very quietly and gradually, it's becoming more popular and it's becoming more visible in the streets and more people are hearing about it. At some point it will be there, and people will know it and from that point it can go very fast" - Consultant*

4.1.2 Implementation

The respondents generally agreed that we just past the beginning, there is a clear system and the worst growing pains are over. However, the service is still only used by a small group of

people, which raises questions in how to successfully implement the sharing mobility to serve a bigger group.

On balance the respondents agreed that availability and visibility is important for the implementation of the sharing mobility.

"According to research, if you give people insight that there is actually more sharing mobility than they initially thought, this will greatly stimulate the usage of the sharing mobility. Sometimes I hear from car sharing providers that they prefer to put two cars at the same spot, which requires an extra investment, however the investment is also quickly recouped. This is due to the fact that if people pass by and see that there is always a car available, they perceive a mobility guarantee, which de facto is not really given, but because there are two cars, it suddenly seems that way. That greatly stimulates usage, it just has some higher upfront costs" – Consultant

In order to be available and visible all the time, the supply side is also an important aspect. The majority agreed that the supply side grows relatively slower compared to the demand side, which means that the supply side is a little behind.

"At this moment the supply is a little bit behind. There is often a delay between the growth of users and the growth in car occupancy. This is due to the procedure of placing a car which is not very strict, this takes six till nine months. It is not likely that the supply of the shared cars will grow faster than the demand side. A car is expensive, so it will not be placed at places where the demand is unknown. It is a different business than bike sharing and scooter sharing, where you can place 300 bikes/scooters in the city against relatively low costs" – National government.

However, there were also some respondents who think that there is enough supply and at this point it is important to look at the next steps.

"In the past 5/10 years there have been much changes, especially when car2go came in Amsterdam. In Amsterdam there are different suppliers of car sharing, in the field of cars there is enough supply, different kinds, free floating or stationary based. In the beginning of June Six also introduced their new concept, where you can use free floating between different cities. Nowadays there are also a lot of new suppliers of bikes and scooters. So, I think that at the side of supply, there is a lot of change" – Consultant

This leads to a 'chicken and egg' situation, which is mentioned often by the respondents. The supply side is waiting for demand, especially in the case of cars, it is quite expensive to put them into the streets without demand. However, demand is coming if people feel that there is always a shared vehicle available for them, and this can only be given by enough supply.

"Supply should be more comfortable and more available. On the other side the suppliers do want more customers. This is a 'chicken and egg' situation. The balance between supply and demand should be broken, to begin with there should be more supply" – Government

Not only is the availability and visibility an important aspect of increasing shared mobility. Overall the respondents mentioned that making private car ownership less attractive is also a strategy.

"Another instrument is to discourage car ownership, examples of this is making parking policies or parking norms in which sharing mobility has an advantage" – Government

A few respondents from the supply side share a different perspective on discouraging car ownership than the government. They don't really want a ban on cars but are seeking ways to use the car smarter and in a more resourceful way.

"Our starting point is not so much that we want to ban car ownership, we are trying to use the car in a smarter way by providing services around the car" – Supplier

Another important aspect for discouraging private car ownership, which is mentioned by the majority of the respondents, is making consumers aware of the costs of owning a private car.

"Car users often have a limited insight in the total costs of owning a car and using it. Often you have to include depreciation or total fixed costs, which are unclear. So, there is an automatic distance to the costs, of which you are only aware at the moment of purchase or due to an accident" – National government

There are also other ways to influence the consumer. Consumers should be more aware of the costs, but some of the respondents also mentioned that the consumer should be made aware of the possibilities of shared mobility.

"Unfamiliarity is an important factor, a lot of people don't know about the sharing mobility and they don't know that it might be an option for them" – Government

Making the consumer more familiar could be done by providing information. According to the majority of the respondents, it is important to target the right moment or the right group of people. Some respondents mentioned especially the younger generation, because they are more likely to use the sharing mobility. Furthermore, some respondents mentioned that during life changing events of people, it is important to provide information about the possibilities of sharing mobility. By dispensing information at certain points in their life, they are nudged into a certain direction.

"There are a few moments in life where people are rethinking their way of mobility, such as moving, a new job or a change in the family. Those are three key moments when you are thinking about mobility. If you can connect at these kinds of moments, then you are doing it right. There is more chance then to make a difference compared to providing the information at some random moment" - Consultant

Another aspect that is important according to literature is providing an interoperable mobility service. The views of the respondents were quite different. Some of the respondents believe that by having an API-link which enables suppliers to integrate with each other's application is enough, whereas others believe that a platform such as MaaS is necessary in order to successfully implement the sharing mobility.

"Without MaaS or a platform where supply and demand are coming together, sharing mobility will never bridge the gap, it will remain a niche. The strength of MaaS is that you can reach a large group, because it works simple" – Government

However, such a platform where supply and demand come together, requires data from different suppliers. According to a respondent from the government not all the suppliers are very keen on sharing their data.

"The suppliers think it's good that it is there, but they don't want to share all their data. They don't want to share more than others and that is something difficult. A lot of conversations are taking place discussing this. At the end of the year an API is expected, this is kind of an interoperable instrument which will be a basic condition to share data" - Government

Currently there is still no clear trust framework with clear agreements such as; how much data to share, who is responsible, how much should each party earn et cetera. It is difficult to determine how to collaborate with each other and provide a service that is more convenient than if they are competing with each other. There is still a lot to learn here and the initiatives are coming, but those are still in its infancy.

"It is necessary to collaborate, because otherwise your product will not be attractive enough to compete with the private car. If you do not collaborate, it will never become an interoperable package that can work as a counterpart "- Consultant

There were also some respondents who don't think that MaaS is necessary in order to bridge the gap. They don't believe that it will get people out of their (private) car.

"I see it as a convenience factor for the people who are already using the shared mobility" – Consultant

"People should learn to share the car first. The threshold for car ownership to car sharing is way bigger than the technical threshold" – Supplier

4.1.3 Responsibility of the municipalities

According to the interviews there were quite a few points, where the respondents think the municipalities should take responsibility for. The majority of the respondents mentioned the absence of one clear policy on sharing mobility. This has to do with several factors, one of factors is that the policy making process is taking too long.

"If shared car providers want a permit for a parking space, we can't arrange it faster then six months, whilst it really should be just a few weeks. We try to smooth out that process" - Government

Another barrier is that there are also a lot of municipalities, mostly in rural areas, that don't have a policy at all. There are great differences amongst these diverse municipalities, due to the fact that each city faces different challenges. Municipalities that don't have a policy for sharing mobility, it is for the most part due to lack of information or practise.

"They think it's interesting. Everyone understands that it is useful, people see the benefits immediately, but it takes some time getting used to get it going" - Consultant

Another point on which the opinions were quite divided are the costs. One supplier mentioned that the VAT for the sharing mobility is nowadays 21 percent, however public transport for

instance has a VAT of 6% percent. According to a respondent from the national government, this is something they would like to change, but there are obstacles that has its origin in European regulations. So, it's something which is discussed and examined regularly. Some of the respondents think that the municipalities should subsidize more or create more campaigns to let people try the shared mobility (by partly financing it). This is because of the businesses case for suppliers, which is quite complicated. The suppliers are not making any profit right now and it is hard to offer competitive prices without making loss. Bearing in mind that if the sufficient scale is reached, in the literature also called the critical mass, it will become profitable in the long term. However, so long as the scale has not been reached, it is quite hard. One consultant thinks that the municipality could subsidize a little bit until the critical mass is reached. The suppliers want to provide it as cheap as possible for the consumer, but at the same time the investment must also be recouped. One consultant mentioned the following:

"When the margins are small for providers of car sharing and scooter sharing. They are the last one to have resources for launching a campaign to stimulate sharing mobility, the municipalities could facilitate them more in this" - Consultant

However, on the other hand there were also some respondents who believes that subsidizing is not the way. If municipalities are starting to subsidize, the suppliers are too focused on the subsidies instead of making a good business case. One consultant mentioned that you need parties which can make business. It turns out that it is possible, because it exists for over 20 years which means that subsidizing is not necessary if you compare it with public transport. Another consultant gave the following example:

"If you have city A where there is 80% chance of being profitable in the first year and you have city B where that chance is 25%, and the municipality of city B offers money to operate in their city, the provider decides to operate in city B instead of city A" – Consultant

Furthermore, the trust framework that is mentioned by a few respondents, hat has been discussed earlier. Currently every provider has a business condition to create an interface where you can technically connect with other providers, however other agreements haven't been made about this such as privacy or pricing.

"It say's noting about privacy agreements, rate agreements or about how much each provider can use each other. Now I don't know if the one is better than the other, we aren't that far. But only having a technical set of agreements is not enough to let them integrate. The government should be responsible for writing the concessions for sharing mobility"- Supplier

4.1.4 Collaboration between the parties

During the interviews it came to light that a fair amount of collaborations exists between different parties. First there is the Greendeal Car Sharing II, which is a broad coalition of forty-two participants (and counting) ranging from providers, (national) government and municipalities, consultants and business, with its main objective to achieve 700.000 carshares and have a network of 100.000 shared cars by the end of 2021. This collaboration has the goal to provides more understanding amongst the different parties, however there is still room for improvement. Moreover, there is the City Deal Electric Sharing Mobility, which started in 2018 with seven cities that through this project can gain experience with electrics sharing cars in conjunction innovative housing projects. The main goal of this deal is to accelerate a

breakthrough towards the use of electric sharing mobility in urban area development. Another collaboration is the "mobiliteitsalliantie", which is a group of companies that is setting up a plan in which mobility is made future-proof and is linked to climate objectives, energy transitions and keeping urban and rural areas liveable. This is a cooperation without the government, but with private organizations such as ANWB, NS, Arriva and RET (now 25 partners and counting). In this collaboration the focus is more on mobility as a whole but sharing mobility does also play a role in this. Furthermore, within the municipalities itself there too is a lot of cooperation at the level of the various departments with for instance policy, management and supervision of a project, parking permits and charging stations. Not only is there within one municipality a lot of collaboration, there is also collaboration between the different municipalities. Such as the coalition of the five big cities, Amsterdam, Utrecht, Rotterdam, The Hague and Eindhoven. Additionally, from the supply side, two respondents mentioned that the cooperation between the varried supply parties is quite well, this is due to the fact that they each only provide a small share of the mobility market, so cooperating with each other is favourable. However, there is still a difference between various suppliers when it comes to sharing data, some of the suppliers are more willing to share their data than others, which is still an obstacle to overcome within the cooperation.

Another form of collaboration is the cooperation with local parties. Such local parties could be employers. They have the power to stimulate their employees into using sharing mobility. The majority of the respondents agreed that the task should belong to the employers and the role of the government should be focused on provision of information towards the employers. From the supply side there are already some collaborations with employers by means of offering a business package. Another example that one of the respondents expressed is the owner's association, they could for instance provide sharing mobility services. An illustration of this is "Schoonschip Huub", which is a sharing mobility provider in a residential area (Huub,2020).

The main thing that emerged from the interviews is that there is quite a gap between private companies and government. Four of the respondents pointed out that municipalities have a policy approach such as creating a healthy environment and low emission areas. The supply side is more focused on the consumer and their desires. Furthermore, one respondent disclosed that private companies work faster and more efficient than a municipality could. Another point that is mentioned by two respondents is the type of person, government people are looking for more security and are holding back sometimes compared to private institutions.

"Some officials are looking for security. They are afraid, if there is one complaint about the shared car from one person, that person might write to the local newspaper about the councillor, in that respect they are risk averse. But if you place a shared car at the place of an existing car, multiple people will profit from it and one person will complain. As a political official, that's a confrontation which you need to face sometimes, as a result they are seeking for a solution which is not feasible. They get in the way of the market side by wanting to regulate something too well, which is a classic battle" - Consultant

4.1.5 Summary

The sharing mobility is just passed the beginning in the Netherlands. The following key points were put forward to incentivize shared mobility

- Availability and visibility: which is a chicken and egg situation, suppliers want to settle in places where there is a lot of demand, but on the other hand demand might be created, if there is more supply.
- Making car ownership less attractive: The majority agreed that it is important to make customers aware of the costs of a private car. Furthermore a few respondents expressed that making people more aware about the possibilities by providing information might also be of significance.
- Providing an interoperable mobility service: the views on this point were quite diverse, were some of the respondent believe it is enough if there is an API-link, which makes it possible for different suppliers to integrate with each other, whereas others believe that having a platform such as MaaS is necessary for a successful implementation.
- Clear policy: the municipalities should take responsibility for creating a clear policy. Some of the smaller municipalities don't even have a policy, whereas bigger municipalities do have a policy of some sort, but the process as a whole is just taking too long.
- Costs: two of the respondents would like to see the VAT decrease from 21 percent to 6 percent. Furthermore, some of the respondents mentioned that they would like to see more subsidies from the municipalities. However, there are some respondents who don't believe that subsidizing is the way, because suppliers will be more focused on the subsidy instead of creating a good working business case.
- Collaboration: there are various forms of collaborations. These collaborations are there in order to understand each other and help each other to get sharing mobility to a higher level. There are also collaborations with local parties such as an employers or owner's association, this is also to help/introduce them with sharing mobility. Despite the fact that there are already a lot of collaborations between various parties, there is still room for improvement. During the interviews it became clear that there is still a gap to bridge between private companies and government.

4.2 Surveys

4.2.1 Basic analysis

In total there were 51 respondents on the survey. In figure 1 there can be seen that most of the respondents were consultants (23) or worked for the local government (17). For the survey analysis, the sCns will be calculated for the total sample (51) and furthermore there will be also looked at the sCns of the group consultant and the group local government. The other groups (national government, suppliers and knowledge centres) will not be looked at individually, because the respondent rate was too low.

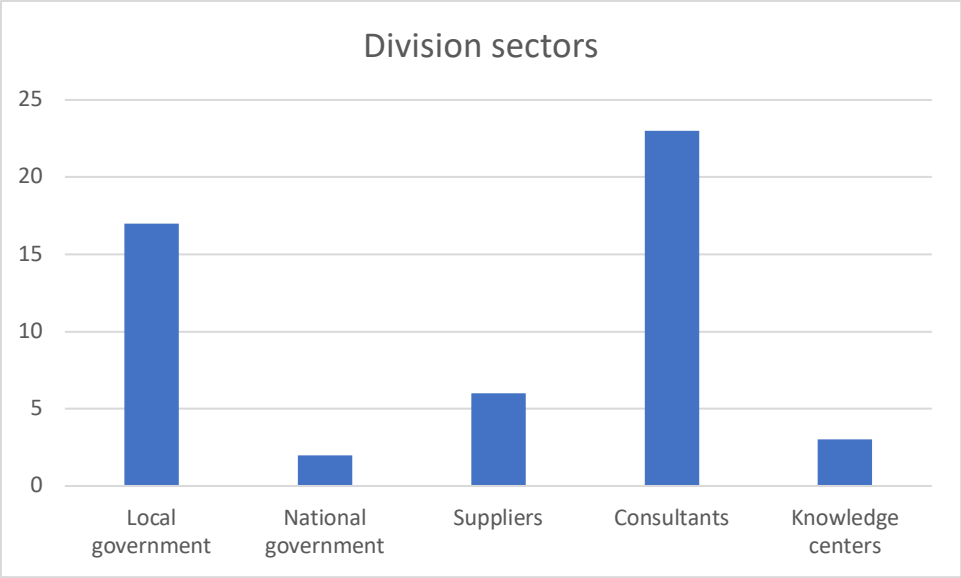

Figure 1: *Division respondents per sector*

In figure 2, the local government is divided in provinces, whereas most of the respondents of the local government came from Zuid-Holland.

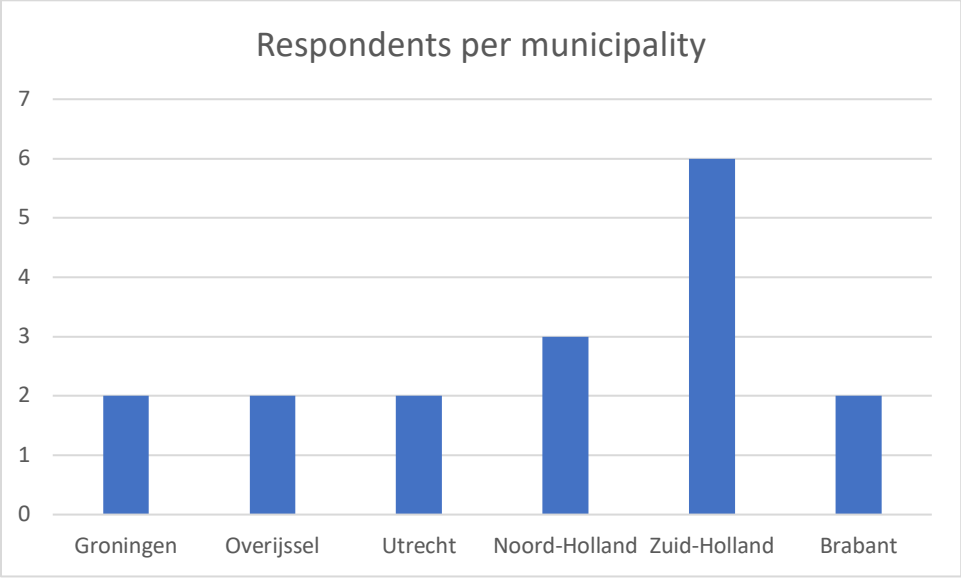

Figure 2: *Respondents per municipality*

4.2.2 Statement 1

Statement 1: The VAT for sharing mobility should be decreased from 21 percent to 9 percent, just like the public transport

Table 4: *Overview respondents and sCns statement 1*

	Strongly disagree	Disagree	Neither agree	Agree	Strongly agree	sCns

			nor disagree			
A. Local government (17)	0 % (0)	0 % (0)	23,5 % (4)	**47,1 % (8)**	29,4 % (5)	• 0.81 ✓
B. Consultants (23)	4,3 % (1)	4,3 % (1)	21,8% (5)	**47,8 % (11)**	21,8 % (5)	• 0.74 ✓
C. Total (51)	2,0 % (1)	4,0 % (2)	19,6 % (10)	**41,2 % (21)**	33,3 % (17)	• 0.79 ✓

*Tested against mean strongly agree

When looking at the total sample (table 4), the majority agrees that the VAT for sharing mobility should be decreased from 21 percent to 9 percent, 74,5 % (versus 6 % that disagrees). If we differentiate this by role, from the local government perspective, the percentage that agrees is 76,5 % (versus 0% that disagrees), whereas the percentages that agrees in the consultant group is relatively lower 69,6 % (versus 8,6% that disagrees).
In the last row there can be seen that the sCns of the local government (medium consensus) is higher than the sCns of the total sample and the consultant (weak consensus). Due to the fact that the statement was tested against the assumption that the mean value was strongly agree, we can say that local government agree more strongly than consultants and the total sample that the VAT should be decreased from 21 percent to 9 percent. In other words, consultants are relatively less convinced that the VAT should be decreased.

4.2.3 Statement 2

Statement 2: The government should subsidize more in terms of sharing mobility

Table 5: *Overview respondents and sCns statement* 2

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	sCns
A. Local government (17)	11,8 % (2)	11,8 % (2)	**47,0 % (8)**	29,4 % (5)	0 % (0)	• 0.55 ✓
B. Consultants (23)	4,3 % (1)	17,4 % (4)	**47,8% (11)**	26,1 % (6)	4,3 % (1)	• 0.59 ✓

C. Total (51)	7,8 % (4)	13,7 % (7)	**47,1 % (24)**	25,5 % (13)	5,9 % (3)	• 0.58 ✓

*Tested against mean strongly agree

When looking at the total sample (table 5), the 31,4% agrees that the government should subsidize more in terms of sharing mobility (versus 21,5 % that disagrees). If we differentiate this by role, from the local government perspective, the percentage that agrees is 29,4 % (versus 23,6% that disagrees), whereas the percentages that agrees in the consultant group is slightly higher 30,4 % (versus 21,7% that disagrees).

In the last row there can be seen that the sCns of the consultant (no consensus) is higher than the sCns of the local government and the total sample (no consensus). Due to the fact that there is no consensus for all the groups, there can be seen that the opinions about this statement are quite diverse.

4.2.4 Statement 3

Statement 3: The policy of the government should be more efficient

Table 6: *Overview respondents and sCns statement 3*

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	sCns
A. Local government (17)	0 % (0)	0 % (0)	23,5 % (4)	**64,7 % (11)**	11,8 % (2)	• 0.78 ✓
B. Consultants (23)	4,3 % (1)	17,4 % (4)	21,7% (5)	**39,1 % (9)**	17,4 % (4)	• 0.67 ✓
C. Total (51)	2,0 % (1)	7,8 % (4)	21,6 % (11)	**49,0 % (25)**	19,6 % (10)	• 0.74 ✓

*Tested against mean strongly agree

When looking at the total sample (table 6), the majority agrees that the policy of the government should be more efficient, 68,6 % (versus 9,8 % that disagrees). If we differentiate this by role, from the local government perspective, the percentage that agrees is 76,5 % (versus 0% that disagrees), whereas the percentages that agrees in the consultant group is relatively lower 56,5 % (versus 21,7% that disagrees).

In the last row there can be seen that the sCns of the local government (weak consensus) is higher than the sCns of the total sample (weak consensus) and the consultant (no consensus).

Due to the fact that the statement was tested against the assumption that the mean value was strongly agree, we can say that local government agree more strongly than consultants and the total sample that the policy of the government should be more efficient.

4.2.5 Statement 4

Statement 4: The collaboration between different parties in terms of sharing mobility could be better

Table 7: *Overview respondents and sCns statement 4*

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	sCns
A. Local government (17)	0 % (0)	0 % (0)	11,8 % (2)	35,3 % (6)	**52,9 % (9)**	• 0.88 ✓
B. Consultants (23)	0 % (0)	0 % (0)	17,4% (4)	**47,8 % (11)**	34,8 % (8)	• 0.84 ✓
C. Total (51)	2,0 % (1)	4,0 % (2)	11,8 % (6)	39,2 % (20)	**43,1 % (22)**	• 0.83 ✓

*Tested against mean strongly agree

When looking at the total sample (table 7), the majority agrees that the VAT for sharing mobility should be decreased from 21 percent to 9 percent, 82,3 % (versus 6 % that disagrees). If we differentiate this by role, from the local government perspective, the percentage that agrees is 88,2 % (versus 0% that disagrees), whereas the percentages that agrees in the consultant group is relatively lower 82,6 % (versus 0% that disagrees).
In the last row there can be seen that the sCns of the local government (medium consensus) is higher than the sCns of the total sample and the consultant (medium consensus). Due to the fact that the statement was tested against the assumption that the mean value was strongly agree, we can say that local government agree more strongly than consultants and the total sample that the collaboration between the different parties could be better.

4.2.6 Statement 5

Statement 5: There should be a higher number of vehicles in terms of sharing mobility

Table 8: *Overview respondents and sCns statement 5*

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	sCns

A. Local government (17)	5,9 % (1)	0 % (0)	23,5 % (4)	**35,3 % (6)**	**35,3 % (6)**	• 0.78 ✓
B. Consultants (23)	0 % (0)	8,7 % (2)	30,4% (7)	**47,8 % (11)**	13 % (3)	• 0.72 ✓
C. Total (51)	2,0 % (1)	4,0 % (2)	25,5 % (13)	**39,2 % (20)**	29,4 % (15)	• 0.77 ✓

*Tested against mean strongly agree

When looking at the total sample (table 8), the majority agrees that there should be a higher number of vehicles in terms of sharing mobility, 68,6 % (versus 6 % that disagrees). If we differentiate this by role, from the local government perspective, the percentage that agrees is 70,6 % (versus 5,9% that disagrees), whereas the percentages that agrees in the consultant group is relatively lower 60,8 % (versus 8,7% that disagrees).
In the last row there can be seen that the sCns of the local government (weak consensus) is higher than the sCns of the total sample and the consultant (weak consensus). Due to the fact that the statement was tested against the assumption that the mean value was strongly agree, we can say that local government agree more strongly than consultants and the total sample that there should be a higher number of vehicles in terms of sharing mobility.

4.2.7 Statement 6

Statement 6: There should be a wider range of different types of vehicles in terms of sharing mobility

Table 9: *Overview respondents and sCns statement 2*

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	sCns
A. Local government (17)	0 % (0)	11,8 % (2)	35,3 % (6)	**47,1 % (8)**	5,9 % (1)	• 0.68 ✓
B. Consultants (23)	0 % (0)	21,8 % (5)	21,8% (5)	**43,4 % (10)**	13 % (3)	• 0.68 ✓
C. Total (51)	2,0 % (1)	4,0 % (2)	25,5 % (13)	**39,2 % (20)**	29,4 % (15)	• 0.73 ✓

*Tested against mean strongly agree

When looking at the total sample (table 9), the majority agrees that there should be a wider range of different types of vehicles, 68,6 % (versus 6 % that disagrees). If we differentiate this by role, from the local government perspective, the percentage that agrees is 53 % (versus 11,8% that disagrees), whereas the percentages that agrees in the consultant group is relatively higher 68,6 % (versus 21,8% that disagrees).

In the last row there can be seen that the sCns of the total sample (weak consensus) is higher than the sCns of the local government and the consultant (no consensus). Due to the fact that the statement was tested against the assumption that the mean value was strongly agree, we can say that the total sample agree more strongly than consultants and the local government that there should be a wider range of different types of vehicles.

4.2.8 Statement 7

Statement 7: An API link (which ensures that data can be exchanged between different providers/parties) is needed to bring sharing mobility to a higher level.

Table 10: *Overview respondents and sCns statement 7*

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	sCns
A. Local government (17)	0 % (0)	0 % (0)	5,9 % (1)	23,5 % (4)	**70,6 % (12)**	• 0.93 ✓
B. Consultants (23)	0 % (0)	4,4 % (1)	0% (0)	**47,8 % (11)**	**47,8 % (11)**	• 0.88 ✓
C. Total (51)	2,0 % (1)	2,0 % (1)	7,8 % (4)	39,2 % (20)	**49 % (25)**	• 0.86 ✓

*Tested against mean strongly agree

When looking at the total sample (table 10), the majority agrees that an API link is necessary to bring sharing mobility to a higher level, 88,2 % (versus 4 % that disagrees). If we differentiate this by role, from the local government perspective, the percentage that agrees is 94,1 % (versus 0% that disagrees), whereas the percentages that agrees in the consultant group is slightly higher 95,6 % (versus 4,4% that disagrees).

In the last row there can be seen that the sCns of the local government (strong consensus) is higher than the sCns of the total sample and the consultant (medium consensus). Due to the fact that the statement was tested against the assumption that the mean value was strongly agree, we

can say that local government agree more strongly than consultants and the total sample that an API link is necessary to bring sharing mobility to a higher level.

4.2.9 Statement 8

Statement 8: A platform such as MaaS where the customers can see all the providers in one app is a pre-condition for a successful implementation of sharing mobility

Table 11: *Overview respondents and sCns statement 8*

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	sCns
A. Local government (17)	0 % (0)	5,8 % (1)	29,5 % (5)	23,5 % (4)	**41,2 % (7)**	• 0.79 ✓
B. Consultants (23)	0 % (0)	21,7 % (5)	0% (0)	**43,5 % (10)**	34,8 % (8)	• 0.77 ✓
C. Total (51)	4,0 % (2)	11,8 % (6)	13,7 % (7)	**37,2 % (19)**	33,3 % (17)	• 0.75 ✓

*Tested against mean strongly agree

When looking at the total sample (table 11), the majority agrees that an platform such as MaaS where the customers can see all the providers in one app is a pre-condition for a successful implementation of sharing mobility, 70,5 % (versus 15,8 % that disagrees). If we differentiate this by role, from the local government perspective, the percentage that agrees is 64,7 % (versus 5,8% that disagrees), whereas the percentages that agrees in the consultant group is relatively higher 78,3 % (versus 21,7% that disagrees).

In the last row there can be seen that the sCns of the local government (weak consensus) is higher than the sCns of the total sample and the consultant (weak consensus). Due to the fact that the statement was tested against the assumption that the mean value was strongly agree, we can say that local government agree more strongly than consultants and the total sample that an platform such as MaaS where the customers can see all the providers in one app is a pre-condition for a successful implementation of sharing mobility .

4.2.10 Statement 9

Statement 9: The strategy to make customers more aware of sharing mobility is by responding to life-changing event such as moving or a new job.

Table 12: *Overview respondents and sCns statement 9*

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	sCns
A. Local government (17)	0 % (0)	5,8 % (1)	**41,2 % (7)**	29,5 % (5)	23,5 % (4)	• 0.73 ✓
B. Consultants (23)	0 % (0)	13 % (3)	4,3% (1)	**52,3 % (12)**	30,4 % (7)	• 0.79 ✓
C. Total (51)	2,0 % (1)	7,8 % (4)	21,5% (11)	**37,3 % (19)**	31,4 % (16)	• 0.77 ✓

*Tested against mean strongly agree

When looking at the total sample (table 12), the majority agrees that the strategy to make customers more aware of sharing mobility is by responding to life-changing event such as moving or a new job, 68,7 % (versus 9,8 % that disagrees). If we differentiate this by role, from the local government perspective, the percentage that agrees is 53 % (versus 5,8% that disagrees), whereas the percentages that agrees in the consultant group is relatively higher 82,7 % (versus 13% that disagrees).

In the last row there can be seen that the sCns of the consultant (weak consensus) is higher than the sCns of the total sample and the local government (weak consensus). Due to the fact that the statement was tested against the assumption that the mean value was strongly agree, we can say that consultants agree more strongly than local government and the total sample that the strategy to make customers more aware of sharing mobility is by responding to life-changing event such as moving or a new job.

4.2.11 Statement 10

Statement 10: It is the job of employers to encourage their employees to make use of the sharing mobility

Table 13: *Overview respondents and sCns statement 10*

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	sCns

A. Local government (17)	0 % (0)	11,8 % (2)	35,3 % (6)	**52,9 % (9)**	0 % (0)	• 0.67 ✓
B. Consultants (23)	0% (0)	8,7 % (2)	13% (3)	**52,2 % (12)**	26,1% (6)	• 0.79 ✓
C. Total (51)	0 % (0)	9,8 % (5)	27,5 % (14)	**47 % (24)**	15,7 % (8)	• 0.73 ✓

*Tested against mean strongly agree

When looking at the total sample (table 13), the majority agrees that It is the job of employers to encourage their employees to make use of the sharing mobility, 62,7 % (versus 9,8 % that disagrees). If we differentiate this by role, from the local government perspective, the percentage that agrees is 52,9 % (versus 11,8% that disagrees), whereas the percentages that agrees in the consultant group is relatively higher 73,8 % (versus 8,7% that disagrees).

In the last row there can be seen that the sCns of the consultant (weak consensus) is higher than the sCns of the total sample (weak consensus) and the local government (no consensus). Due to the fact that the statement was tested against the assumption that the mean value was strongly agree, we can say that consultants agree more strongly than local government and the total sample that it is the job of employers to encourage their employees to make use of the sharing mobility

4.2.12 Statement 11

Statement 11: Consumers need to become more aware of the costs of their own car in order to grow the use of sharing mobility

Table 14: *Overview respondents and sCns statement 11*

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	sCns
A. Local government (17)	0 % (0)	0 % (0)	5,9 % (1)	**52,9 % (9)**	41,2 % (7)	• 0.87 ✓
B. Consultants (23)	4,3 % (1)	8,7 % (2)	4,3% (1)	**43,6 % (10)**	39,1 % (9)	• 0.80 ✓

C. Total (51)	2,0 % (1)	3,9 % (2)	5,9 % (3)	**51 % (26)**	37,2% (19)	• 0.83 ✓

*Tested against mean strongly agree

When looking at the total sample (table 14), the majority agrees that consumers need to become more aware of the costs of their own car in order to grow the use of sharing mobility 88,2 % (versus 5,9 % that disagrees). If we differentiate this by role, from the local government perspective, the percentage that agrees is 94,1 % (versus 0% that disagrees), whereas the percentages that agrees in the consultant group is relatively higher 82,7 % (versus 13% that disagrees).

In the last row there can be seen that the sCns of the local government (medium consensus) is higher than the sCns of the total sample and the consultant (medium consensus). Due to the fact that the statement was tested against the assumption that the mean value was strongly agree, we can say that local government agree more strongly than consultants and the total sample that consumers need to become more aware of the costs of their own car in order to grow the use of sharing mobility.

4.2.13 Comparisons

In table 15, the comparison of the sCns for all the statements can be seen. If we look at the sCns of the total sample, there can be seen that for eight out of the eleven statements there is no consensus or a weak consensus. For statement two there is no consensus, which was expected after the interviews, because there were quite some different opinions about the subsidies, also between respondents from the same sector. Statement 4,7 and 11 are having a medium consensus. Statement 4 was about the collaboration which could be better between the different parties, which is remarkable since there are already a lot of collaboration, but this might be linked back to the interviews, where the respondent mentioned that there is a gap between private companies and government which could be improved. Statement 7 was about the API-link which is necessary to bring sharing mobility to a higher level, this result is not surprising since the majority of the respondent mentioned this during the interviews. Statement 11 was about making consumers more aware of the costs of a private car, it is also not surprising that for this statement the consensus was relatively higher, because almost all the respondent mentioned it during the interviews.

If we look at the sCns of the consultant group, there can be seen that for eight out of the eleven statements there is no consensus or a weak consensus. Similar to the total sample, there was no consensus on statement two, but for statement three and six there was also no consensus. This concerns the policy that should be more efficient and that there should be a wider range of different type of vehicles. Furthermore, similar to the total sample, the consultants also had a medium consensus on statement 4,7 and 11.

If we look at the sCns of the government group, there can be seen that for seven out of the eleven statement there is no consensus or a weak consensus. Similar to the total sample and the consultant group there was no consensus on statement two, but in addition for statement 6 and 10 there was also no consensus. This concerns that there should be a wider range of different type of vehicles and that it is the responsibility of employers to encourage their employees to make use of the sharing mobility. Similar to the total group, there was a medium consensus for

statement 4 & 11. In addition, there was also a medium consensus for statement 1, which concerns that the VAT for sharing mobility should be decreased from 21 percent to 9 percent. In this group there was a strong consensus for statement 7, compared to the consultant group and the total sample where there was a medium consensus on statement 7.

Overall there is still a lot of disagreement within the sector about how to successfully implement the sharing mobility, there is still much to be gained within this sector. Especially for statement two and six where there is a weak consensus, which concerns the subsidy and the variety in different types of vehicles, these are important statements to agree on to bring sharing mobility to the next level. Because of the low consensus within this sector, this might imply that there is still a lot of collaboration needed.

Table 15: *Comparison of the sCns of all the statement*

	sCns total	sCns local government	sCns consultants
Statement 1: The VAT for sharing mobility should be decreased from 21 percent to 9 percent, just like the public transport	0.79 ✓	0.81 ✓	0.74 ✓
Statement 2: The government should subsidize more in terms of sharing mobility	0.58 ✓	0.55 ✓	0.59 ✓
Statement 3: The policy of the government should be more efficient	0.74 ✓	0.78 ✓	0.67 ✓
Statement 4: The collaboration between different parties in terms of sharing mobility could be better	0.83 ✓	0.88 ✓	0.84 ✓
Statement 5: There should be a higher number of vehicles in terms of sharing mobility	0.77 ✓	0.78 ✓	0.72 ✓

Statement 6: There should be a wider range of different types of vehicles in terms of sharing mobility	0.73 ✓	0.68 ✓	0.68 ✓
Statement 7: An API link (which ensures that data can be exchanged between different providers/parties) is needed to bring sharing mobility to a higher level	0.86 ✓	0.93 ✓	0.89 ✓
Statement 8: A platform such as MaaS where the customers can see all the providers in one app is a pre-condition for a successful implementation of sharing mobility	0.75✓	0.79 ✓	0.77 ✓
Statement 9: The strategy to make customers more aware of sharing mobility is by responding to life-changing event such as moving or a new job	0.77 ✓	0.73 ✓	0.79 ✓
Statement 10: It is the job of employers to encourage their employees to make use of the sharing mobility	0.73 ✓	0.67 ✓	0.79 ✓
Statement 11: Consumers need to become more aware of the costs of their	0.83 ✓	0.87 ✓	0.80 ✓

own car in order to grow the use of sharing mobility			

In table 16 the comparison of the sCns between total local government and Zuid-Holland can be seen. The other provinces were not compared, because most of the provinces only had 2 respondents, in Zuid-Holland there were 6 respondents. For 7 out of the 11 statements the sCns of Zuid-Holland was higher compared to the total local government. There can also be seen that Zuid-Holland has a strong consensus for statement 1 and 7. Statement one was about the VAT that should be decreased from 21 to 6 percent and statement 7 was about the API-link.

Table 16: *comparison of the sCns between total local government and Zuid-Holland*

	Total local government	Zuid-Holland
Statement 1	0.81 ✓	0.94 ✓
Statement 2	0.55 ✓	0.56 ✓
Statement 3	0.78 ✓	0.73 ✓
Statement 4	0.88 ✓	0.86 ✓
Statement 5	0.78 ✓	0.87 ✓
Statement 6	0.68 ✓	0.64 ✓
Statement 7	0.93 ✓	0.94 ✓
Statement 8	0.79 ✓	0.83 ✓
Statement 9	0.73 ✓	0.80 ✓
Statement 10	0.67 ✓	0.69 ✓
Statement 11	0.87 ✓	0.87 ✓

5. Conclusion & Discussion

In this section, a conclusion will follow on the research question central to this thesis, based on the results of the conducted analysis. There aforementioned will be followed by a discussion of the results and conclusion, and finally, the limitations of the research will be addressed.

5.1 Conclusion

This study addresses the following question: *How can we incentivize sharing mobility in the Netherlands?* In order to understand the sector and how well the different stakeholders agree on these strategies, the following sub-question is developed: How strong is the consensus between the different stakeholders about the different strategies to incentivize sharing mobility?

In order to see if the whole sector has the same vision on a specific strategy, the sCns is calculated for all the different statements about strategies to incentivize the shared mobility. For the majority of the statements there is weak consensus. In table 17, the statements are shown where there is no consensus at all, these are topics that might need some more discussion and debate between the different parties according to this research. Some of these topics can be seen as rather fundamental for effective sharing mobility policies. For example, there is no consensus on the question whether the government should subsidize more in terms of sharing mobility and whether there should be a wider range of different types of vehicles. As a result, it will be very hard to develop policies on these topics, because the perception is not consistent.

Even more, concerning statement 3 there is no consensus among the consultants about whether the policy of the government should be more efficient. For this particular statement it is more important that the local government agree upon the matter than the consultants, therefore this statement shouldn't be a fundamental problem in regard to effective sharing mobility policies. With regards to statement 10 there is no consensus among the local government whether it is the duty of the employers to encourage their employees to make use of the sharing mobility. Even so, this topic might be of importance for successfully implementing the sharing mobility, because employees make up a major part of car users, therefore it might be important to have a consistent perception on this.

Although only a number of topics where listed for further discussion and research, it does not mean that other topics with a sCns value of 0.70 and above do not need any further attention. For most of the statements the general perception seems to be cohesive, nonetheless quite a few statements still have a weak consensus, and therefore a considerable amount of improvement can still be made.

Table 17: *Statements with a weak sCns*

	sCns total	sCns local government	sCns consultants
Statement 2: The government should subsidize more in terms of sharing mobility	0.58 ✓	0.55 ✓	0.59 ✓
Statement 3: The policy of the government should be more efficient	0.74 ✓	0.78 ✓	0.67 ✓
Statement 6: There should be a wider range of different types of vehicles in terms of sharing mobility	0.73 ✓	0.68 ✓	0.68 ✓
Statement 10: It is the job of employers to encourage their employees to make use of the sharing mobility	0.73 ✓	0.67 ✓	0.79 ✓

There are several ways to incentivize sharing mobility in the Netherlands. The main strategies that were mentioned were availability and visibility of the shared mobility, making privately owned cars less attractive, providing an interoperable mobility service, clear policy to be created by municipalities, decreasing the VAT from 21 percent to 6 percent and the government should subsidize more. However, with regard to the subsidies there were a lot of different opinions. Furthermore, collaboration is also a significant factor, even though there is already a lot of collaboration between different partners, there is still room for improvement. All the stakeholders in the shared mobility world are familiar with the different strategies. However, there is still a lot of disagreement around certain topics between different stakeholders and the consensus is also quite low on most of the topics.

5.2 Discussion

According to literature there are some tasks reserved for the public institutions in order to successfully adopt the sharing mobility, for example regulating in favour of the sharing mobility such as disincentivizing private car ownership and favouring electric vehicles by providing

special parking spaces or the allowance to use the bus lane (Seign & Bogenberger, 2013). These points have not been brought up during the interviews, plausibly due to the fact that there is still not a clear policy in the Netherlands. Even more public institutions are also responsible for the consumers' needs and wants, whereby many different parts of society are involved such as labour regimes and leisure regimes (Geerken & Borup, 2017), this was also mentioned during the interviews. For instance, there are already collaborations with local parties such as employers' or owners' associations, nevertheless there is still room for improvement in the collaboration between the government and the private sector. Evidence from Shanghai showed us that a dynamic business ecosystem composed of different stakeholders with strong collaboration is necessary to successfully adopt the sharing mobility (Ma et al., 2018). In the Netherlands there are already quite some initiatives such as the Greendeal and the City deal, however similar to the collaboration with employers' or owner's association, there is still room for improvement due to the fact that there is no strong consensus on a lot of topics in the shared mobility world.

The literature also put forward behavioural aspects, for instance, that the younger generation is more likely to make use of the sharing mobility (Dias et al., 2017), and a strategy to influence this group is providing information that consequently makes the car less attractive (Ferrero et al.,2018). Said strategy was also mentioned during the interviews by the majority of the respondents, the focus should be on making the car less attractive in order to get people to use the sharing mobility.

Furthermore, there were many different opinions about providing an interoperable mobility service. The majority of the respondents is waiting for the API-link, though some of the respondents believe this will be enough for getting shared mobility to a higher level, where other respondents believe that having a platform such as MaaS is necessary to incentivize the sharing mobility. The different views about this subject is not surprising, the literature already pointed out that MaaS is still in an early stage in its development with much innovation and experimentation (Goodall et al., 2017).

5.3 Limitations

This research entails limitations and it is important to create awareness of the possible consequences. For example, the gathered sample is relatively small for the interviews (N=14) and the survey (N=51), due to the small sample not all the groups are well represented in this research such as the suppliers, knowledge centres and national government. Concerning the knowledge centres and national government there were only two respondents per group. Another important point of the small sample is that there were respondents from different parts of the Netherlands, although there is a great difference between the Randstad and the rural area. This research provides a global overview of strategies on how to implement the sharing mobility, but this might not be applicable for all the regions in the Netherlands due to different challenges each region faces. With regard to some of the respondents it was also not clear to which sector they belonged.

Furthermore, the moment when the interviews and survey were conducted is also an important aspect. The interviews and survey were held during the COVID-19 virus. It is plausible to believe that this crisis changed the travel behaviour and might have influenced the answers of the respondents. In addition, it is important to acknowledge that the limited timespan might be a limitation in this research, especially with regard to data collection. Additional time would've

resulted in exploring the findings more in-depth or even expand the scope of the research. Additionally, for qualitative studies it is accepted to have a certain extent of researcher bias. The researcher might have mixed the data with personal beliefs, values and assumptions about the world (Wadams & Park, 2018). In addition, important information might have gotten lost in the translation from Dutch to English.

Also, the survey was shared through LinkedIn and only (sharing)mobility experts were asked to fill in the survey, however non (sharing)mobility experts might also have filled in the survey which could lead to bias. During the survey, the respondents also didn't get the chance to elaborate their answer, which also might have led to bias due to different interpretation of the statements. For further research it might be interesting to look into the rationale behind certain statements. This research gives an overview of the possible strategies on how to incentivize the sharing mobility and shows us the strength of consensus on these various strategies between different parties, however it doesn't tell us the right strategy. It only gives an indication of which topics still need some further discussion. In addition, it might be interesting to look at smaller regions. This research was focused on the Netherlands, however there are quite some difference between different part of the Netherlands, so the strategies which are mentioned in this research are quite global, but it might be interesting to have a focus on one region and provide more specific advice.

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Appendix

Appendix A

Interview questions

Onder deelmobiliteit vallen fietsen, scooters en auto's.

1. Waar staan we nu in Nederland op het gebied van deelmobiliteit (hoeveel gebruikers nu, hoeveel willen we er bereiken, hoeveel voertuigen etc)?

2. Zijn er cruciale randvoorwaarden om de implementatie van deelmobiliteit succesvol te laten verlopen?

3. Zijn er factoren die u het gevoel geven dat de implementatie van deelmobiliteit wordt belemmerd?

4. Werkt u samen met andere bedrijven/sectoren/gebieden op het gebied van deelmobiliteit en zo ja wat is hier het voordeel van?

5. Zijn er momenteel barrières voor u om samen te werken met bepaalde sectoren op het gebied van deelmobiliteit?

6. Wat voor strategie is er nu op het gebied van consumentengedrag beïnvloeden om de implementatie van de deelmobiliteit te bevorderen?

7. Wat voor strategie is er nu op het gebied van kosten voor de implementatie van de deelmobiliteit? (Wie dragen de kosten van bijv parkeervergunningen; gemeentes, aanbieders, consument?)

8. Wat voor strategie is er nu op het gebied van stadsontwikkeling voor de implementatie van de deelmobiliteit (hoe wordt hierop ingespeeld bij nieuwbouw bijvoorbeeld)?

9. Hoe zal een platform dat gebruikt maakt van big data/blockchain zoals *(Mobility as a service (MaaS)*) invloed hebben op de implementatie van deelmobiliteit?

10. De grootste gebruikers van auto's zijn voornamelijk mensen die naar hun werk gaan en ook de voornaamste reden dat er sprake is van "file"; hoe is de samenwerking met (grote) werkgevers voor het implementeren van deelmobiliteit?

Appendix B

Survey

Beste,

Allereerst wil ik u hartelijk danken voor uw deelname aan dit onderzoek. Ik ben momenteel bezig met m'n master Urban,Port and Transport Economics aan de Erasmus universiteit. Voor mijn afstuderen doe ik onderzoek naar de kracht van consensus tussen verschillende partijen op het gebied van het succesvol implementeren van deelmobiliteit.

Deelmobiliteit wordt in dit onderzoek gezien als geheel (de fietsen,scooters & auto's).

Het onderzoek zal ongeveer 5 minuten van uw tijd in beslag nemen. Er zal betrouwbaar met uw gegevens worden omgegaan en de resultaten worden geheel anoniem verwerkt.

Mocht u nog vragen of opmerkingen hebben over het onderzoek, neem dan contact met mij op via 449665sf@student.eur.nl

Nogmaals hartelijk dank voor uw deelname aan dit onderzoek.

Met vriendelijke groet,
Sarah Fu

De stellingen (5-point likert scale: geheel mee oneens tot geheel mee eens):

Beleid

Q1. De btw voor deelmobiliteit zou verlaagd moeten worden van 21 procent naar 9 procent, net zoals bij het openbaar vervoer

Q2. De overheid zou meer moeten subsidiëren wat betreft deelmobiliteit

Q3. Het beleid van de overheid moet efficiënter, zodat aanvragen van aanbieders sneller behandeld kunnen worden en zij sneller de deelmobiliteit kunnen implementeren.

Q4. De samenwerking tussen verschillende partijen op het gebied van deelmobiliteit kan beter

Aanbod

Q5. Er moeten meer aantallen komen wat betreft deelmobiliteit

Q6. Er moeten meer verschillende soorten voertuigen komen wat betreft deelmobiliteit

Q7. Een API-koppeling (dit zorgt ervoor dat er data uitgewisseld kan worden tussen verschillende aanbieders/partijen) is nodig om deelmobiliteit naar een hoger niveau te tillen

Q8. Een platform zoals MaaS waarbij de klant alle aanbieders in 1 app kan zien is een randvoorwaarden voor een succesvolle implementatie van deelmobiliteit

Consument bewegen

Q9. De strategie om consumenten bewuster te maken van deelmobiliteit is door in te spelen op life changing events zoals verhuizen of een nieuwe baan

Q10. Het is de taak van de werkgevers om zijn werknemers aan te moedigen om gebruik te maken van deelmobiliteit

Q11. De consument moet bewuster worden van de kosten van een eigen auto om het gebruik van deelmobiliteit te laten groeien

Demografisch:

Q12. In welke sector werkt u?
- Lokale overheid
- Nationale overheid
- (Deel)mobiliteit aanbieders
- Advies
- Kennisinstituut

Indien er is gekozen voor lokale overheid:

Q13. In welke provincie bent u werkzaam?
- Groningen
- Drenthe
- Friesland
- Overijssel
- Flevoland
- Gelderland
- Utrecht
- Noord-Holland
- Zuid-Holland
- Zeeland
- Brabant
- Limburg