THE POTENTIAL OF MOBILITY INNOVATIONS FOR YOUTH TRAVEL IN RURAL AREAS.
THE IMPACT OF CAR SHARING AND MOBILITY AS A SERVICE ON IMPROVING DAILY TRAVELING PATTERNS OF YOUTH

MASTER THESIS BY KIRSTEN NOIJ

The Potential of Mobility Innovations for Youth Travel in Rural Areas.
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Foreword.

Dear reader,

Before you lays my last piece of ‘homework’. With this I hope to graduate and receive a diploma for the master Human Geography. In this master, I followed the track Urban and Cultural Geography, which was a choice I am still happy with today. It contained all the courses that I was interested in and which I hope to encounter in the work field too. This final piece also touches upon a subject that I personally care for a lot, which are rural areas. I am very grateful that my Radboud supervisor, Roos Pijpers, felt that this topic was appropriate to research and that she has guided me with constructive ideas and feedback. Roos, thank you so much. It should also be mentioned here that she encouraged me to provide substantive chapter titles. This made me think about those chapter titles and gave me the idea to honor my favorite movie director, Quentin Tarantino, who encourages everyone to do ‘your own thing’. A thank you word also goes out to the interviewees who have provided me with input for the thesis. My research would not have been possible without the time and responses of all those who participated in my research, so thank you all so much. Next to that, I would like to thank my family and friends for supporting me. Finally, a thanks goes out to Jan Waalen, who was my supervisor from Kragten and everyone at Kragten who has taken the time to speak to me. I hope you enjoy reading this!

Abstract.

This thesis researches the potential of introducing new mobility innovations in rural areas. It does this by carrying out a case study in the town of Wanroij, in the Netherlands. It focuses on car sharing and Mobility as a Service as mobility innovations. The thesis has chosen to research a specific target group, the youth, as they often experience a mobility imperative. This thesis shows that they indeed do. The research question that is formulated is: to what extent can car sharing and Mobility as a Service potentially improve the daily travels of youth in rural Wanroij? The thesis approach car sharing and Mobility as a Service as practices and applies the framework of social practice theory. This is valuable in this thesis as it looks beyond behavioral influence and considers all the elements that are involved in a practice. The results show that car sharing and Mobility as a Service are capable of addressing the transport challenges that rural youth face but that there are limitations to these practices.

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Note: if the image or table does not state a source, it has been made by the researcher.

List of abbreviations.

CS	Car sharing
EV	Electric vehicle
ITS	Intelligent Transport Systems
MaaS	Mobility as a service
NFC	Near Field Communication
PT	Public transport
PVVP	Provinciaal Verkeers- en Vervoersplan
UN	United Nations

Chapter 1.

Introduction.

Madamoiselle, may I introduce myself?

1.1 Context.

We are currently witnessing a vast change in the field of mobility and transportation. This is an important change as mobility alone, the ability to move from A to B, is no longer sufficient (Handy, 2002). A term that has come to be related to mobility is accessibility and through this term, mobility is about more than technical artifacts. Handy (2005) has defined accessibility as ‘’an ability to get what one needs, if necessary by getting to the places where those needs can be met’’ (p. 132). Accessibility is about acquiring what someone needs and if accessibility is not sufficient and exclusion arises, it may lead to migration. Kenyon et al. (2002), in line with this thought, state that there is a mobility dimension to exclusion:

[Exclusion through mobility is] the process by which people are prevented from participating in the economic, political and social life of the community because of reduced accessibility to opportunities, services and social networks, due in whole or in part to insufficient mobility in a society and environment built around the assumption of high mobility’’ (p. 210).

Accessibility and inclusion through transport is a topic that scholars since have been interested in (see Urry 2003; Schwanen et al. 2015; Kamruzzman et al. 2016; Lucas 2006, 2008, 2011, 2012, 2016). Attention should be devoted to this topic because, as Shove et al. argue, ‘’these exclusions are unfair or discriminatory and local and national government should reduce such socio-spatial exclusion’’ (2005, p. 539). Such socio-spatial exclusion is also experienced in rural areas as accessibility is not always adequate in these areas. This thesis focuses on accessibility in a rural area and specifically on youth. Youth is an important research group in light of mobility as

‘’Mobilities are especially significant for rural youth who, in a rapidly urbanizing world, experience a kind of mobility imperative. The mobility imperative describes processes that encourage or mandate mobility, including increasing urban [versus] rural inequalities … This mobility imperative means that rural youth must often be mobile in order to access the

resources they need … creating anxieties about youth out-migration from rural to urban spaces'' (Farrugi, 2016, p. 837).

This thesis then looks at rural youth as a target group because they need mobility but are at risk of being excluded. This leads to negative impacts on their life but also to negative impacts on the rural area, deepening exclusion and inequalities. But how can accessibility and inclusion be improved? Shove et al. (2005) argue that ''what is necessary for full social inclusion varies as the means and modes of mobility change and as [does] the potential for access develop with the emergence of new technologies'' (p. 542). New technologies have emerged in recent years and this thesis wants to research the potential for more inclusion in rural areas through two of these. The first is car sharing, briefly defined as to ''share the usage of a vehicle fleet by members for trip making on a per trip basis'' (Ferrero et al., 2018, p. 501). Car sharing is already adapted and used in cities in the Netherlands but this is less the case for rural areas. The same goes for the second innovation that this thesis will research, which is Mobility as a Service (MaaS). This is an innovation of recent years and therefore remains ambiguous but this thesis will use the definition of Durand et al. (2018), who states that ''MaaS is a new transport concept that integrates existing and new mobility services into one single digital platform, providing customized door-to-door transport and offering personalized trip planning and payment options'' (p. 2). The thesis will return to these innovations for further account in a later chapter. Both car sharing and MaaS can be seen as practices of traveling and are therefore conceptualized using the framework of Social Practice Theory (SPT). SPT is suitable in this thesis because it looks at the entire practice of car sharing and MaaS. It does this by applying a case study of a rural village in which inhabitants respond to the practices of car sharing and MaaS. The case study is the rural village Wanroij. Wanroij is located in the province of Noord Brabant in the Netherlands and it has approximately 2800 inhabitants, as estimated in January 2019. Its location, in terms of accessibility, is quite isolated and this is the main reason that this village was chosen as the case study. Exact information on Wanroij will be given in chapter 6.

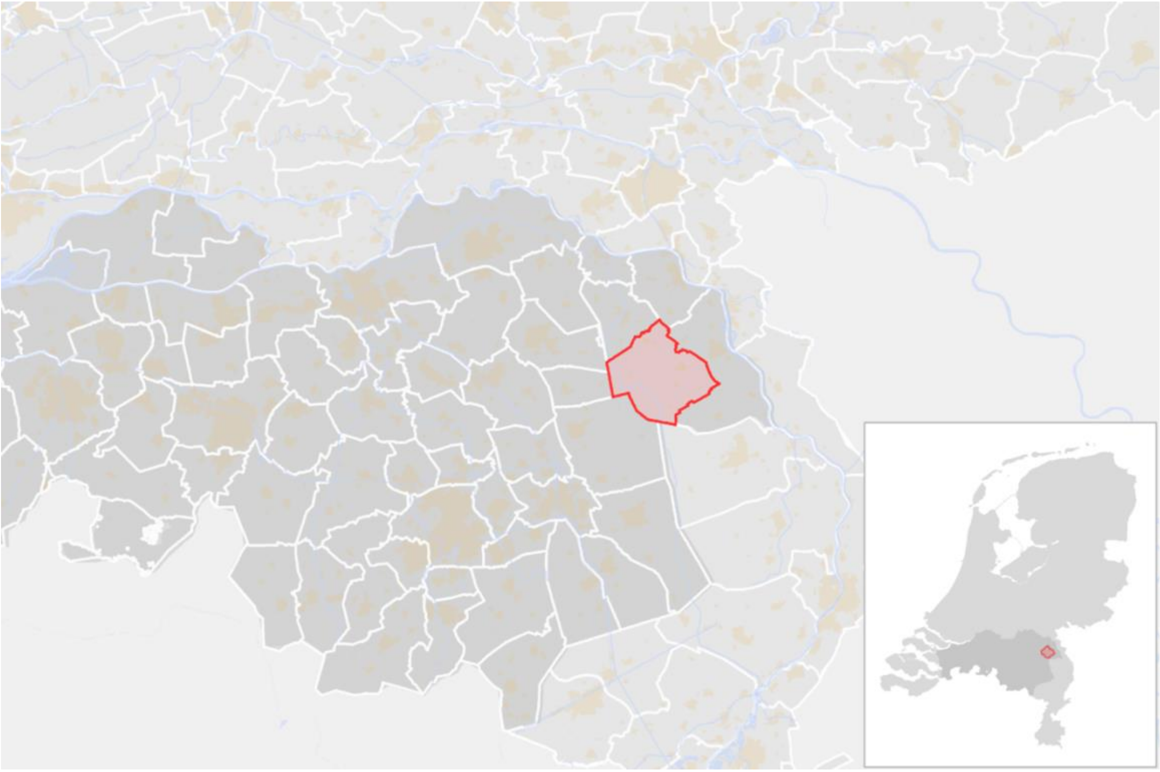

Image 1: Location of Wanroij and its municipality in the province and in the Netherlands. (Source: Wikipedia)

1.2 Research aim.

This thesis wants to contribute to the debate on the role of mobility in rural areas and what the potential is for introducing new mobility. It believes that both car sharing and MaaS can improve the accessibility into and out of town for rural youth. This accessibility is important for the youth if they want to remain in the rural area because it can make their daily travels easier. The focus is on daily travel, for example to school or work, because access to these are important factors to stay put in an area. It is indirectly also important to the area because there will be less out-migration, which has mostly negative consequences for a rural area (Stockdale, 2018). The thesis will return to this in chapter 2.

The main research aim is to identify the mobility challenges that youth currently faces in Wanroij, to understand their perceptions of car sharing and MaaS and to see what car sharing and MaaS have to offer in improving the challenges. The main research question is then as following: to what extent can car sharing and Mobility as a Service potentially improve the daily travels of youth in rural Wanroij? In order to answer this question, three sub questions have been formulated that are chronologically addressed in the thesis.

These questions are:

1. To what extent does mobility have an influence on the decisions/life aspects of rural youth and what is the effect on the village in which the youth lives?
2. What are car sharing and Mobility as a Service and how can these terms be conceptualized using social practice theory and applied literature?
3. What are the current transport challenges for youth in Wanroij and what are the opportunities that car sharing and Mobility as a Service offer?

Research chapter	**Research question**
Chapter 2: Youth	To what extent does mobility have an influence on the decisions/life aspects of rural youth and what is the effect on the village in which the youth lives?
Chapter 3: Car sharing and Mobility as a Service	**What are car sharing and Mobility as a Service** and how can these terms be conceptualized using social practice theory and applied literature?
Chapter 4: Theoretical framework	What are car sharing and Mobility as a Service and **how can these terms be conceptualized using social practice theory and applied literature?**
Chapter 6: Results and discussion.	What are the current transport challenges for youth in Wanroij and what are the opportunities that car sharing and Mobility as a Service offer?
Chapter 7: Conclusion	To what extent can car sharing and Mobility as a Service potentially improve the daily travels of youth in rural Wanroij?

Table 1: Overview of the research questions in relation to the chapters.

1.3 Scientific and societal relevance.

This thesis makes several contributions to the current status of the research data. The first contribution is that the thesis applies social practice theory to the practices of car sharing and

MaaS, which has barely been done before. Kent and Dowling (2013) applied social practice theory to car sharing but did not include interviews and mainly focused on how car sharing is a different practice from the practice of driving and owning a private car. The thesis also researches car sharing and MaaS in a rural context instead of an urban context, which has been the main focus in the literature so far. In terms of research on youth, this thesis provides more insights in factors that influence youth's decisions in their choice of mode transport. It does this by using social practice theory, which goes beyond the behavioral factors that can influence these decisions. The social practice theory approach can also expose the thresholds that are present in the practices of car sharing and MaaS. With regards to social practice theory, the thesis tries to further the impact of social practice theory on public policy, which Shove et al. (2012) argue has yet to be done. On the basis of the research outcomes, which are fostered by social practice theory, the thesis wants to draw up policy recommendations.

Of course this thesis also has a societal relevance. The first one is that the results of the thesis will lead to recommendations that can be considered in policy making. Second, it highlights the importance of the relationship between mobility and (rural) youth, which has not been considered in Wanroij yet. The third contribution is that the thesis wants to emphasize the opportunities that car sharing and MaaS have and what they have to offer in regard to improving current mobility challenges. Finally, the results of this thesis can be used by the internship company Kragten, which is already involved in car sharing projects but miss a more critical stance towards what car sharing really defines, including its merits and drawbacks. They want to focus more on the relationship between mobility, accessibility and places, which this thesis does too.

1.4 Readers guide.

The remainder of this thesis proceeds and is organized as follows. Chapter 2 will outline the details on the target group youth. Chapter 3 will give insight into the current state of play regarding car sharing and Mobility as a Service. The theoretical framework will be explained in chapter 4. Chapter 5 describes the methodology so how the data was collected and analyzed. Chapter 6 will be the body of the thesis and presents, among other things, the results and a discussion. A final summary of all aspects and some recommendations will be provided in chapter 7.

Chapter 2.

Rural youth.

Clowns to the left of me, jokers to the right. Here I am, stuck in the middle with you.

This chapter will outline three elements that relate to youth. It will first define the term youth and explain why specifically this target group. Then it will provide an overview of the aspects on which mobility does or does not have an influence for rural youth. At last it will research the role of youth in a rural village, why youth is needed in a rural village and what the effect is if youth moves away.

2.1 Target group.

In the literature on transport, there are generally five target groups that are researched and addressed. These are, in random order; the disabled (Park and Chowdhury 2018; Velho 2018; Lindsay 2019), the elderly (Aguiar and Macario 2017; Plazinic and Jovic 2018; Wong et al. 2018), women (or gender) (Law 1999; Adler et al. 2006; Smith 2008; Prati 2018), commuters (McQuaid and Chen 2012; Nordfjærn et al. 2014; Marcinczak and Bartosiewicz 2018) and youth. Any of these characteristics can be combined with another to create an intersectional research, such as in the research of Tilley and Houston (2016) that analyses young women's travel patterns. From many of these researches, the conclusion can be drawn that transport is not a mere technological subject but includes social, social-demographic, economical and more traits.

In order to demarcate the boundaries of this thesis, it will also research a specific target group. This target group will be the younger generation, which will include everyone in the age of 16 to 35. The Oxford English dictionary has defined youth as ''the period between childhood and adult age'', which is a rather abstract definition. The United Nations (1981) has included ages and defines youth as anyone between the age of 15 and 24. This thesis has chosen to deviate from this definition and changed the age limits. The age of 16 was chosen because at that point a person, in the Netherlands, can get a driver license for a scooter or moped. It is also the age at which people leave high school and attend a subsequent education. In the Netherlands, high school is often within proximity of the place of residence and can be reached by bike. This is less the case for a subsequent education, which is often situated further away and less accessible by bike only. To summarize the points made, people at the age of 16 have more possibilities- and are more necessitated to travel than at a younger age. There is a considerable difference between the United Nations' and this thesis's upper age limit for youth. The reason for this is that the age of 24 by the United Nations, was established in 1981 and that times have changed. Someone is no longer part of the youth when he or she enters the adult age, as the Oxford English dictionary has established. In 1981, reaching adulthood may indeed have been at age 25. In the modern time, different circumstances apply and the stages of life that are associated with adulthood, such as being significant employed, settling down (with a partner) or obtain a mortgage for a house are no longer done in a fixed order or specified to the life stage of adulthood only. In addition to this change, life expectancy has also increased in the last few decades which shifts all the stages of life to older ages.

This target group is an interesting one to research for diverse reasons. The first reason is that, in relation to new modes or innovations of transport, the youth is not yet bound to one mode of transport. As one gets older, rigid patterns of behavior start to settle in such as the ownership and use of a car. If someone is used to owning and using a car, it will be harder to breakthrough this fixed pattern. The youth has not (fully) experienced this pattern yet and are less rigid in their choices for mode of transport. Barker et al. (2019) support this claim and argue that modal choice for youth is not based on the attitude towards the mode of transport but that youth is a ‘’price sensitive population segment’’ (p. 443). They demonstrate this and state that ‘’an interesting example of what happens when financial disincentives to travel are removed [is that] young Londoners speak very highly of their free travel, value its inclusivity and independence, and a 35% increase in ridership has been recorded’’ (ibid). The second reason is that youth, in general, is open and inclusive to technological changes. Shaheen and Cohen (2018) illustrate this by stating that ‘’having grown up in an era of technological advancement, millennials are much more likely to take advantage of technology to substitute … travel’’ (p. 69). It must be said that this is a cliché as older generations can also be open-minded toward these developments. The point is that for older generations, the transport developments are framed as a change from the preceding way of life whereas for the younger generations these developments are part of today's way of life. The third reason of why this thesis has chosen youth as target group is more related to the effect of youth on rural villages than it is to transport. When a place is depopulated, due to that people are leaving to live in cities, terms such as brain-drain or an aging place are put in relation with the depopulation.

2.2 Youth migration.

Much literature can be found on migration and rural youth. The migration intentions can roughly be divided into pull and push reasons, based on the dichotomy between the rural and the urban. In the following paragraphs, this thesis will highlight the main reasons for youth migration or why specifically youth does not want to migrate away from the rural. It will do this in relation to mobility to see how and to which extent these reasons are influenced by mobility.

2.2.1 Education.

Moving out to attend education is one of the most researched reasons for youth to migrate. It is an important factor in youth's life as education is the next step in the lifecycle. Jones (1999) calls this process ''emancipation which involves the development and assertion of an independent identity'' (p. 2). In the Netherlands, all post-secondary education facilities at the level of university or university of applied sciences are to be found in the city. This makes education a pull factor for youth who wants to attend these schools. Rye (2006) notes that ''youth out-migration should not necessarily be regarded as an indication that young people do not wish to settle in rural areas, merely that educational preferences causes them to move away'' (in Pedersen, 2018, p. 686). This is related to mobility as Pedersen notes that it exposes ''how rural to urban migration represents … a geographical mobility'' (p. 685). Youth goes to the city to attend education because there is an absence of mobility in the rural.

2.2.2 Employment opportunities.

Johnson et al. (2005) have researched the similarities between arguments for migration from the rural to the city between adults and youth. Their research has not clarified what defines the terms youth and adolescence but it is still relevant for this research as the arguments for adults and youth are overlapping. The research stated that both for youth and adults ''a negative perception of local job opportunities was among the factors […] related to the desire to leave'' (p. 109). The research by Johnson also indicated that young people with high (educational) ambitions ‘’attach less importance to living in their community’’ (p. 110). The explanation for this could be that it does not necessarily imply that these people do not want to live in their community but rather that they cannot because rural areas provide less career possibilities in comparison to the city, similar to the argument that Rye made for education.

2.2.3 Perceived image of the city.

As the two previous arguments have shown, due to the matter that the city has a lot to offer, living in the city has gained the image that it is the cool place to be. This image is strengthened by the dichotomous nature of city and town life, the urban versus rural comparison, in which if the urban is cool, the rural is less cool or even boring. The literature on the stayers in the rural area is not always positive. Pedersen and Gram (2018) did interviews with rural youth in Denmark. One of their interviewees said that the ones with the brains are leaving and the youth that remained ‘’aren’t too brainy’’ (p. 626). This summarizes a push factor to leave the rural areas: one must leave in order to move forward in life. Stockdale et al. (2018) made a similar argument that staying in a rural place means making ‘’trade-offs between different domains of their lives’’ (p. 2). There are for example the ‘’attached stayers who choose lower work-life aspirations in favor of being surrounded by family and friends’’ or those ‘’tied to place who prefer to live elsewhere but are prevented from doing so by family or financial obligations’’ (ibid). This implies that it is not possible ‘to have it all’ when someone decides to stay in the rural. It is of course the question if this is really true as there is enough literature on people who live in rural areas and commute to work every day (Renkow and Hoover 2010; Romani et al. 2003; Patridge et al. 2010; Fan et al. 2017; Andersson et al. 2018). Yet, as Thull and Mersch (2005) note ‘’throughout history, the city center has fulfilled and offered a multitude of different functions, from social, cultural political and economic institutions, over public places and green spaces, to residential areas with provision of goods and services within walkable distance’’ (p. 4067). This perception of the city is therefore highly related to accessibility as everything is within reach, making the city a convenient place to life.

This stereotype of the urban and the rural is reinforced with help of the media. Hubbard (2017) has written a chapter about this in which he notes that it is ‘’possible to identify both pro-urban and anti-urban myths, each of which takes form in relation to, or in opposition to, the other’’ (p. 160). He argues that there are multiple pro-urban myths, such as the ‘urban renaissance' myth in which the city stands for civilization and progress or the 'urban opportunity' myth. These myths and the pro-urban stance is also sold, for example by Hollywood, but also by cities themselves by means of city marketing. Hubbard gives some examples of movies in which ''the city is seen to provide access to a multitude of seductive consumer goods and desires, but there is a price to pay: the loss of authenticity'' (p. 162). The loss of authenticity in the city is something that the rural has as an advantage. People can become attached to a rural village due to its authenticity. Rural place attachment is therefore something that is not influenced by mobility, but will be discussed in the following paragraph as it is highlights that not all aspects of rural life are influenced by mobility.

2.2.4 Rural place attachment.

Gieling et al. (2019) have defined place attachment as ''the social relations that connect residents to their local environment'' (p. 67). Jamieson (2000) argues that place attachment has become less of a matter of course in the last decades because of the globalization, which has brought with it the ''cultural celebration of consumption, emphasizing individualistic life-style choice'' (p. 203). People are increasingly cosmopolitan and feel less attached to a single place. Place has become less of a factor in the identity formation of people. Yet place attachment can also be a certainty in people's life, especially in the rural case which is a constant in a quickly changing world. Pedersen (2018) notes that much of the current literature on place attachment focuses on the positive elements of it but that it is important to realize that there are negative elements of place attachment as well, which contribute to place attachment as much as the positive elements. The positive or negative elements do not have to be different but can be two sides of the same coin. An example would be that the rural is something referred to as quiet and peaceful, but it can also be referred to as a lack of buzz.

Place attachment is also related to the physical setting of locations. When the physical setting of the rural is discussed in the literature, people often refer to the spaciousness or nature. Although these elements are not necessarily place-specific but can be found almost everywhere in the rural, it can create specific place attachment as people have certain memories attached to it. It can also be the embodiment of what people find important. In a research by Wiborg (2004), one participant felt that freedom is important to her and ''the closeness to nature means that she feels free to use nature whenever she wants [and she] appreciates living in a place where she is free from other's vision'' (p. 424).

2.2.5 Ties to family and friends.

Much of the literature on youth migration has researched the relationship between family and youth. Some believe that the migration history of families play a role in the decision-making process of youth to migrate or not. Jamieson (2000) and Jones (1999) have focused on the parents of youth and whether they were local or in-migrants. If parents and older generations have always had their roots in the area, the children are more likely to feel rooted too. Staying might than also be a ‘’matter of course and a continuation of the family tradition’’ (Thissen et al., 2010, p. 434). Youth may also choose the rural life because of the element of support. With family and friends nearby, there will always be a safety net to rely on. Migration to another place will sometimes mean that the process of making friends starts all over and this is a reason that restrains migration for some youth. In a research by Jamieson (2000), one interviewee stated that she had not reason to move elsewhere because everyone she loved was around in the village where she lived. For her, family and friends are the first consideration in the decision to migrate or not. As appears from the research by Drozdzewski (2008), siblings and the choices they have made are considered in the decision making process for migration as well. Youth whose siblings had already moved out to other (urban) areas, have a higher preference to move away from the rural area likewise. The reason for this could be that ‘’the support network and information that elder siblings provide’’ make the decision to move away less difficult (p. 157). Although this argument is not a pull factor for the rural, it does establish the importance of the relationship between youth and their family and friends and the decision on where to live. This importance has also been established by Johnson et al. (2005) who argue that although ties with family and friends can suppress motivations to move away, ‘’positive relationships foster resilience and self-confidence’’ and can actually help youth to take the decision to move away, as they are supported by their loved ones (p. 102). This argument shows that family and friends play an important role in youth their lives and that youth may be less likely to move if their friends and family are near, for example in the same village. However, not everyone’s family and friends are nearby and Shove et al. (2005) argue

‘’that social inclusion increasingly demands the capacity to form and develop various social networks, sometimes stretching across substantial distances [with as result that] members of social networks thus seem more widespread than in the past, social networks less coherent

with fewer people sharing multiple affiliations, and the extent to which memberships overlap spatially is reduced'' (p. 545).

The argument in this line is then that in order to have and keep up with a social life, mobility is very important.

All the above discussed paragraphs show that to a certain extent, mobility does have an influence on aspects of life and can cause migration away from rural areas. Yet mobility is often an indirect factor and to that extent is does not directly influence these aspects of life.

2.3 The stay of youth in rural areas.

The following paragraphs will demonstrate some of the effects on the rural village if out migration by youth happens. It is important to clarify these as it will show what the importance of youth in a rural village is.

2.3.1 Brain drain.

Brain drain, ''the out migration of young, college-educated workers from the nation's rural areas'', is not a new phenomenon (Artz, 2003, p. 11). Already in 2003, Richard Florida noted that spaces had become a stage for battle, which eventually leads to 'winners and losers'. Carr and Kefalas (2009) report about a current change in brain drain in the United States. They argue that rural areas face the perspective of hollowing out, which they define as ''losing the most talented young people at precisely the same time that changes in farming and industry have transformed the landscape for those who stay'' (p.1). It is the latter part of this definition that is of importance. Even though Carr and Kefalas make this argument for the United States, the argument can be made all the same for Europe and the Netherlands. Farming, and much other work in the primary sector of the economy, has declined or changed in nature. Due to this change, Carr and Kefalas argue that no longer the products of the primary sector are the main elements of export for a village but that the youth in these places have become ''their most valuable export commodity'' (p. 1). They continue to argue that, although brain drain itself is not new, it has only become really unfavorable since the overall rural population has declined and ''a new birth simply cannot replace the loss that results every time a college-educated twentysomething'' leaves (p. 2). The point that they make is therefore that the departure of educated youth by itself is not the problem but that the combination of elements, such as the changing economy or a demographical change, is at the base of brain drain.

But why is brain drain a problem for the rural? To answer this question, Florida's statement on winners and losers in the battle of spaces, should be highlighted. If brain drain occurs, competition for inhabitants becomes harder as rural areas have a weaker competitive position. This competition is something that has become a trend in the recent years; city marketing. In order to develop as a place, you will need the knowledge and know how that people accumulated. Yet, when the educated and most talented people move away, places lose the knowledge and skills that these people possess. Much literature has been devoted to this topic and this thesis will not develop this idea any further but will forward its readers to the specific literature (Montfourd 1997; Beine et al. 2001; Abdelbaki 2009; Gibson and McKenzie 2012; Ha et al. 2016; Galiano and Romera 2018). There are other arguments for the importance of rural youth. Shucksmith (2013) has suggested that rural youth is unnoticed by policy makers. He states that ''most youth policies ignore 'rural' and most rural policies ignore 'youth'. So rural youth is in a Bermuda triangle where they are invisible to the European Union and national policies'' (p. 10). He believes that this is alarming because youth is of the essence for rural areas but his research fails to state why this exactly is. Rao and Rao (2014) argue that leadership skills, amongst other characteristics, make a rural community successful. They suggest that ''a community's young people may be the most obvious group from which to recruit future leaders'' (p. 54). Educated youth may have been taught these skills in school but when they leave, they take these skills with them. The youth that remains may potentially be less capable in these skills and might do less well in taking upon them the role and responsibility of leadership. This, if following up upon Rao and Rao's argument, may be harmful for the community. Clark (2015) believes different from Rao and Rao, and argues that innovation is the important factor for community success. For the rural, he argues, innovation ''is the driving force behind mobilization of limited resources available in the rural community'' (p. 3). Although innovation does not necessarily only have to be fostered by educated youth, it is profitable for the end result if there is input from various backgrounds. This would imply theoretical input from the higher educated youth and more practical input from the practical educated youth.

2.3.2 A vicious circle.

It is currently witnessed that villages in rural areas have been abandoned and have become ghost towns. The literature shows that this is specifically the case in the United States (Norris-Baker and Scheidt 1994; Graves et al. 2009; Prideaux and Timothy 2011), Australia (Ballantyne 2009; Connel and McManus 2016) and Southern Europe (Moreno and Blanco 2014; Steinicke et al. 2017). For the United States and Australia, ghost towns used to be towns where resources were once delved, for example mining towns. For Southern Europe, the cause of out-migration from ghost towns is also economic but different. Out-migration happened during the Economic Crisis in which mainly youth faced unemployment. Rural areas did not offer the facilities or opportunities which the youth relied upon for employment. Some literature expresses a positive turn for these areas, such as in the article by Steinicke et al. (2017), who note that there is ‘’a transformation of the former ‘rural landscape’ towards a ‘leisure landscape’‘’ (p. 331). An example would be retirees who turn to these areas to spend their retirement in serenity, or people who buy a second home for vacations. Due to this renewed objective of the leisure landscape, areas witness in-migration. It is the question however, which Steinicke et al. do not touch upon, if these in-migrants are also the young people who left the area earlier. If the leisure landscape remains on the level of leisure landscape and cannot affect the area to become normalized again, chances are that the area remains ‘lost’. This thesis argues this because retirees and second home owners do not stay in these areas throughout the entire year. They will go back to their old homes to visit their family or are primarily located elsewhere, only to attend the area when on holiday. The area cannot be normalized again because stores, schools and other facilities cannot exist based on the few months that the area is attended by the leisure seekers. The latter point that has been made, can at present only be made for the Southern European case. This thesis has mapped out this scenario because it believes that the disappearance of rural villages is a trend that is happening throughout the rest of Europe too. In the Netherlands there is a so called ‘red list of endangered towns’ which is a list that consists of towns that are endangered. Endangerment can occur in three ways according to this list. The first is that a village is not officially acknowledged as a town but rather bolted down due to urbanization and therefore has become part of a larger village of city. The second is that a village is surrounded by infrastructural projects and ‘pushed away’; there is less space available, lots of hindrance and people move away. The third is that there are hardly any inhabitants in a village due to which it is no longer seen as a village but seen as the pastoral part of another village (van de Hoven, 2015).

Yet this phenomenon that there are only few inhabitants left in a village did not suddenly happen, it is a process that happens slowly throughout the years. This thesis has already touched upon why youth themselves move away but there is more to the process than just youth. Youth may move away because they do not have the opportunities they wish for in the village at the moment when they are young but there are other problems that they may face in the near future. It is a well-documented topic in the literature that the provision of education is under pressure in villages. Many towns do not have a high school but are now also facing the problem of perished kindergartens and elementary schools (Hannum et al. 2009; Autti and Hury-Beihammer 2014; Biddle and Azano 2016). Amcoff (2012) did a research on the closure of schools in Swedish rural areas and asked the question if rural districts die when schools close. The answer to his question was that there were no significant negative effects on migration patterns in the rural district. Amcoff argues that there are two explanations for this outcome. The first one is that although schools close, ‘’children do not simply lose their right to education. They will be transported to schools by bus, which is very common in rural areas’’ (p. 58). In the Netherlands however, this is less common. It does happen in the case of children who go to special needs education but less for children who attend regular education. Children either walk or bike to school when it is in close proximity or parents drive them. If children attend school in places further away, this would possibly mean that parents will have to drive more often, which could be problematic. The second explanation that Amcoff gives for the minor negative effects on migration patterns is that schools are not the sole indicator for migration. Parents base their decision for migration on more than closed schools alone. Although this thesis supports that idea, it must be noted that closed schools is often a symptom of facilities under pressure in general. This thesis wants to highlight this phenomenon of facilities that are vanishing in rural areas because it believes that this leads to a vicious circle. When facilities close down, particularly more at a time, people will move away. Due to this, the existing facilities will be under more pressure as they have less clientele. They might have to close due to this and so the vicious circle continues. The youth is key to break this circle as their presence means that there is life in the village and that there will supposedly be life in the future too, for example when they have children.

2.3.3 Transport justice.

In line with earlier discussions on youth migration, ‘’when educational and occupational aspirations are inconsistent with rural residence, youth is placed in the position of prioritizing potentially conflicting aspirations and long-term goals (McLaughlin et al., 2014, p. 455). It can be argued that it is not quite fair for these youngsters that they are facing a dilemma.

Researcher Martens has delved into the topic of fairness and justice and transport ‘poverty’. One point he has made is that there are principles of justice in the field of healthcare and education but none such a principle exists in the field of transport, which is something he has been working on since. He makes his point especially in the case of the groups that are more vulnerable in society but this thesis believes Martens’ argument can just as well be made in the case of smaller towns which are healthy now but are in danger of becoming vulnerable in the mobility future. Martens argues that there is no principle of justice in transport but rather a principle of charity. The people who provide (public) transport can just as well take it away again, for example by elevating a certain bus line or by declining a health care approval by which someone could have bought a special car. This, according to Martens, is unjust because it means that these people have no constitutive law to rely on and claim their right to transport.

There is one argument that Martens (2017) makes that this thesis wants to refute. He argues that

‘’a large mass of the problems cannot be found in villages, as often is believed; but at the outer skirts of the city or the larger suburbs from the 70’s: Purmerend, Uithoorn, Volemdam and even a part of Amstelveen. People that live in these cities without owning a car, have a real problem, since these places were designed for using the car’’ (n.p).

This thesis does not agree with that standpoint. Although it may be true that these cities are designed with the car in mind, they still all have a train- or bus station. In the case of smaller towns, at least in the case of Wanroij as shown in chapter 6, table 10, it is the case that the first bus- or train station is not near Wanroij. So yes, these suburban cities might face difficulties but so do the rural areas too. Martens later also acknowledges this and states that you have a problem ‘’if you live in a place from which not many other destinations are easy to reach. That can be isolated places in rural areas but also suburbs with terrible infrastructure’’ (2017, n.p.).

Another author that extensively discusses mobility justice is Sheller. She (2018) argues that mobility research ‘’examines the complex interconnections between physical, virtual, communicative and imaginative mobilities, including the movement of people, objects, information, capital and resources [and] therefore encompasses not only the study of corporeal travel of people and the physical movement of objects’’ (p. 20). Injustice can present itself then in various manners, four manners according to Sheller. The first is in the built environment because there are ‘’divergent pathways [in] the terrain for movement’’ (p. 23). Second are the ‘’means or modes of movement that have a greater degree or lesser degree of ease, comfort, flexibility and safety with more or less friction, noise, speed or turbulence’’ (ibid). The third manner in which injustice can present itself is in forms of mobility management such as ‘’exclusionary regulations’’ (ibid). Last, injustice can be found in the ‘’local, regional, urban, national and global systems for control over space, territory, communication and speed [such as] border and passport controls’’ (p. 24). These are the contexts in which injustice can appear but Sheller also localizes the scale in which injustice can happen. These are important because this is where change can take place and advancements can happen. The first scale is the personal body, through which injustice can happen because not every physical body is capable of similar things, for example, a wheelchair user. The second scale is the city scale, where injustice can be caused, for example, due to sexually unsafe areas where some cannot move freely. Third, injustice can appear on the scale of ‘’spatial formations of suburban sprawl’’, in which Sheller gives the example of uneven access to fossil fuels (p. 25). The last scale is the nation state in which topics such as climate change can cause injustice as, for example, access to cleaner modes of transportation are not available to everyone. A practice theory research can bring the causes of injustice to light and highlight the elements that can possibly be changed.

Both approaches to mobility justice are valuable but there is a difference between the authors. Sheller, on the one hand, places mobility justice in a grand context, from which many causes can be deduced. Martens, on the other hand, relates injustice more to government policies. Some of the issues that Sheller addresses, such as injustice for a wheelchair user, can, to some extent, be solved by correct government policy.

2.4 Relevance.

This chapter has shown the relevance of youth as a research target group. It has shown how mobility has its effect on youth and how the youth in turn plays an important role in rural areas. Although the chapter zooms in on one target group, it also zooms out and places the discussion in a wider context as many rural areas face the same challenges. The paragraph on transport justice holds a special place as it, in contrast to the other paragraphs, focuses more on political aspects and policies, in which it, as Iveson (2011) has stated ‘’attacks the wider process and relations which generate forms of injustice’’ (p. 251). This is important for the results in which policies will also be discussed.

Chapter 3.

Car sharing and Mobility as a Service.

You are real right?

As real as a donut.

This chapter will provide an overview of the existing literature on car sharing and MaaS. In doing so, it defines these terms. It will also briefly go into why car sharing and MaaS, along with other transport innovations, emerged. It is important to do so because it will already show that there are many elements involved in one practice, which is something the theoretical framework will build on.

3.1 Car sharing.

There are various methods of car sharing. The most common type of car sharing is from a business perspective, also referred to as classic car sharing. In this case, the cars are purchased and owned, or sometimes leased, by a business who exploits the cars for a commercial purpose. The parking lot with the cars is centrally located or, in bigger places, has multiple locations. The management of the fleet is done via an Internet site or a mobile phone app, through which reservations have to be made. The car can be picked up at a location and has to be returned to the same location, explaining the name roundtrip. Examples of this type of car sharing businesses in the Netherlands are GreenWheels, ConnectCar and Car2Go.
Another type, less from a commercial perspective, is peer to peer car sharing (p2p). This is a form of car sharing that is less centralized in comparison to the former type, as individuals offer their own vehicles for rental. They do this via a platform, which is operated by a business that collects a percentage of each transaction that is made via their platform. These operators are often also responsible for arranging an insurance. Reservations are made via the platform but the owner of the car and the renter have to arrange the transfer of the car(key) themselves. Since the car is owned by an individual, this type of car sharing is often also roundtrip based. Examples of platforms in the Netherlands on which peer to peer car sharing is made possible are SnappCar or MyWheels. An even more decentralized type of car sharing is one in which individuals group together and share their vehicles. There is no operator or platform that regulates the sharing. Therefore, these groupings are nearly always based on

local proximity and good trust. This is an informal method of car sharing and not much research has been conducted towards this specific type of car sharing.

So far the discussed types of car sharing are all roundtrip. There is however also the possibility of point to point car sharing. It means that users do not have to return the car to the same location as they rented it, but rather that the car can be picked up at any point and left at any point. This has the advantage that cars are used intensively. In a roundtrip rental, the car is often parked for a period of time, such as when someone is doing the groceries or visiting someone. In point to point car sharing, this is less the case. The intention of why a car is rented will be probably be different for each type. Point to point might be used for trips that are one way in nature, such as to or from an airport. In the Netherlands, point to point car sharing is hitherto only established in Amsterdam by Car2Go, who specifically advertise their cars for usage on Schiphol Airport.

The types discussed above all have in common that they are open to anyone. The informal network of car sharing may be more difficult to enter since their existence is less publicly known. There are certainly other obstacles to the possibility of car sharing, which is something that will be returned to later, but in general everyone who wants to enter the car sharing platforms can. This is less the case in the corporate model of car sharing. In the corporate model of car sharing, companies create the possibility for their employees to share a car. A large number of civil service offices in the Netherlands have introduced car sharing in their organizations. The advantage of corporate car sharing is that it is the perfect point to start and scale up. Scaling up means that car sharing starts in one company, is later expanded to more companies and in a later stadium can be expanded to include individuals too, all using cars from the same fleet. It would be possible to reverse this riddle but companies, especially civil service offices, often have better possibilities to finance car sharing and are able to reach a big audience at once, for example starting with all their employees. The strength of corporate car sharing is therefore that it creates a network which others can benefit from. Another consideration for corporate car sharing in the Netherlands is the green deal car sharing (*De Green Deal Autodelen*). This deal was signed first in 2015 and has been signed again in 2018 by both public and private organizations. It was set up by the Ministry of Infrastructure and Water and it wants to explore the world of car sharing and augment its use. The answers as to why car sharing should be used are various and vary from a societal level to a personal level.

Although car sharing and car renting both grant access to mobility for individuals, there is a real distinction between them. In the case of car sharing, the individual is only charged the actual duration of the trip and hence the time that the car is in someone's possession. Renting a car is different from this in that the rental companies base their charge on a daily rate, so one pays for an entire day even if the car is only used for a couple of hours. The difference can be found in the price that the individual pays. The advantage next to that is that hubs for car sharing are often easier to access as they are located on more places whereas car rental companies are often only based in larger cities or typically near airports. (Katzev, 2003)

3.2 Mobility as a Service.

Mobility as a Service (MaaS) has been developed in the last years. Its emergence has been compared to other on demand service providers such as Netflix or Airbnb, since it is based on access rather than ownership. Since MaaS is relatively new, it is not easy to find a definition as there is much ambiguity surrounding MaaS. For Jittrapirom et al. (2017) it is also not clear yet 'what' it is, as ''it can be thought of as a concept (a new idea for conceiving mobility), a phenomenon (occurring with the emergence of new behaviors and technologies) or as a new transport solution (which merges the different available transport modes and mobility services)'' (p. 14). In order to clarify the concept of MaaS somewhat, this thesis will use the following definition: ''MaaS is a new transport concept that integrates existing and new mobility services into one single digital platform, providing customized door-to-door transport and offering personalized trip planning and payment options'' (Durand et al., 2018, p. 2). Many authors mention that MaaS is introduced to reduce negative externalities of transport by substituting the private car with seamless public transport. (Giesecke 2016; Holmberg et al. 2016; Jittapirom et al. 2017) This is one characteristic of MaaS that is often mentioned, Jittapirom et al. (2017) did a literature review and found a total of 9 characteristics. The following table shows these characteristics and a description of the characteristic.

	Characteristic	Description
1.	Integration of transport modes	Facilitate intermodal trips
2.	Tariff option	Two types of tariffs; a monthly subscription fee or a pay-as-you-go charge
3.	One platform	Access to all facilities via one platform
4.	Multiple actors	Multiple actors are needed to make MaaS successful: operators, providers, users and more
5.	Use of technologies	There is a need of data and devices
6.	Demand orientation	Focus on what the customer needs/demands, a user-centric paradigm
7.	Registration requirement	Create an account in order to use MaaS
8.	Personalization (by the provider/operator)	Consider the uniqueness of every customer, which is possible through registration
9.	Customization (by the user)	Users can customize their own travel

Table 2: Characteristics of MaaS. (Source: Jittapirom et al., 2017, p. 16)

Zijlstra et al. (2019) put forward a more critical note toward MaaS and the implied integration of multiple services. They wonder why someone would make use of the MaaS platform if people can as easy directly purchase the service from single providers. It is not quite clear yet what the advantages of MaaS on a personal level are and although this thesis does touch upon this, it does not intend to explore this in too much detail. Further research is therefore needed on this topic. This thesis will now explore the topic of integration in MaaS.

0.	No integration: Single separate services	Hertz arriva
1.	Integration of information: Multimodal travel planner, price info	moovit 92 92
2.	Integration of booking and payment: Single trip – find, book and pay	Google TRANZER
3.	Integration of the service offer: Bundling and subscription, contracts, etc.	UbiGo whim
4.	Integration of societal goals: Policies, incentives, etc.	

Table 3: Levels of integration of MaaS. (Source: Sochor et al., 2017, p. 193)

In their article, Sochor et al. (2017) explain the levels of integration. They do not discuss level 0 as there is no integration at all, solely single businesses providing their own service. For level 1, they argue that ‘’the added value of level 1 is decision support for finding the best trip’’ (p. 193). It usually involves platforms or apps that present data on which a decision can be based, such as what the shortest route is or how to avoid traffic jams. These platforms or apps are usually not paid for by the end users because they are not willing to do so, although the information is useful. The article does not explain why the end users are not willing to pay for this but one reason might be that this information is also available offline at stations or bus stops. The platform or app does not provide any new information but rather only makes it available only and therefore end users are not willing to pay. For level 2, ‘’the added value of level 2 is to offer users easier access to services’’ (p. 194). It makes travel via public transport easier for the ones already doing it but for the ones not using public transport yet, level 2 cannot offer comprehensive enough information. An example would be the option to book an Über via Google Maps. Businesses operating at this level, such as Google Maps, do then not provide the service and earn money with it but earn money ‘’from brokering fees [and] commissions’’ (ibid). Sochor et al. continue with level 3 and note that ‘’the added value of level 3 is the comprehensive alternative to car ownership, with a focus on the customer’s complete mobility needs’’ (p. 195). There is an operator in this level who acts as a sort of broker between supply and demand but who chooses his partners wisely, not incorporating all supply that is present in the market but only those suppliers who are qualified enough. Therefore this level involves more responsibility in comparison to the previous two levels as suppliers will have to deliver and users will have to pay, and thus a deeper commitment is involved. The business operates on a ''swings and roundabouts principle, [meaning that] some trips or modes are resold with high margins and some at loss'' (ibid). The business model is different at this level because users pay the operator instead of the service provider. In level 4, the focus is on ''how well local, regional and/or national policies and goals are integrated in the service'' (p. 196). Actors that are not necessarily directly linked to transport should be involved, such as municipalities. They can make decisions that influence the MaaS model, such as creating incentives or construct infrastructure a certain way. It can however, also create difficulties as public agencies focus on ''a one-size-fits-all service with non-flexible price models, while an attractive MaaS offer needs to be perceived as a unified, flexible service''. Level 4, in comparison to the previous three levels, is more about striking the right balance.

Smith et al. (2017) have focused on the topic of MaaS and its development and which scenarios are envisioned for this development. They argue that development of MaaS can be accelerated in three ways. Important to mention, Smith et al. also see that ''the development of MaaS introduces a need for two new roles (…): integrators that assemble the offerings of several transport providers and operators that package and deliver these offerings to end users'' (p. 3). In the first scenario of MaaS development, the private sector would further the development. This implies that both the operator and integrator role will be taken on by existing businesses or that ''start-ups [are attracted] to set up shop'' (p. 5). Current public transport providers would be acknowledged and will be involved in MaaS schemes but ''would act as an enabler rather than as a driving force in this scenario'' (ibid). This development scenario is based on the idea that the private sector is better capable of innovating because it has more possibilities to do so, compared to the public sector. The authors mention that the invisible hand, economist' Smith his idea of a self-regulatory force in the market, is thought to be enough in preventing negative developments. Although this may be true, we cannot know yet because of the current state in which MaaS developments are in, this thesis argues that there is a need for a regulatory framework. This will be needed to secure the transport needs of all, a topic this thesis will touch upon later with regards to transport justice. In the second scenario of the development of MaaS, the public sector is the leading force. They would be so as they ''would drive the emergence of MaaS by orchestrating and funding development, implementation as well as operation'' (p. 6). The operator and integrator role would not necessarily lay with them but the public sector can attract actors from the private sector to carry out these roles. The article makes two arguments as in why the public sector should further the development of MaaS. The first one is that MaaS will contribute to the societal good, which is something that the public sector aims for. Although the private sector would be in favor of the societal good as well, it is argued that business opportunities ‘’in the MaaS ecosystem are limited or non-existent, due to small margins within the sector, large administration costs and a lack of proof of the end users’ willingness to pay. Hence, public funding might be needed to catalyze the development’’ (ibid). The second argument is that public transport has a large share in MaaS schemes and public transport is often provided by the public sector. These arguments sound appropriate but what if there is a moderation between these scenarios? Smith et al. have proposed this as the third scenario, a public-private development of MaaS. There would be two big advantages to this scenario. The first advantage is that the public sector can take upon itself the integrator role, which ‘’will results in a lower initial investment cost for MaaS operators, as they will not have to develop an integration platform’’ (p. 7). The second advantage is that ‘’a publicly controlled integrator could act as a neutral buffer between MaaS operators and transport providers, thus, mitigating the risks of MaaS operators becoming too dominant’’ and the loss of the societal good (ibid). A public-private scenario would combine the best of the two other scenarios and can potentially create a takeoff for MaaS. It is important to mention that this article was written in Sweden and that some conditions that are needed in either scenario, are present there but are not necessarily present in other countries. However, this article has given a good overview of how MaaS can develop, albeit not in all countries.

Literature, for example in Kamargianni et al. (2016), shows that MaaS has been introduced in the Netherlands before. There are companies in the private sector that focused on the MaaS market. One example is Mobility Mixx, which has introduced the Mixx Card. This is a card that can be used to access all transport modalities and use them intermodal. All employers in the Netherlands can purchase this card for their employees but the card remains in ownership of Mobility Mixx. This way, both the employers and employees do not have to worry about transport as Mobility Mixx takes care of it. Mobility Mixx has taken a great step towards the MaaS future but this thesis wants to add two critical notes. The first is that the employee cannot use this card for private travel, which makes sense since the employer is paying for the card. However, it would be better if Mobility Mixx innovated their card and include an option with which an employee can pay for its private travels. Now, the employee has to buy its own private public transport card which makes traveling for the employee more complicated. The second note is that so far, only businesses can purchase this card and not individuals. In order to take MaaS further, it would be interesting to introduce this Mixx Card for individuals too.

There are other companies in the Netherlands that have introduced similar concepts, such as Cardz by Radiuz. They too focus on businesses that purchase these cards for their employees. Reisbalans does something similar too, although they have facilitated another option in their app. Employees can use a travel card, which their employers purchase for them, but they can also register business mileage in the app. This will be forwarded to the employer, who has an overview of the kilometers and the fees that have to be paid to the employee. Another MaaS facilitator is Tripkey, who developed a platform and card for travel in the Netherlands by international visitors and tourists. They have done so because they argue that the Dutch transport system is hard to understand for someone who has not used it before and will only briefly use it. In order to make travel easier for these people, they can use this card which they register for online and can pick up at a service desk, for example, at Schiphol.

Zijlstra et al. (2019), by order of the Dutch Ministry of Infrastructure and Water, concluded a study on MaaS and its potential target groups in the Netherlands. One of the variables in the framework of MaaS implementation that became apparent was age. Young adults are one of the potential MaaS adapters. The main arguments for this are that they are highly interested in new technologies, already use travel apps and are interested in the sharing economy. The authors acknowledge that they only included youth above the age of 18 in their research and that their research is not completely representative of Dutch youth. Zijlstra et al. their research does not cover younger youth and this thesis does, therefore it is interesting to see if the respondents in this thesis, who are younger than 18, support this conclusion. Sytsma and Stulen (2018) drew up a likewise hypothesis: young people are more likely to use MaaS than older people. They also suggested that there are two reasons why people have an interest in MaaS, apart from any specific variable. This is when people see the value of MaaS, which they refer to as opportunities or when people face challenges in current transport situations, which they refer to as obstacles. In their article, they try to answer the research question on how MaaS can contribute to better accessibility to a certain neighborhood in Utrecht.This specific research is the starting point of a government initiated MaaS pilot in the same neighborhood. This pilot is one out of seven that have been launched in May 2019. Another one of these pilots takes place in the Dutch regions of Twente and Groningen and is specifically based on accessibility in rural areas. Although the locations of that pilot and of this thesis are not the same, the future outcomes of the pilot will be valuable for MaaS developments in other rural regions too, such as the location of this thesis' research.

Eckhardt et al. (2018) conducted an interesting research in the light of this thesis. They researched the potential of MaaS in rural areas in Finland. They did a SWOT analysis of all the aspects that are needed in MaaS, of which this thesis has summarized the main points in table 4. They then looked at the weaknesses and threats of the SWOT analysis to see what the challenges are for MaaS in rural areas. They tried to seek solutions to these challenges, which they did on the basis of interviews with actor who will possibly be involved in a rural MaaS pilot. This led to four main solutions on which the focus, according to Eckhardt et al. should be. The first one is collaboration, on different scales. Collaboration should happen between municipalities but also ''a collaboration between public and private sector and people'' (p. 81). The second solution is transparency. They argue that transparency will lead to the best MaaS implementation because it leads to best pricing mechanisms, the best time frames and the best collaborations. Flexible and innovative planning and decision making is the third solutions. It needs to be flexible because ''the service level does not necessarily have to be the same in all areas'', as such areas are for example closer to a city (p. 82). Innovative planning and decision making is important in order to try to involve more people and make MaaS interesting for them. The fourth and last solution is making technology accessible, so make sure that everyone can for example use an app or platform or that payment is reliable and easy to do. The authors of the paper noted that ''even though the project was conducted in Finland, the most of the results are also relevant and applicable in the rural areas of different countries'' (p. 82). This thesis agrees with that but it has to say that this is also the case because the solutions that this research proposes for MaaS implementation in rural areas, are rather broad. They could also be applicable to MaaS implementation in urban areas. There are some specific elements that are useful to rural areas, such as the need for flexibility, but most elements are applicable to every MaaS implementation. Nevertheless, it is worthy that Ecklandt et al. did this research because it invites other scholars to think about transport in rural areas too.

Strengths	Weakness
• Local stakeholders and knowledge • Decision makers are aware that they need to do something	• Inefficiency: weak chains, long distances, low occupancy rates • Lack of resources • Weak IT systems
Opportunities	**Threats**
• Collaboration multiple municipalities • The needed technology exists, is available and develops continuously	• No introduction of market based services • The needs of special groups cannot be taken sufficiently into account • Costs

Table 4: A SWOT analysis on MaaS in rural areas. (Source: Eckhardt et al., 2018, p. 78-80)

3.3 Why transport innovations emerge.

The following paragraph will identify and summarize the main reasons for innovations in the field of transport. Innovations often come forth because of a mix of reasons. It is important to indicate these because it provides a background on why mobility practices can also change.

Environmental and sustainability approach.

Chen et al. (2014) argue that sustainability in transport ‘’encompasses the fight against climate change and reducing greenhouse gas emissions and reducing pollution as well as the dwindling resources problem’’ (p. 1575). But what would be defined as sustainable transport? For Buehler et al. (2009), who point out that there is indeed no agreement on a common definition for sustainable transport, a sustainable transportation system would ‘’encourage shorter trips by non-polluting, less energy consuming and healthier modes of transportation’’, eventually leading to less environmental harm (p. 7). Car sharing, in comparison to driving a private vehicle, can be more sustainable as it might lead to decreased car ownership, as will be explained in the sharing economy approach. When MaaS is well-implemented, it can lead to an increase in the use of public transport, which is more sustainable when compared to driving a private vehicle.

Technological approach.

Many technological innovations in transport are related to the idea of smart mobility and ITS: Intelligent Transport Systems. Smart mobility is aimed at optimizing mobility, often by means of Internet or data. Quite popular these days are applications in which people can plan their journeys. These applications can be downloaded on their smartphone and it contains information on as much as ‘’real-time bus arrival times and bus travel times to destinations, travel speed on urban roads and expressways, incident information, locations of public parking lots and available parking spaces, mass rapid transit information, taxi information, river cruise information, public bike service stations and their real-time available spaces, and intercity real-time transportation information, including details for intercity railway, high-speed rail, and bus services’’ (Feng, 2014, p. 23). Feng also argues that seamless intermodality is a key vision for the future of transportation. People would not have to struggle with buying multiple tickets or unclear transfers at stations but all of this would go seamless. MaaS is the perfect example for this.

Spatial approach.

One relationship that is often established in the literature, is the one between transport and land use. Much of the studies done in light of this relationship, research the effect of the built environment on transportation decisions, often focusing on the more healthy transport modes such as walking and cycling. Changes in land use do not necessarily foster innovations in transport but they can motivate people to make other choices transport-wise. One model that is used in this context is the 5D (Ewin and Cervero, 2010). The 5D model focuses on population density, design, diversity of destinations, destination accessibility and distance to transit (p. 267). Focusing on these aspects in the built environment can increase walkability and travel by bike. Another model, building on the 5D model, that combines transport and land use to create a more sustainable approach is the Transit Oriented Development model (TOD). Cervero and Sullivan (2011) state that ‘’it typically features compact and mixed use activities configured around light or heavy rail transit stations, interlaced with pedestrian amenities’’ (p. 210). These models show that accessibility is an important factor and this might also be the reasons that these models are mainly applied in the city. However, Staricco and Brovarone (2018) researched the potential of TOD for a rural area. They drew up some recommendations of which one ’implies involving in a unitary TOD project of the line or network also towns without a station and to modulate regional binding rules, that are often the same for all municipalities, in favor of station areas’’ (p. 18). MaaS can strengthen this idea when there is full integration so that suppliers, policies and more strengthen each other.

The sharing economy approach.

Recent years have shown a substantial growth in the sharing economy. Standing et al. (2019) observed this growth and wrote an article about the consequences of the sharing economy on transport. They defined the sharing economy as ‘’an umbrella term that covers the sharing of consumption through only platforms’’ (p. 229). Car sharing and bike sharing are examples. This sharing approach can lead to decreased car ownership and also to less driving. Katzev (2003) makes the argument that ‘’when a private vehicle is no longer available, it is anticipated that car share members will be motivated to rely more on alternative travel modes, such as carpooling, biking and public transit’’ (p. 69). If the car is at the doorstep, people tend to use it even though the trip could be made without it. Standing et al. (2019) did a research into car sharing and presented the facilitators and barriers in sharing transport, of which they touch upon one important barrier (p. 234). These are long-held norms and values, for example the believe that owning a car increases your social status or that you cannot be independent without a car. These norms and values have to be taken into account when trying to innovate and they show that change does not have to be material but is also related to intangible elements.

3.4 Relevance.

A literature review on both car sharing and MaaS has been provided in this chapter. This was done with as goal to provide clear definitions on the concepts and to show which progress has been made since car sharing and MaaS have been introduced. This chapter has already provided insights into how much is involved in the practice of car sharing and MaaS and that a simple definition often does not capture the essence of a practice. The chapter has also briefly touched upon why mobility innovations happen, which is important to again show how many elements are involved in a practice. The next chapter will deep further into practice and provide the theoretical framework of this chapter.

Chapter 4.

(Social) Practice Theory.

I don't have to know what I'm doing, just so long as you know.

I think I do. Good enough?

This chapter will describe the theoretical framework of this thesis, which is social practice theory. What the previous chapter on car sharing and MaaS has shown, is that there is much involved in these practices and that is also what social practice theory highlights. Hampton and Adams (2018) show that ''the practice as the unit of analysis shows how social activity is made up of a constellation of human, material and discursive elements'' (p. 215). Since a practice involves more than merely the human aspect, it is valuable to use social practice theory in favor of other theories because ''even if individuals were motivated through of variety of nudges to change their behavior, there are myriad socio-technical structures that inhibit behavior change'' (ibid). These socio-technical structures are important to lay bare to really establish the potential of car sharing and MaaS in rural areas. It is also important to understand that car sharing and MaaS are not ''consumed for its own ends, but to facilitate everyday practices'' (in adapted form, ibid). Shove (2002) refers to this as double construction: ''the routinized trip to an out of town shopping centre is a prime example of such double construction. If you 'have to' shop there, you have to travel. Rather than seeing these as separate events, it is more appropriate to view traveling as part of out of town shopping'' (p. 2). This is what the thesis has shown in chapter 2, that transport is used for other practices such as attaining education or being employed.

4. 1 Introduction to social practice theory.

Before turning to the authors that are the main focus in the thesis, this paragraph will provide a brief introduction to practice theory in a more general sense. It will look at the positions of practice theory and it will give an overview of what all practice theory approaches have in common.

In their article, Feldman and Orliksowski (2011), have examined social practice theory in three positions: empirical, theoretical and philosophical. They describe the first position, empirical, as ''the centrality of people's actions to organizational outcomes and [the reflection of] an increasing recognition of the importance of practices in the ongoing operations of organizations'' (p. 1240). The structure of a practice has the focus in this position. The human agent is less relevant but the whole of the sum is all the more relevant, such as how a practice is for example shaped by rules and regulations. For this reason, the empirical position is often used when researching the practice of politics. The practice of politics is shaped rather by how politics are (ought) to be done than by the human agent on a personal level. The theoretical position answers the 'how' in practice theory, as ''it is critically concerned with a specific explanation for that activity'' (p. 1240). Context is of the essence in this approach. A standard everyday activity might suddenly change under a different context. This relates to what Feldman and Orliksowki note that this position is about ''engaging with the care logic of how practices are produced, reinforced, and changed and, with what intended and unintended consequences'' (p. 1241). This reflects how the human agent is more present in this position compared to the empirical position.

In the field of practice theory, there are some distinctions in approaches by different scholars. Feldman and Orliksowki (2011) have also acknowledged this but argue that there are three general principles that can be drawn from all approaches. These are:

- Social practices are a key factor in the production of social life;
- Dualisms are a part of social practice theory;
- Relations are fundamental in social practice theory.

The first principle is ''associated with a strong humanist orientation and the foregrounding of human agency'' (p. 1242). The second principle is based on the idea that practice theory consists of several elements that are dichotomous. Examples are mental and physical, body and mind, free will and determinism or individual and institutional. In practice theory both elements of dualism play a role. Driving a car requires a physical body to be present but in order to drive a car knowledge in the mind must also be attained. Both elements are needed and should not be polarized. The third principle signifies that no practice exists independent of another and that practices are reproduced by each other. This principle stands in relation with power and structure. There is a continuous movement through practices that structure life. Not all practices are equal and power can ''constrain and enable'' practices (p. 1243).

4.2 Social practice theory by Reckwitz.

Before turning to Reckwitz and Shove and their versions of social practice theory, this thesis will briefly explain why it has chosen to focus on the framework of practice theory in the way Reckwitz and Shove have constructed it. There are two main reasons on which this decision was based. First, these authors are theorists and writers of recent times. It is important to note that they build on the work of, for example, Bourdieu and Giddens, but they have added their own view, which is believed to suit this thesis. Second, Reckwitz and Shove have moved away from a mere theoretical approach of practice theory towards a more practical approach and have created a kind of toolbox that scholars can work with. Also important to note is that both authors, Reckwitz and Shove, have a somewhat similar approach. Practice theory theorists have not (yet) formed a single practice theory approach. Hargreaves (2011) researched the differences in practice theory approaches and found that:

''One area of disagreement, for example, centers on defining exactly what a practice is. Here, some theorists focus on the various components or elements that make up a practice (e.g. Reckwitz, 2002; Shove and Pantzar, 2005), others on the connections between these elements (e.g. Schatzki, 2002; Warde, 2005), and still others on the position of practices as a bridge between individuals' lifestyles and broader socio-technical systems of provision (e.g. Spaargaren and Van Vliet, 2000)'' (p. 83).

Reckwitz (2002) notes that practice theory is a cultural theory. Cultural theory attempts to explain and understand the dynamics of culture. Reckwitz continues that there are three main forms of explanations of the dynamics of culture, which differ from each other and which have challenged each other. The first one is ''the model of the homo economicus which explains action by having recourse to individual purposes, intentions and interests; social order is than a product of the combination of single interests'' (p. 245). This model stands in contrast to the model of the homo sociologicus which ''explains action by pointing to collective norms and values … social order is then guaranteed by a normative consensus'' (ibid). Cultural theorists have challenged both models because they argue that both share a blind spot. This is their [the models'] focus on the conscious. Both imply that there is 'perfect' knowledge and that [the collection of] individuals are rational utilitarianists. This is however not the case according to the cultural theorists. They argue that the models ''dismiss the implicit, tacit or unconscious layer of knowledge'' through which reality is organized (ibid). Cultural theories make sense of the world by highlighting the importance of cognitive-symbolic structures. Cognitive structures ‘’are the basic mental processes people use to make sense of information’’ (Garner, 2007, para 4). In cultural theories, the world is made sense of by looking at physical, symbolic, patterns and the processes that come with this patterns.

The main point that Reckwitz makes in the article is that the place of the social is different in each cultural theory. In order to know where the social in practice theory is placed, he differentiates the terms practice and a practice, in which practice refers to practical, opposed to theory and theoretical. Important for this thesis is Reckwitz’ definition of a practice, which stands for:

‘’a routinized type of behavior which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, ‘things’ and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge’’ (p. 249).

A practice is carried out by an individual, ‘’the carrier (Träger) of a practice’’ (p. 250). However, the focus in a practice is not only on the individual as a carrier of a practice in bodily behavior but also mental processes as ‘’certain routinized ways of understanding, knowing how and desiring’’ (ibid). This makes practice theory a cultural theory as the practice ‘’is not only understandable to the agent or the agents who carry it out, it is likewise understandable to potential observers’’ (ibid). The world makes sense because of the symbolistic structures such as in the way practices are carried out. It also makes a practice social because it is understood by not only the agent(s) but others too as ‘’a practice is a type of behaving and understanding that appears at different locales and at different points of time and is carried out by different bodies and minds’’ (p. 250).

Making use of the article by Reckwitz on practice theory, this thesis has so far tried to explain how cultural theories approach the world and, specifically, how practice theory is a cultural theory and what its definition is. Reckwitz has clarified practice theory further by defining how certain elements, what he refers to as ‘social theoretical key terms’, are part of practice theory. This thesis will also turn to these elements as they make it possible to go from a more theoretical framework to the practical approach of this thesis’ research.

Body.

As previously noted, a practice is not only a bodily movement but is more than that. The body is important in that, in order to carry out a practice, a ‘’regular skillful performance of (human) bodies’’ is needed (p. 251). This is both for carrying out physical activities as well as intellectual activities, which can reinforce each other too. Reckwitz indicates that a practice does not merely exist of bodily movements as other elements are involved in carrying out a practice as well, but because the body carries out practices routinized, the body is important in creating social order.

Mind.

The mind in practice theory is important for the know-how and understanding in a practice. Carrying out a practice does not only imply bodily movements but also a mental understanding of what a practice entails. The example of playing football is given by Reckwitz, in which the body is needed but also the know how of the interpretation and the aim of a football game. This knowledge comes with the practice, it is part of a practice. Knowledge of a practice is also important in creating social order as it is part of understanding of ‘what is going on’. It was noted earlier in this theoretical framework that dualisms are a part of practice theory. The explanations on body and mind clarify this statement. Both the body and the mind are needed to carry out a practice and ‘’a practice crosses the distinction between the allegedly inside and outside of mind and body’’ (p. 252). One does not have superiority over the other but are equally important in carrying out a practice.

Things.

Many practices need things, objects, in order to be carried out. Objects are resources in practice theory. Objects ‘’enable and limit certain bodily and mental activities, certain knowledge and understanding’’ (p. 253). Since objects are needed to carry out practices, there is no claim over which has the priority, the agent or the object, as both are needed.

Knowledge.

In practice theory, knowledge is not mere knowing how to do something bodily. It is more than that, ‘’it embraces ways of understanding, knowing how, ways of wanting and of feeling that are linked to each other within a practice’’ (p. 253). This knowledge is based on historically-culturally paths and it is the reason that not only the carrier of the practice understands the practice but others too. By seeing and experiencing a practice being carried out, others take over the practice. Yet, a practice also involves intentionality, which implies the ‘’wanting or desiring of certain things and avoiding others’’, which can be different for every agent (p. 254). This opens up possibilities for change in practices as every agent has a different intentionality.

Language.

In practice theory, language is used as part of a practice. Language is not only words that are produced but again it involves know-how. The use of language is also a practice itself, which comes to exist by routinely carrying it out. ‘’Practice theory must stress that language exists only in its routinized use … as certain meanings [are ascribed] to certain objects to understand other objects and above all, in order to do something’’ (p. 255).

Structure.

Routinization is a reoccurring aspect in practice theory. It is how social structure is created as practice are routinely reproduced. Change in structures happens in ‘’everyday crises of routines’’ when agents do not have the knowledge or certainty of routinization (p. 255). This is when practices break and shift as the dynamics of the practice are changed.

Agent and the individual.

In practice theory, agents do not exist independently of a practice. They are the carriers of a practice and ‘’the social world is first and foremost populated by diverse social practices which are carried by agents’’ (p. 256). The individual comes to exist at the crossing point of various practices, as every agent carries out different practices and the mix of carrying out certain practices forms the individual.

4.3 Social practice theory by Shove.

Practice theory is important to Shove because she argues that ‘’the source of changed behavior lies in the development of practices [and] understanding their emergence, persistence and disappearance is of the essence’’ (Shove et al., 2012, p. 1). But what is a practice for Shove? She has merged three elements together that together form a practice. Therefore ‘’practices are defined by interdependent relations between materials, competences and meanings’’ (p. 24). The three elements are then defined as (p. 14):

- ‘’**Materials**: including things, technologies, tangible physical entities, and the stuff of which objects are made;
- **Competences**: which encompass skill, know-how and technique; and
- **Meanings**: including symbolic meanings, ideas and aspirations’’.

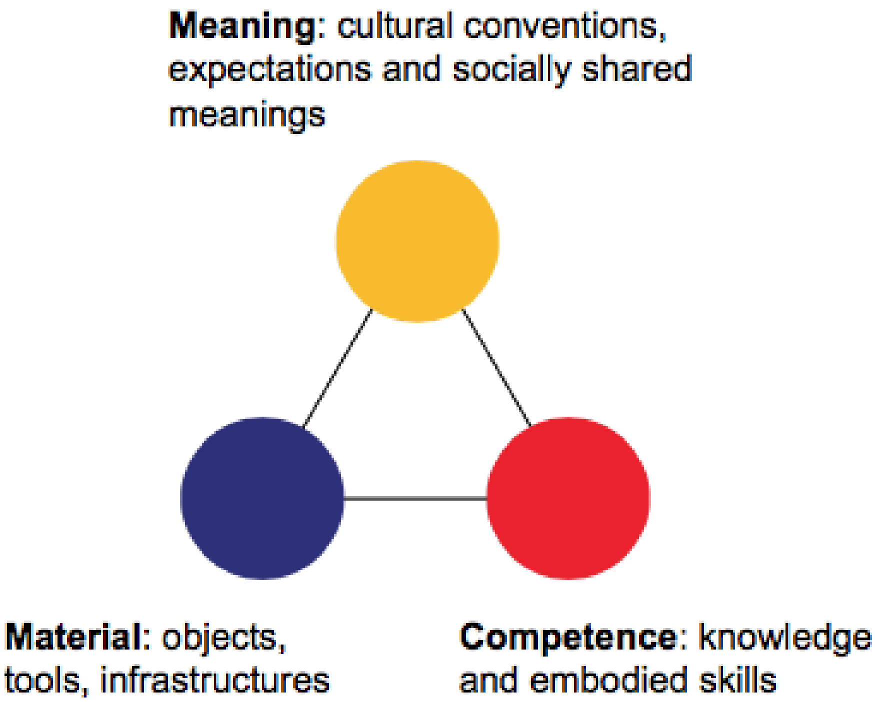

Image 2: Shove's 3-Elements model. (Source: Shove et al., 2012)

When these three elements are performed together, the practice 'lives'. This is important as Shove distinguishes between practice-as-entity and practice-as-performance. Higgison et al. (2015) state that ''practices-as-entities can be recognized to exist across time and space, even if they are not currently being enacted'', so the practice itself always exists as an entity (p. 7). However, in practices-as-performances, a practice is 'lived' when it is performed. Only when the practice is enacted, it becomes reproduced and it establishes a practice. A practice will only be constituted a practice when the performance of the practice, through the elements, was successful once and therefore reproduced (Shove et al., 2012, p. 7). This thesis will mainly focus on practice-as-entity because the practices that it researches, car sharing and MaaS, are not actually performed in the research context of this thesis. However, it is important to note the practice-as-performance because it can show us how other practices, that are currently performed, are interwoven with the new practices. It can, for example, display how listening to the radio (the practice) in the car has its effect on the potential of car sharing and MaaS.

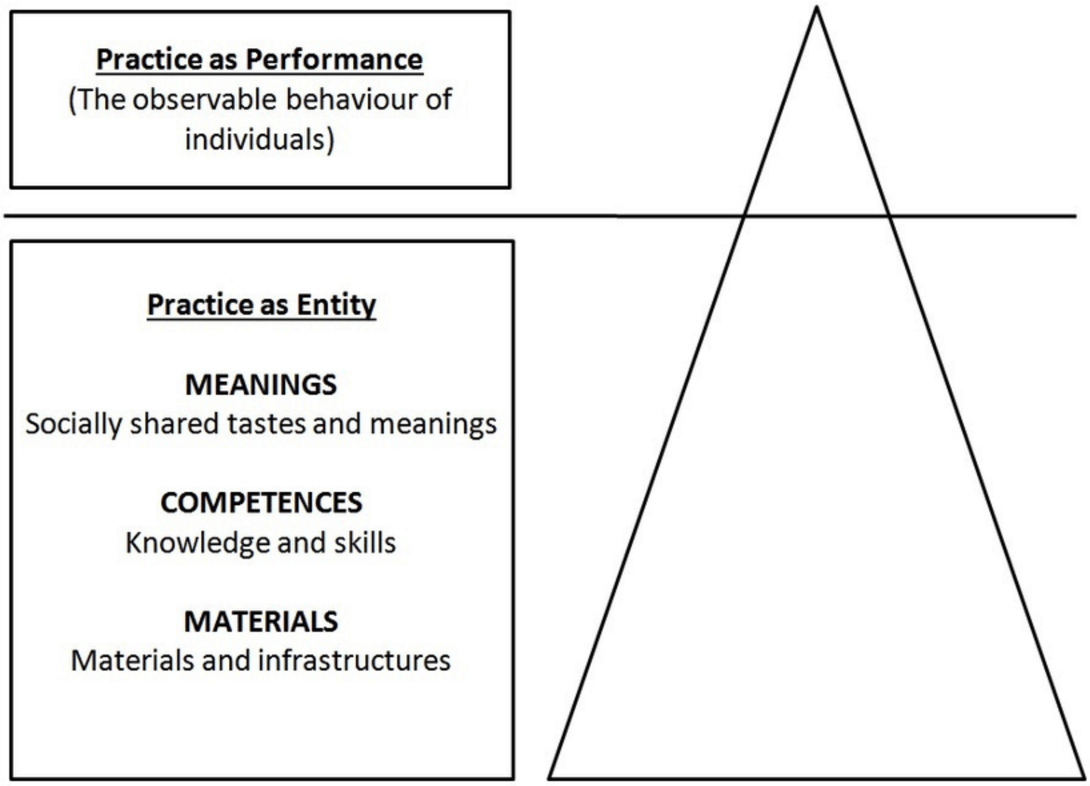

Image 3: Practice-as-entity versus practice-as-performance. (Source: Flores et al., 2015, p. 26)

One element of the 3-element model is materials. Most, although not all, practices need some material(s) to be carried out. Shove (2017) dedicated an article to the element of materials in order to understand how ‘’distinctly resource intensive’’ practices are carried out and how processes that might not seem related to practice theory, are at the basis of some practices (p. 1). This thesis does not intend to get into too much detail about the wider processes, such as world trade and resource economics, as Shove does but it does believe that it is important to briefly look at this article. Shove namely distinguishes between the different roles that materials have in practices. This is valuable because it shows that ‘’rather than taking objects to have a fixed status … [we should distinguish] between the various ways in which people describe and engage with the materials’’ (p. 3). If materials do not have a fixed status and are therefore possible to change, people’s view towards certain materials will change too. This is how a practice can change. The three roles of materials will now be discussed.

<u>Writing about things in the background.</u>

Things in the background are those that ‘’have an infrastructural relation to a practice [and] are necessary but that are not interacted with directly’’ (p. 3). Examples of infrastructural materials are power grids, the road network and communication and data systems. When these infrastructures are functioning, they become invisible in daily life (p. 3). Yet many people are highly dependent on these infrastructures, not the least for carrying out practices. Since these infrastructures have a role in the background, they ‘’are only of value and only develop and expand when they connect with and enable a proliferation of devices and appliances that are in turn enmeshed in practice’’ (p. 4). This implies that changes in infrastructural materials will affect the other roles of materials too. Shove argues likewise when she notes that ‘’infrastructural transitions do not occur in isolation’’ (p. 4). This is of importance because even if these infrastructures only play a role in the background, they are important for change in a practice.

Writing about things in action.

Many practices use things as tools in their performance. Shove however argues that things that are used in practices, are not actually used in the sense of the word use. The word use would mean to deploy a thing in order to achieve something. Although this is involved in a practice, Shove states that ‘’rather such things are implicated in defining the practice itself’’ (p. 4). It is therefore more important to ‘’conceptualize the conjunctions of human and nonhuman competence and capacity that follow’’ (ibid). This is important because some of these conjunctions become taken for granted in carrying out a practice, which Shove sees as ‘’how aspects of practice become ‘black boxed’’’ (ibid). Be becoming black boxed, aspects are unchallenged. By opening up these black boxes, practices can be challenged and change.

Writing about things that are used up.

The reason for challenging practices for Shove is that some practices, or the things in practices, are not durable. This could be in the sense of resources which will all be ‘used up’ someday, such as oil or gas. This could also be in the sense that some practices are not durable because they have large negative effects when carried out. Shove refers to ‘’to the ways in which practices are linked by material interdependencies and by chains of waste’’ (p. 5).

4.4 Social practice theory and other theories.

It has already been outlined in the introduction of this chapter why social practice theory is chosen as theoretical framework. This paragraph will outline other theories that could have been used in this thesis and state why they were not. It will also briefly outline the disadvantages of social practice theory, as no single theory is perfect.

Much of the literature that is concerned with practice theory, refers to two other theories that are somewhat similar. The first is Ajzen's theory of Planned Behavior. This model focuses on the intentions of people, which Ajzen (1991) refers to: ''intentions are assumed to capture the motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior. As a general rule, the stronger the intention to engage in a behavior, the more likely should be its performance'' (p. 181). According to Egmond and Bruel (2007) change on the basis on the theory of Planned Behavior should be possible. They argue that ''the policy interventions that flow from this model are relatively straightforward. Policy should seek to ensure that consumers have access to sufficient information to make informed choices'' (p. 5). If this theory is so straightforward, why not apply it? One of the more often voiced criticisms is that the model does not take into account habits. (Sniehotta et al. 2014; Jokonya 2017). Another criticism that is voiced is the neglect of ''the social and material contexts in which people perform their actions'' (Balke et al., 2014, p.1). This is something that practice theory does take into account and why this thesis has chosen not to apply the theory of Planned Behavior.

Another theory that is mentioned in the literature on behavioral change is Triandis' theory of Interpersonal Behavior. It is believed to be more comprehensive than Ajzen his theory of Planned Behavior but has been overlooked by many authors (Robinson, 2009). This theory reasons that ''interpersonal behavior is a multifaceted and complex phenomenon, due to the fact that in any interpersonal encounter, a person's behavior is determined by what that person perceives to be appropriate in that particular situation'' (Robinson, p. 14). Triandis his model is quite complex and extensive and this is also one of the criticisms and supposed reasons that it is overlooked, as less complex models are favored more (Godin, 2008, p. 52). This model, like Ajzen his model, focuses on changing the values of individuals to create societal change. This is not what this thesis wants to focus on because more than values alone need to be researched.

A research by Spotswood et al. (2015) that used social practice theory to analyze cycling to work, resulted in an interesting outcome that shows the added value of social practice theory. They found that people would want to change their behavior and cycle to work instead of drive because they realize that it is better for the environment, healthier and cost-friendlier. However, due to a ''lack of showering and vanity facilities at their workplace'', people did not (p. 26). This shows the added value of social practice theory because it is believed that this result would not have been demonstrated on the basis of behavioral research. It also proves the point that has been noted earlier that a practice involves many other practices, for example how cycling also involves taking care of personal hygiene.

This is why this thesis has chosen to apply the framework of practice theory, when compared to behavioral theories. It is believed that ''social practice theory (…) diverts attention away from moments of individual decision making, and towards the 'doing' of various social practices'' (Hargreaves, 2011, p. 83). Although practice theory is favored and applied in this thesis, there are some limitations to it. Reckwitz (2002), for example, ''argues that practice theory has not yet offered the advantages of a grand theory as it does not offer the complexity other theories have offered'' (p. 257). Shove argues in the same manner that her 3-Elements model can be criticized ''for its simplicity and the reduction of complex theory into a very simple framework'' (Williams, 2014, p. 36). Yet the strength in this simplicity is that this theory is a good starting point for any research as it can create an overview of complex matters.

4.5 Relevance.

This chapter has presented the theoretical framework that will be applied in this thesis. It has discussed the specific authors whose models will be used. It has also discussed the advantages and limitations of this specific theory. This theory is highly relevant and suitable for this thesis because it comprehends all elements that are involved in car sharing and MaaS. It is also provides new insights into these practices as this framework has not been used for research on car sharing and MaaS before. Both Reckwitz and Shove focus on various elements in practices and although they do not name these elements similar, there are many similarities between the two. These elements will be applied to the practices and analyzed. The next chapter will provide more information on the methodology.

Chapter 5.

Methodology.

Why do we feel it's necessary to yak about bullshit in order to be comfortable?

In order to answer the research question that has been set out, this thesis will take a qualitative approach to doing the research. Qualitative research is best suited in this thesis as it gives the best insights for social practice theory. Social practice theory researches many elements of a practice and wants to discover why this practice is shaped as it is. In order to do so, an in-depth analysis is needed and qualitative research is best suited for this. The research questions that this thesis uses can also be answered best with the use of qualitative research. Reulink and Lindeman (2005) state that qualitative research is about the experience, the characterization and the value of research subjects and that is also what the research questions of this thesis focus on.

5.1 Case study.

Gerring (2006) notes that a case study is ‘’the intensive study of a single case where the purpose of that study is, at least in part, to shed light on a larger class of cases’’ (p. 20). Although the purpose of the case study is to research an example to shed light on other cases but Gerring also notes that ‘’the unit under special focus is not perfectly representative of the population or is at least questionable (p. 20)’’. The biggest criticism on the case study as a research approach is therefore that it cannot generalize since one study does not proof enough (Zainal, 2007). However, this thesis has still chosen to pursue a case study because ‘’the detailed qualitative accounts often produced in case studies not only help to explore or describe the data in real-life environment, but also help to explain the complexities of real-life situations which may not be captured through experimental or survey research’’ (Zainal, 2007, p. 4).

5.2 Data collection and analysis.

In pursuance of an answer to the research questions, data is needed. Data can be collected in many ways and this thesis will use multiple ways to collect data. Table 5 shows what data collection method has been used for which research question.

Research question	Research question	Data collection method
1.	To what extent does mobility have an influence on the decisions/life aspects of rural youth?	Literature review: Research articles
1.	What is the effect on the village in which the youth lives?	Literature review: Research articles
2.	What are car sharing and Mobility as a Service?	Literature review: Review articles and research articles
2.	How can these terms be conceptualized using social practice theory and applied literature?	Literature review: Theoretical articles
3.	What are the current transport challenges for youth in Wanroij?	Policy documents Via interviews
3.	What are the opportunities that car sharing and Mobility as a Service offer?	Via interviews

Table 5: Overview of the research questions and how data is collected to answer them.

The first step in collecting data has been to browse for literature. The existing literature is helpful in two ways, the first is to take a position in the debate about this topic, the second is to know what has been or not been written about it and in which ways this thesis can add to that. The literature has been sought for by means of snowball sampling. Various databases have been researched on the basis of key terms. The articles that were found in this search were read and from the references in these articles, other articles were read.

The second step in data collection has been done by carrying out interviews. This thesis has adopted a semi structured interview approach, in which there are questions set up but there is freedom to diverge from these questions. The advantage of this is that there is some leeway in the interviews to ask follow up questions or to deep further into the material. The questions are open, which is important in order to grant the interviewee the opportunity to answer in his own words. Nettleton and Green (2014) state that ‘’we must avoid literal readings and analysis that simply reproduce actors’ accounts and instead we must pay attention to what is not said and be attuned to the interactional responses to questions or informal exchanges’’ (p. 249). This can be done in a semi structured interview because of the leeway to ask follow up questions or ask as to why a respondent responds the way he or she does. The interviews were done in the months March to June , at the interviewee’s residence. All interviews lasted between twenty and forty minutes. For ethical considerations, all interviewees have been asked permission for the recording of the interviews, which they all gave. The interviewees were guaranteed transparency and were told that their answers would be handled with care. The document with the questions have been sent to the interviewees shortly before the interview, so they were attentive of the content of the interview. This was done in order to come to most beneficial results, as interviewees could prepare.

The decision for the size of the sample was based on two arguments. The first argument is that this thesis aims to generalize to a certain extent. The case study of this thesis is Wanroij but the results should not be limited to Wanroij only and therefore the sample must be large enough. Yet there is also the realization that although Wanroij is small place and that it is not the only in the Netherlands, the results will never be completely generalizable because the transport situation will be different in each place, for example that there is a presence of a train station, and therefore a smaller sample is acceptable. The second argument is that due to time restraints, this thesis should limit itself to a smaller sample. On these grounds, the sample of interviewees has been set on fifteen interviewees. The interviewees have been selected on the basis of two criteria, which are:

- The respondent must be living in Wanroij
- The respondent must be of an age between 16 and 35

Furthermore, the pool of interviewees contains a mix of other characteristics such as male and female and from various career backgrounds. Interviewees were first approached on the basis of personal contacts from the writer of this thesis and from then on, snowball sampling was used. The contacts were asked for their contacts and if he or she knows anyone who would fulfill the criteria.

First name	**Age**	**Date**	**Profession**
Debbie Verheijen	23	28.03.2019	Group supervisor mentally disabled children
Astrid v/d Straaten	36	02.04.2019	Tax inspector *Belastingdienst*
Janne Nooijen	19	15.04.2019	Bachelor student
Anneliene v/d Boom	26	08.05.2019	Video production employee
Milou Thijssen	17	15.05.2019	Learning track student hairdresser
Michiel v/d Zanden	21	17.05.2019	Bachelor student
Dennis Cox	32	19.05.2019	Planner and calculator construction company
Peter van Melis	35	20.05.2019	Head of sales Marel
Karin Vesters	35	20.05.2019	General remedial educationalist
Eline Manders	24	22.05.2019	Radiotherapist Radboud UMC
Stef Nooijen	21	03.06.2019	Bachelor student
Marielle Manders	25	04.06.2019	Pharmacy advisor
Yvon Smits	18	13.06.2019	Bachelor student

Geoffrey Noij	21	14.06.2019	Master student

Table 6: Overview of the interviewees.

The interviews have been transcribed after they were taken. In some cases, the interview was transcribed immediately and in some cases, a few days went by before the interviews were transcribed. The advantage of immediate transcription was that every detail was remembered and was included in the transcription but sometimes immediate transcription was not possible.

After the transcription of an interview, it was immediately coded on the basis of open coding, so the aim was to find common patterns across the interviews and derive code names from there. This form of doing analysis is referred to as thematic content analysis. This was done by reading through each interview, highlight passages that caught the attention, which usually happened because of words or themes that referred to the literature and theoretical framework that is applied in this thesis. When all the interviews had been transcribed and separately coded, the codes of all interviews were combined in an axial coding process. These codes formed the basis for the analysis in this thesis and the coding scheme can be found in appendix 2. They form the basis in that they are used as key terms in the chapter on results and discussion and can be recognized by their bold virtue.

5.3 Validity and reliability.

In order to draw valuable conclusions, it is of importance that the research is valid and reliable. The external validity has already been discussed in the part on generalizability. The internal validity in this case concerns the interview questions. There was a lack of content in the first interviews which was due to the questions that did not cover all aspects needed. After this has been noticed in the transcriptions, the questions were altered and tested again in the interviews that came after. In this later stadium, the questions did provide the information that was needed for the analysis. The reliability of this research is acceptable. This research will not be exactly replicable because an interview is content sensitive, a respondent will probably never give the exact same answer. However, since the interviews questions were added as an appendix, the research can be replicated on some level.

It has to be noted that the position of myself, author of this thesis and being a university student living in the rural area where I lived all my life, may have influenced this research. Some aspects of the research may have received more focus while I might have unconsciously neglected other aspects. However, by being critical and sensitive about this position, I have carefully tried not to create any bias in this thesis. It has also gained me the advantage of being an insider and to have made contact easier, and to have understood what other interviewees are experiencing and referring to.

Chapter 6.
Results and discussion.
It's a Bingo.

6.1 The context of Wanroij.

This paragraph will outline the case study of Wanroij. It will first present some facts and figures to place it in context. It will then analyze policy documents that influence the mobility policies of the municipality.

6.1.1 Facts and figures.

Wanroij is a town in the northeast of the province Noord-Brabant in the Netherlands. It does not have its own municipality but together with six other villages, it is part of the municipality Sint Anthonis. Wanroij has 2806 inhabitants (January 2019). The municipality of Sint Anthonis (2018) documents that there are many paradoxes that the municipality will face in the future. One of these paradoxes is that in order to make the municipality more viable for elderly, it needs to attract and retain the youth (p. 39). They do not elaborate on this statement but arguably they make this point as this thesis did in paragraph 2.3.2 that youth keeps the villages 'alive'. The document in which this is noted, *Uitvoeringsprogramma 2018 – 2023,* it is also noted that youth is interested in the sharing economy and car sharing is given as example (p. 41). Table 7 gives an overview of the number of inhabitants in the municipality and what percentage this group is compared to the total number.

Age	**Number**	**Percentage**
0 to 15	1703	14,7%
15 to 25	1452	12,3%
25 to 45	2252	19,5%
45 to 65	3792	32,8%
65 to 80	1688	14,6%
80+	690	6,0%
Total	11577	100,00%

Table 7: Inhabitants of the municipality of Sint Anthonis by age. (Source: Statline CBS, 2019)

The numbers in this table are showing that the middle-aged to elderly people (ages 45-80 and up) make up the largest share and this indicates that population ageing and dejuvenation is happening in the municipality. The municipality also confirms these processes and states that ‘’the community of the municipality Sint Anthonis is facing a decrease in population, population ageing and dejuvenation because youth moves away to the city’’ (p. 3). A research by van der Werff et al. (2017), which compares five municipalities in the same region (*Land van Cuijk*) concludes the same. The number of young inhabitants in the municipality of Sint Anthonis will decrease and the number of inhabitants of older age will greatly increase, as shown by table 8.

Municipality	**Inhabitants 0 - 20**		**Inhabitants 65+**	
Year	*2020*	*2040*	*2020*	*2040*
Boxmeer	5700	5495	6570	9235
Cuijk	5180	4920	5515	7875
Grave	2655	2750	2775	4090
Mill and Sint Hubert	2155	2060	2425	3255
Sint Anthonis	2405	2005	2670	4250
Noord-Brabant	538015	549160	520225	730195

Table 8: Population ageing and dejuvenation. (Source: van der Werff et al., 2017, p. 19)

Municipality	**Youth dependency ratio**		**Elderly dependency ratio**	
Year	*2020*	*2040*	*2020*	*2040*
Boxmeer	0,35	0,41	0,40	0,68
Cuijk	0,36	0,39	0,39	0,63
Grave	0,27	0,28	0,29	0,42
Mill and Sint Hubert	0,34	038	0,39	0,60
Sint Anthonis	0,37	0,42	0,41	0,90
Noord-Brabant	0,36	0,40	0,35	0,53
The Netherlands	0,38	0,42	0,31	0,51

Table 9: Dependency ratios. (Source: van der Werff et al., 2017, p. 19)

This means that the youth- and elderly dependency ratio will increase too, as shown in table 9. This shows both the importance and the necessity of the sustention of youth. Van der Werff et al. highlight two important elements in retaining the youth by noting that

‘’youth identifies the supply of facilities as an important point of concern: if, for them, important facilities are not present in the near surroundings, they will move away and look for a future somewhere else. This is related to another point of concern and that is improving accessibility’’ (p. 41).

Table 10 shows the proximity of certain facilities for the youth in Wanroij. It can be drawn from this table that timewise, the car is the most efficient mode of transportation. Public transport takes more time because the nearest bus stop is 9 minutes by bike so taking the bus already increases travel time with 9 minutes too, as someone first has to travel to the bus stop. If a student has to travel to school, depending on which level of education, will take a minimum of one hour by public transport. Students who have to do this every day, might choose to move into a student house for efficiency, as public transport is not highly efficient. Can (public) transport be arranged more efficient and what does the municipality do in the field of transport? The following paragraph will highlight the transport context of Wanroij.

Facility	**Car**		**Bike**		**Public transport**
Distance in km Time in minutes	*Distance*	*Time*	*Distance*	*Time*	*Time*
Train station	12,0 km.	18 min.	11,9 km.	36 min.	49 min.
Regional bus stop	2,5 km.	4 min.	2,5 km.	9 min.	-
Highway entry	7,7 km.	11 min.	-	-	-
Hospital	10,3 km.	15 min.	10,8 km.	32 min.	39 min.
High school	11,5 km.	16 min.	9,2 km.	28 min.	29 min.
Post secondary school (MBO)	10,9 km.	15 min.	11,3 km.	35 min.	58 min.
University of applied sciences (HBO)	26,2 km.	32 min.	24,9 km.	1 hr. 17 min.	1 hr. 14 min.
University	25,5 km.	29 min.	24,1 km.	1 hr. 15 min.	1 hr. 20 min.

Table 10: Access to facilities from central location Wanroij (Kerkplein) based on nearest location of the facility. (Source: Google Maps, 2019)

6.1.2 Positioning of Wanroij.

This paragraph will outline the existing transport content of Wanroij. It will start with the smaller scales and move towards the bigger scales. The reason for this is that the local policy document by the municipality is used as a baseline when describing the other scales.

<u>Local</u>.

The municipality of Sint Anthonis (2019) has published a new policy document which sets out which transport challenges the municipality will address. There are three main themes that the document focuses on, which are accessibility of economic and residential areas, a secure quality of the environment and an accessible environment. A part of the document also shows how the municipality ‘scores’ in the development of new trends. However, they only note that electric vehicles (EV) are a new trend and that the municipality can do almost nothing in facilitating this because every inhabitant of the municipality that has an EV will have a charging station at home. This thesis does not agree with that standpoint because facilitating charging stations in public areas can encourage more people to drive an EV. It also does not agree with the municipality for noting that only EV’s are a new trend, as there is much going on in the transport sector. It is also contradicting as they note that innovation is crucial to them and that attention should be given to smart- and sustainable mobility (p. 12). They are aware that there are transport initiatives from the public but are not facilitating these (p. 37). They also miss the opportunity to do an in-depth analysis of accessibility in their *Uitvoeringsprogramma 2018- 2032*. They are aware of accessibility and how important it is, as shown in image 6, in which accessibility is one of the 8 driving forces in attaining youth. They miss this opportunity because they only devote two sentences to it and continue, as shown in image 5.

Bereikbaarheid
Aantrekkelijk ben je alleen als je ook bereikbaar bent, een station bereikbaar is. Dan wordt hier wonen en werken ook gemakkelijker.

Image 4: Attention devoted to accessibility. (Source: Municipality of Sint Anthonis, 2018, p. 42)

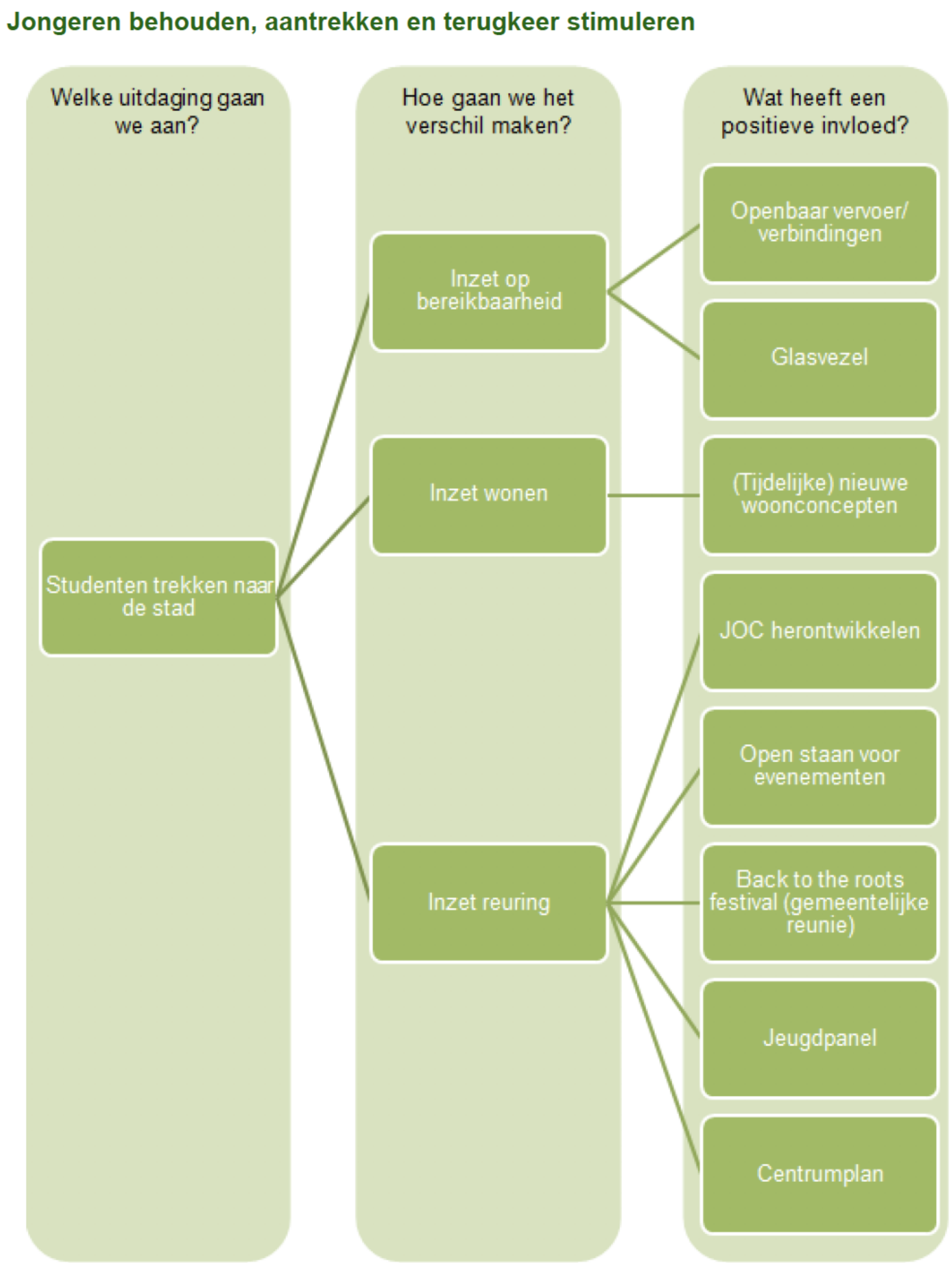

Image 5: How to attain youth according to the municipality of Sint Anthonis. (Source: Municipality of Sint Anthonis, 2018, p. 40)

Regional.

Wanroij is part of the region Noordoost Brabant. This region operates according to an area-based approach in setting up transport policies. One of their goals is to be a facilitator in creating a basic level of public transport for specific target groups and especially focusing on elderly and youth that attends school (GGA, 2004, p. 1). This goal was formulated 15 years ago but there is no information to be found on how they tended to achieve that goal or how successful the completion of this goal was.

Provincial.

The province of Noord Brabant (2006) has its own *Provinciaal Verkeers- en Vervoersplan (PVVP)*. The important points in this policy document are the door-to-door approach and customized mobility. The province wanted to adapt themselves to the many developments that are currently happening and in 2017, they started a research into the future of mobility. They did this research by talking to stakeholders and other appropriate actors for a year. They found out that there are six main points that the province has to focus on to be ready for the future. One of these is that they have to be ready for Mobility as a Service. They concluded that Mobility as a Service is not generally known or accepted in Noord Brabant and they want to change this by means of experimenting.

National.

The Dutch government has set up the *Structuurvisie Infrastructuur en Ruimte*. This document clarifies that local governments, either provincial or municipal, can take away from this *Structuurvisie* what they believe is valuable to their own area. The municipality of Sint Anthonis has done so as stimulating pedestrian and bicycle movements is something that is found in the national *Structuurvisie* and in the 2019 policy document of the municipality. Either modalities can be used as, which is something that Mobility as a Service also hammers on.

What paragraph 6.1.1 and 6.1.2 show is that the municipality of Sint Anthonis is well aware of the issues that it faces, concerning dejuvenation. They are also aware of the opportunities that could help in tackling these issues. However, they do note devote much attention to mobility and accessibility, which this thesis believes is a missed opportunity. The thesis will now turn from the challenges that the municipality has to mobility challenges on a personal scale that youth in Wanroij has.

6.2 Challenges for youth in Wanroij.

This paragraph will outline three dimensions in which mobility challenges currently occur for the youth in Wanroij. The three dimensions are organizational, social and personal. These challenges are deduced from the interviews.

6.2.1 Organizational.

Organizational factors influence travel- decisions and patterns. Cass et al. (2005) found out that ''not only the proximity of a bus stop or railway station [is held important] but the directions the buses travel in, their ability to reach a variety of destinations … the cost of traveling by bus, the quality of the experience, the conditions of waiting and interchange locations and above all the service's frequency, reliability and punctuality'' (p. 550). All these factors have to do with how transport is organized. Youth in Wanroij faces some challenges concerning organizational factors. Every single interviewee pointed out the challenge of limited supply of transport, specifically referring to time. Most interviewees said that if they have to go to school or work by bus, that it works okay. They deliberately said okay because there are some struggles that they occasionally have to deal with, such as bad weather conditions or buses that leave earlier than the departure time. This prevented them from stating that it was perfect but that it is okay for what it is. However, when **traveling past the regular hours**, it becomes a challenge. The last departure of the bus is at 19:11 and the buses do not go on Saturdays and Sundays, as image 7 shows. One interviewee mentioned that ''I know that a few years ago, there was a bus that drove in the evening, like once in every two hours. That is not much but it is at least something, there is absolutely nothing now. I work in shifts and as a result, I always have to go by car'' (interview Debbie Verheijen). The result of no buses in the evening or during weekends, is that people take the car to get somewhere. It was also mentioned by some that if they had to go somewhere by train, they directly drove to the train station instead of taking the bus. The main reason for that is **transfers between the train and the bus** at the stations they use, mainly Cuijk and Boxmeer, are badly aligned. People argued that they are badly aligned in the sense that either the train or the bus often leaves five minutes after the arrival of the other mode of transport, again the train or the bus. However, when the first transportation mode is running late, you automatically miss the transfer and you have to wait for half an hour. Traveling with public transport is time-consuming and an interviewee mentioned that ''traveling by bus or train was fine when I was a student but once I started a fulltime job, I bought myself a car'' (interview Dennis Cox). Many of the interviewees also noted that traveling with public transport is acceptable because it is without costs for them. The **student travel card** was one of the main reasons for the use of public transport and without it, some would not travel with public transport. Michiel, for example, stated that ''a return ticket from here to Amsterdam costs something like €45 and that is a lot of money for one person. I could also pay the gasoline and parking costs with that money and take the car, which is even more convenient'' (interview Michiel van de Zanden). The student travel card is an important factor for youth in deciding which mode of transportation someone will use.

Lijn 91: Uden naar Cuijk
(Andere richting)

Ingangsdatum: 9 december 2018

Haltenummer: 60530430 (Sint Hubert, Erica)

OV Reisinformatie: 0900 - 9292 (€ 0,90 / min)

Wijzigingen en foutieve vermeldingen voorbehouden.

De vakantiedienstregeling in 2019: 24 dec. 2018 t/m 4 jan. 2019 (kerstvakantie), 4 t/m 8 maart (voorjaarsvakantie), 29 april t/m 3 mei (meivakantie), 31 mei (dag na hemelvaart) 29 juni t/m 25 aug. (zomervakantie), 14 t/m 18 okt. (herfstvakantie), 23 dec. t/m 3 januari 2020 (kerstvakantie).

Beide Kerstdagen (25 en 26 dec), Nieuwjaarsdag (1 jan.), Paasmaandag (22 april), Hemelvaartsdag (30 mei), en Pinkstermaandag (10 juni), wordt de dienstregeling als op zondag gereden. Op Koningsdag (27 april), wordt de dienstregeling als op zaterdag gereden. Buurtbussen rijden NIET op Koningsdag.

Uden, Busstation (H)
Uden, Koopmanstraat
Uden, Losplaats
Uden, Volkelseweg
Uden, Liessentstraat
Zonegrens
Volkel, Rudigerstraat
Volkel, Kroatenstraat
Volkel, Zeelandsedijk
Zonegrens
Odiliapeel, Rouwstraat
Odiliapeel, Koolmeesstraat
Odiliapeel, Kerk
Odiliapeel, Beukenlaan
Odiliapeel, Rogstraat
Zonegrens
Mill, Bosweg
Mill, Domeinenstraat
Mill, Fitland
Mill, Hoogveldseweg
Mill, Schoolstraat
Mill, Bakhuisweg
Mill, Molenkuilweg
Sint Hubert, Erica
Zonegrens
Sint Hubert, Pastoor Jacobss...
Haps, Sint Hubertseweg
Haps, Gemeentehuis
Haps, Asterstraat
Haps, Haringsestraat
Zonegrens
Vianen, Louwerenberg
Cuijk, De Hork
Cuijk, Het Riet
Cuijk, Station
Cuijk, Heeswijkse Kampen
Cuijk, Oeiep

Uur	Maandag t/m Vrijdag buiten de vakanties	Maandag t/m Vrijdag in de vakanties	Uur
05			05
06	04 59	04 59	06
07	59	59	07
08			08
09	00	00	09
10	00	00	10
11	00	00	11
12	00	00	12
13	00	00	13
14	10	10	14
15	10	10	15
16	11	11	16
17	11	11	17
18	11	11	18
19	11	11	19
20			20
21			21
22			22
23			23
00			00
01			01

Image 6: Departure times bus line 91 (Source: Arriva.nl)

6.2.2 Social.

Mobility injustice has previously been discussed in the literature review. One result of injustice in transport could be social exclusion. Cass et al. (2005) did a research into mobility and social exclusion, from which they drew the conclusion that transport creates ‘’the ability to maintain friendship, family ties and informal connections, the very socialities that organize and structure life’’ (p. 543). In some of the interviews, it was mentioned that maintaining a **balanced social life** is sometimes difficult due to transport. Interesting to note is that the people who felt challenged in their social life due to transport, have friends that live in other villages and not in Wanroij. Yvon said that ‘’staying over at a friends’ house because I cannot cycle home in the middle of the night, is not necessarily a problem but it is a bigger hassle to arrange than just going home would be’’ (interview Yvon Smits). Transport during the night is than a problem but can also be a problem during daytime. It was stated by Janne that, when going to friends out of town, nothing is ever spontaneous because ‘’I always have to drive there but I do not always have a car available and public transport just does not work’’ (interview Janne Nooijen). Most youth stated that there is a solution to this and that is to ask friends and family to pick you up. However, most of them also stated that, although their **friends and family** are always willing to do so, they often feel **bothered** to constantly ask others to pick them up. This led, for example, Yvon to rather drive herself and not drink than asking her parents to pick her up. This does influence her social life because she always has to anticipate to this. Michiel, who does not encounter these problems because his friends live in Wanroij too and therefore they can always cycle together or take a taxi together, does state that the idea of being challenged in your social life due to transport, may have unconsciously influenced him. He points out that ‘’the threshold to make friends outside Wanroij was higher because I knew it would be more difficult to meet with them’’ (interview Michiel van de Zanden). Debbie adds a more critical note and describes that ‘’I know a refugee of our age, that lives here in Wanroij, and she or her parents do not have a driving license and she is not able to get anywhere. I think this is sad because in the Netherlands we want everyone to be able to participate and this is not always the case’’ (interview Debbie Verheijen). This relates to the transport injustice and how not everyone has equal access to transport. This can not only impact the refugee girl’s social life but also her other chances in life.

6.2.3 Personal.

Some challenges that the youth face in transport are related to a personal level and are not the same for everyone. Interviewee Carlijn is, for example, challenged in taking the bus by her own **safety standards**. She noted that the decision to take the bus is not only based on time or costs but also on whether it is safe, since ‘’taking the bus at night is not the right decision for me because it means I have to bike through a forest to get home and there is no lighting on the road, it does not feel safe’’ (interview Carlijn Straver). Her decision to not take the bus is not based on the bus or its performance but is based on her own safety standards. Anneliene also faces a challenge every time she makes a trip, especially to a destination further away or where she has never been. She noted that traveling with public transport requires good **planning** skills for the logistics of traveling and that often ‘’my entire cellphone is filled with screenshots of the 9292 app so I know what time I will arrive and have to transfer, it is quite a puzzle to arrange it’’ (interview Anneliene van de Boom). This made her take the car more often because it is more convenient to get in the car and only needing to turn on the navigation. Someone who argued the same about the necessity to plan is Astrid. She however, also argues that you need a certain **mindset**. She stated that ‘’Wanroij is located really unfavorable, geographically speaking. And I can imagine that it is really hard to exploit public transport here’’ (interview Astrid van der Straaten). By accepting the situation as it is and also empathize with the public transport provider, she feels less challenged because she approaches these challenges differently. However, she did believe that, as she has a job and a car already, this is not always as easy for youth without the financial means to drive their own car, as they are more reliant on public transport.

6.3 Potential of mobility innovations.

The following paragraph will apply the framework of practice theory to the interviews. It will first apply the three elements of Shove’s 3-Element model (materials, competences and meanings) to the interviewees responses on car sharing and Mobility as a Service. The thesis will turn to Reckwitz his model in the discussion of the results.

6.3 Car sharing.

6.3.1 Materials.

Car sharing can provide a **material alternative** to owning a car, as three interviewees claim. Their parents bought a car for them and their siblings to use during their studies. They believe that this would not have been necessary if they would have had access to the option of car sharing. For Anneliene, point to point car sharing would be valuable because she would not feel attached to the car materially speaking, because she can have the benefits of using it and leaving it somewhere else, without the worries of it being parked safe and not being damaged (interview Anneliene van de Boom). Yvon also sees the opportunities of car sharing but argues that ‘’if you want to take something big and large with you, you always first have to pick up the car and go home again since you cannot take the stuff with you walking or biking’’ (interview Yvon Smits). This would not be the case if your own car is parked in front of your house and this is an **obstruction in a material sense**. Geoffrey added a note on what he believes would make car sharing more convenient and that is to ‘’it should not only be implemented in Wanroij but rather in the entire region so everyone can join the same network and the network can grow’’ (interview Geoffrey Noij). A **network** also includes material aspects such as shared infrastructure. This is what Shove refers to as a material in the background. In a material sense, you also need **the body** as Reckwitz refers to. Janne compared car sharing to public transport and stated that ‘’these cars do not require a bus driver but only yourself’’ (interview Janne Nooijen). This could lead to the question whether car sharing has a negative influence on the use of public transport. It could be that youth, who now do not have access to a car but do have a driving license, will start using the car sharing car and no longer use public transport. When the demand for public transport decreases, it could be the case the certain lines are canceled and removed. This thesis does not believe that this will happen though because of two reasons. The first is that the car sharing fleet has to be large enough for everyone to rent the car, which is not likely in a small area. The second is that youth has access to the free travel card and will continue to use it. Anneliene foresees another problem related to car sharing and that is the **use of alcohol**. She believes that there should be a sort of test on whether someone drank alcohol before they start using the car. There are possibilities for that, as she suggests, such as an alcohol lock.

6.3.2 Competences.

It would be straightforward to put that in order to use car sharing, one would need to have a **driving license**. In this case study, most would replace their own car by the car sharing car and would therefore not need to acquire the competence of driving a car since they already have this competence. Something that almost every interviewee needs in order for them to start using car sharing, is **know how on the insurance**. Anneliene, who used car sharing in the larger cities before, had a negative experience. She explained that one day she rented a car via peer-to-peer car sharing and that she ended up on the side of the highway on her way home. Apparently, ‘’the car ran out of cooling liquid and got too hot and broke down. The owner of the car tried to make me pay €800 but I was not going to do that because he already added extra cooling liquid to the car before I left, which should have made me suspicious, and he should have told me that I needed to check it. It worked out but it did stress me out’’ (interview Anneliene van de Boom). She argues that there should be awareness, for instance by clarifying the rules on insurance are clear before someone takes the car.

6.3.3 Meanings

When looking at car sharing in light of ‘meanings’, there are two clear meanings that people ascribe to it. The first one is that car sharing does not grant you the same **advantages** that owning your own car does. Peter, for example, stated that he would not use car sharing because he would rather use his own car, which he will not give up because ‘’I would regard this as a loss of flexibility and freedom’’ (interview Peter van Melis). It could be argued that, since Peter is one of the oldest interviewees, he is more accustomed to owning his own car. However, two of the younger interviewees also noted that they would be hesitant to use car sharing. This was not due to flexibility but rather that they are afraid to have an **accident** with the car sharing car and that this would **feel worse** than having an accident with your own or your family’s car. One clearly stated that it was not because she wants to exude wealth or power, because she felt that owning cars are sometimes used for that. The other meaning that was ascribed to using car sharing or MaaS is projected in a ‘societal’ meaning. Karin believes that having a car sharing car in the village can improve the **town spirit** because ‘’there is shared responsibility for that car’’ (interview Karin Vesters). Car sharing is also something Michiel would want to do because ‘’it is much better for the **environment** if people travel collective instead of everyone using their own car’’ (interview Michiel van de Zanden).

Although car sharing is a health sense better for the environment, Debbie notes that does not necessarily mean that she would use it more often. This however, is related to her own **health considerations** because ‘’I like to walk and bike and if I can go somewhere that way, I do’’ (interview Debbie Verheijen).

6.4 Mobility as a Service.

6.4.1 Materials.

MaaS has a lesser material connection, in comparison to car sharing, because only a card is required. Marielle argues that ‘’I think any development in MaaS should be connected to the current student travel card because it might be confusing for people to use two cards and mistakes will be made’’ (interview Marielle Manders). This is somewhat in line with the network argument that Geoffrey made for car sharing, as use should be made of what is already at hand. There is however a large material aspect to the use of this card, which Shove would state as things in the background. Checking -in and -out with this card requires an infrastructural network, as travel cards work on the basis of a Near Field Communication (NFC) technology. This technology requires a **frequency band**, which is an infrastructural network. Something that almost every interviewee gave as an answer as to what could be better regarding public transport in Wanroij, is that it would be good if Wanroij would have its **own bus stop**. Michiel proves the need for this bus stop by stating that ‘’when I am waiting for the bus in Sint Hubert, the majority of the people waiting with me are also from Wanroij’’ (interview Michiel van de Zanden). The interviewees believe that this would strengthen the possibilities for MaaS in Wanroij because door-to-door becomes more real when the bus stop is near the door.

6.4.2 Competences.

One competence that is needed for the introduction of MaaS in Wanroij, is how to **access information**. Some have never heard of MaaS, which creates a threshold for using it. This point can also be made for car sharing but that is better known than MaaS. Yvon noted and argued that ‘’I think it is a matter of good marketing. People should know that it is easy to understand and use and should feel the thrill of using it’’ (interview Yvon Smits). While Yvon reasons from the perspective of the consumer, Astrid reasons from the producer’s perspective and states that they should monitor from day one because ‘’if you do not pay attention [to the developments, this development] will die before it really even had a chance’’ (interview Astrid van der Straaten). In addition to Yvon’s point on marketing, Geoffrey believes that **pricing** strategies are also something that can encourage people to use MaaS or any new form of transport. He states ‘’I think it is important to stimulate people to make use of the new methods and the easiest way to do so is by offering cost advantages. This is at least why I would try the new methods and I think that this is the case for most people my age’’ (interview Geoffrey Noij). Yvon considered pricing and costs too but relates it more to awareness because she believes that the card system ‘’will make you less aware of what you are spending because the money is automatically deducted from your account’’ (interview Yvon Smits). Although traveling with public transport does not require too much competences, Dennis believes it still has to be arranged well and that MaaS will become successful if traveling with MaaS ‘’becomes an automaticity’’ (interview Dennis Cox).

6.4.3 Meanings.

Peter, although hesitant of car sharing, believes that MaaS cannot only improve town spirit but also the **connections between towns and cities** because MaaS can improve the convenience to get from town to town. As well as car sharing, MaaS is also something Michiel would want to use because ‘’it is much better for the **environment** if people travel collective instead of everyone using their own car’’ (interview Michiel van de Zanden). Some also ascribed meaning to car sharing and MaaS in a **future scenario** because it might not actually help them but it might help (their) children in the future. Marielle stated that ‘’young parents probably realize that their children will go to college and this might be a reassurance for them’’ (interview Marielle Manders). Peter also stated that if his children were to ever face difficulties in going to college because of transport, he would leave Wanroij but that it might not be necessary with the introduction of these innovations. He also believes that things such as MaaS, being more environmental friendly and ‘cool’, are the future for the youth because ‘’being involved with the environment, which is something the youth does nowadays, would make this [MaaS] a good option to not have to buy a car yourself’’ (interview Peter van Melis). Geoffrey wonders if MaaS would be an invasion of **privacy**. He does not state that this is necessarily negative but this is a good point that requires attention. There is one very positive meaning that many interviewees ascribed to MaaS and that is the possibilities it offers in their **social life**. Debbie, for example, stated that it would be ideal if she could go to a festival and be dropped at home, so she could both drink and not ask her parents to pick her up.

6.5 Discussion.

This paragraph will discuss the results of the research. It will first review these results in light of the theoretical framework and literature, then indicate the limitations of the research and lastly point out suggestions for further research.

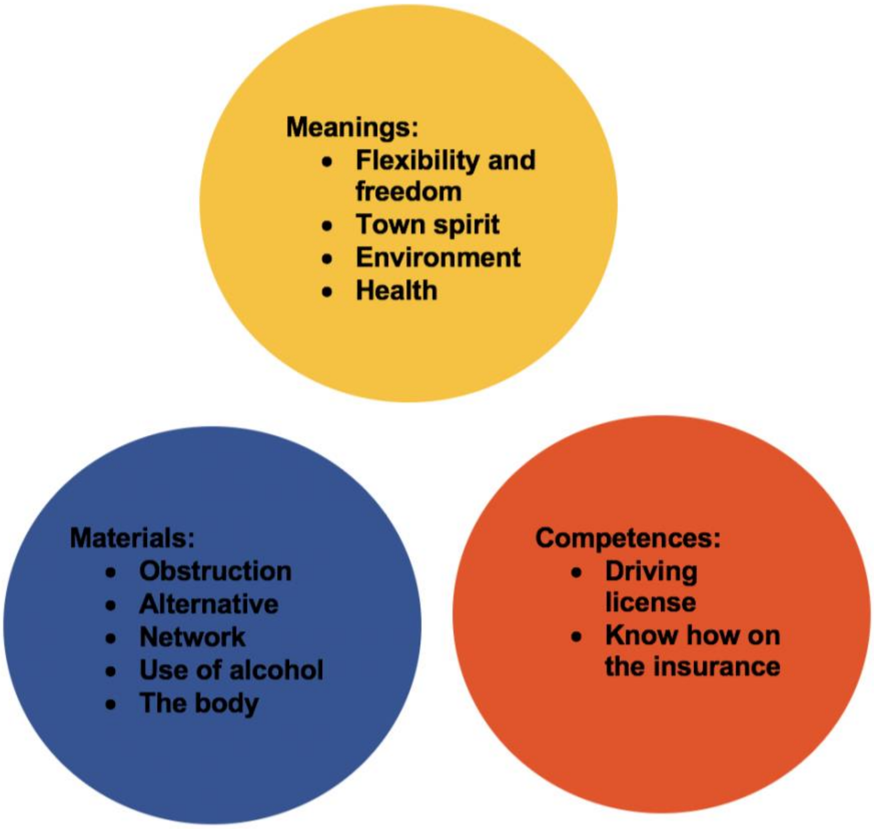

Image 7: The results of car sharing in Shove's 3-Elements model.

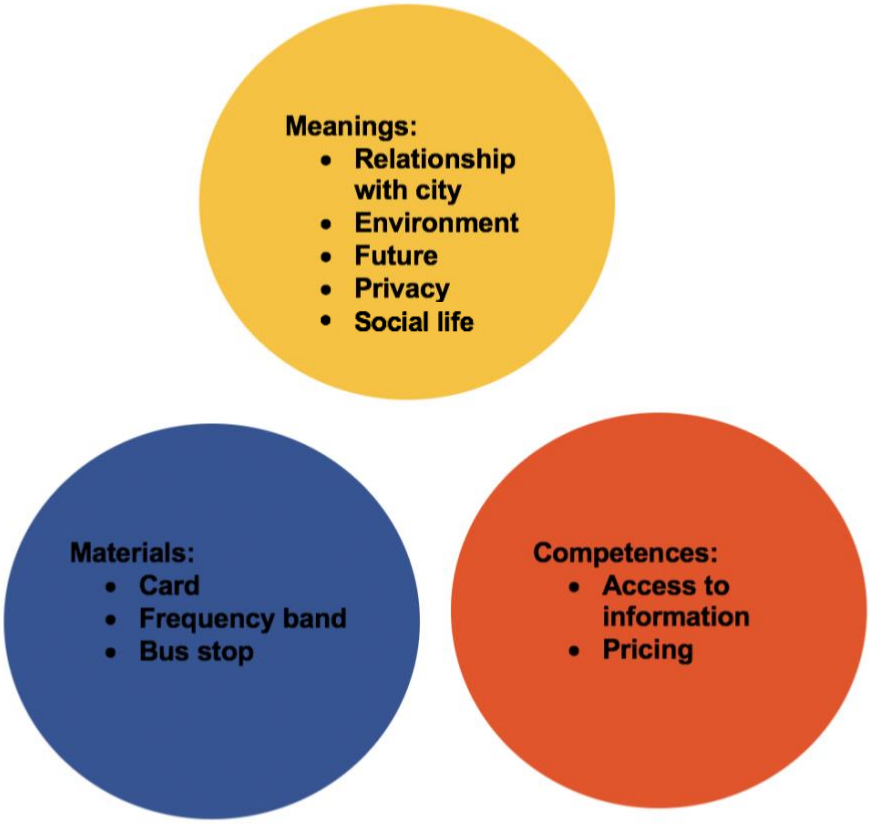

Image 8: The results of MaaS in Shove's 3-Elements model.

Social practice theory by Shove

The results as obtained by research are shown in images 8 and 9. They show that if car sharing and MaaS are ever to be implemented in Wanroij, these are elements that need to be considered. Some of them elements could strengthen the implementation of car sharing and MaaS, such as increased town spirit and environmental awareness. Others could make implementation more difficult such as the availability of a material network and the fear of loss and flexibility. The elements are also linked to each other, which is also important to consider since ''the enhanced value of social practice theory lies in the links and interactions it also helps identify between elements (Spotswood et al., 2015, p. 30). The material obstruction that interviewee Yvon noted, not being able to take large things with you on the bike to the car sharing car and therefore needing to drive back to your home, can also create the feeling of a loss of flexibility. An example on a link between competences and meanings would be the insurance and the fear of accidents. If people clearly know the instructions on using the car sharing car, which includes the insurance, they would feel less hesitant to use the car because they would know, in the case of an accident, how the insurance works. Without the use of social practice theory, some of the elements might not have been exposed, such as insurance. These elements are significant and explainable from the point of view of youth. Youth is less experienced in driving and might have a bigger fear of accidents and since they have never had to deal with car insurance before, they view insurance as a crucial element. Access to information is another element that can be seen as an important youth element. Travel is not solely about the actual movement from A to B but incorporated to it is information on traveling, obtained via platforms or apps. This also shows that a practice does not stand on its own but closely related to other practices, which is important in the opinion of Spotswood et al. (2015) because ‘’any change in the links between elements of either practice is likely to affect the other (p. 30). Conducting social practice theory research also highlighted some elements of car sharing and MaaS in the rural context. The best example is that it could increase town spirit due to shared responsibility. This statement is related to the rural because people in the city would unlikely feel the same but rather have a blasé, a non-caring, attitude as believed by Simmel (1950).

Social practice theory Reckwitz

So far the thesis has analyzed car sharing and MaaS in light of Shove’s model. The thesis now turns to Reckwitz and will study the results in light of his approach. It will first focus on car sharing and then turn to MaaS. As already noted in the paragraph on competences, someone would need a driving license to perform car sharing. Next to that, you would also need the psychical ability to drive the car. This proves Reckwitz his point that body or mind do not have superiority over each other but are equally important. Since 85 percent of the youth inhabitants of the municipality of Sint Anthonis have a driving license, car sharing can be done. However, it is the question whether youth can perform car sharing if it were to be introduced in Wanroij because there are car sharing companies that require people to have a minimum age of 21 or even 25, which for example company Hoppa Car Sharing requires. This is something that needs attention before car sharing is introduced in Wanroij because it would mean that quite some people would not be able to use car sharing, despite their ability.

Toegestane bestuurder: Er geldt een minimale leeftijd van 25 jaar en de gebruiker moet in het bezit zijn van een geldig rijbewijs. De deelauto mag alleen bestuurd worden door gebruikers die toegang hebben tot de deelauto via hun eigen persoonlijke account en op wiens account een reservering loopt tijdens het gebruik. Het is niet toegestaan iemand anders dan de eigenaar van het account te laten inloggen op het gebruikersaccount, tenzij Hoppa Carsharing daar toestemming tot geeft.

Image 9: Minimum age required by Hoppa Car Sharing. (Source: Website Hoppa Car Sharing)

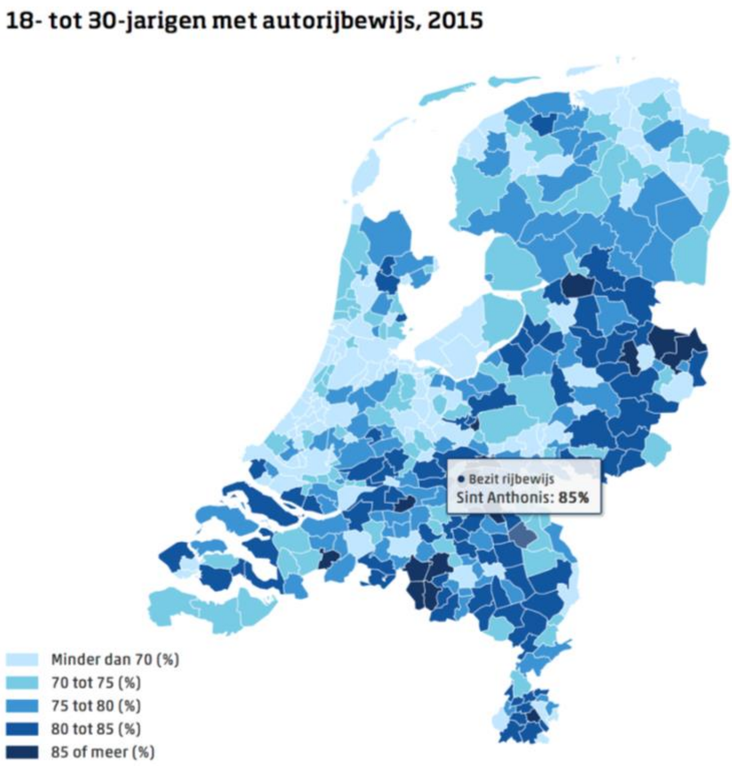

Image 10: Percentage of youth that have a driving license per municipality. (Source: CBS, 2018)

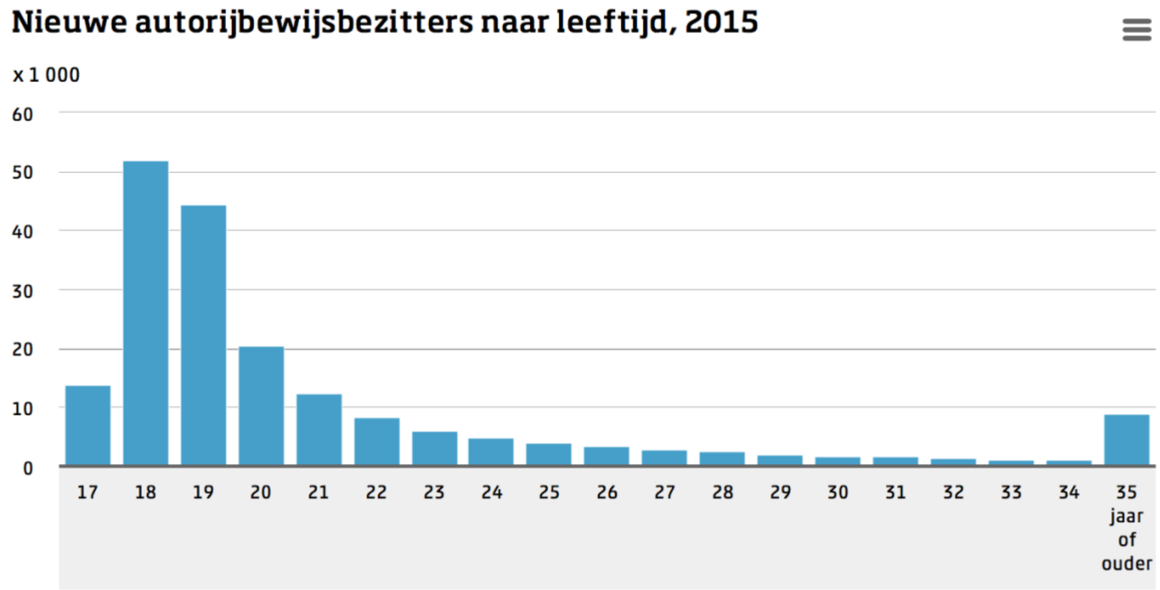

Image 11: Age of people who pass their driving test. (Source: CBS, 2017).

Besides knowledge on how to drive a car, knowledge is also about reproducing the practice. Anneliene provides an example as she states that ‘’I would use car sharing in Wanroij because I am a total fan of everything that involves car sharing, I have an account for almost every service’’ (Interview Anneliene van de Boom). She noted that she lived in cities, where people she knows used car sharing and therefore tried it herself. She has now experienced car sharing and as a result would also use it in Wanroij. This is what Reckwitz refers to as intentionality, the wanting or desiring of certain things and avoiding others. Since Anneliene is a fan of car sharing, she wants to do it. The opposite of that is when the two younger girls said they would not want to use car sharing because they were afraid to get into an accident and that this would feel even worse because it is not their own car. They intentionally would avoid car sharing because of that reason. Another term that Reckwitz uses is language. The example that Karin provided on town spirit, which could be increased due to the car sharing fleet that is stationed in Wanroij, is a form of language. Since the town has a shared responsibility, they share the same language in regards to norms and values.

Body and mind are also relevant for MaaS. Peter provides a relevant example when he states that ‘’comfort is really important for me and when I would take my kids with me when I use public transport, this would be more stressful because I have to watch them all the time while in the car I can buckle them up and they are safe on the backseat’’ (interview Peter van Melis). So while the body is physically able to travel with public transport, the senses of the body focus on comfort and therefore body and mind are irreconcilable.

Reckwitz also uses the key term structure, which he relates to routinization. This is something that is also detected in the interviews. People noted that going to school or work becomes a routine when they have a car available to them. When the car is not available, much more planning is required and traveling becomes less of an automaticity. Yet, Dennis noted that using public transport could become an automaticity, as long as it is arranged well. This is where there are chances for MaaS. Some interviewees also spoke about a mindset and that they were accepting of the situation. This is similar to what Scharf (2006) noted in his research that ‘’despite the experience of disadvantage … most reported having a good or very good quality of life. This tended to reflect a complex set of attitudes and expectations of life’’ (p. 4). This shows that people are accepting because the structure of rural life require a certain routine that is not perfect but acceptable. Car sharing and MaaS could change the structures and routines of mobility in Wanroij.

Transport justice

Something that the results show, exactly in line with what Martens (2017) argues, is that people are accepting of the situation. Statements such as ’I understand the low frequencies of public transport’ or ‘I can imagine it is hard to exploit public transport here’ show this acceptance. Martens however argues that acceptance and contentment should not be mistaken for justice and that ‘’transport poverty restricts people in their freedom of movement, their employment opportunities, their social life and their access to facilities’’ (n.p.). Some interviewees stated that this is not the case for them because they adjusted their mindset and were not held back. But how about the element of temporality? Michiel stated that he really wanted to do an internship in Utrecht, for which he had to travel at least two hours, but he did it nevertheless. What if this had not been a temporary situation of half a year or a year maximum but all his life, would he still have the same mindset? Or what about Astrid, who argued that if you live in Wanroij, you know what you are up against transport-wise, but who uses her car every day. What if she could not use her car, would be still be so accepting of the situation? The argument that is made here is line with what Martens argues about acceptance and contentment and that this should not be seen as just. Introducing new innovations can then be an opportunity to improve the situation from being accepted to being just. The same goes for another argument that Martens makes, which is that although public transport can be available and people have access to bikes, this may still be inadequate because not everyone can use it. People who work early or late shifts, such as Debbie, or who do not feel safety to bike home from the bus stop at night, such as Carlijn, then do not have equal access to transport. MaaS, for example, could be an improvement for them because they could request to be taken home, via a taxi or maybe Uber, in one go via their card instead of arranging everything separately and therefore not doing it.

Potential.

In light of transport justice, introduction of car sharing and MaaS has hence potential. Does it also have potential to diminish the mobility challenges that rural youth face? Youth in Wanroij has indicated that the challenges they face are mainly organizational, from which social and personal challenges result. Both car sharing and MaaS can potentially diminish these challenges because they increase access. Many interviewees noted that they would use a car sharing car when they could not use public transport, for instance in the evening or during the weekend. MaaS can help to decline waiting time between different modes of transport or to make transfers more smooth. If mobility becomes less of an obstacle for people, they might not have to migrate, for example for educational or job opportunities as discussed in the literature review. Both Eline and Marielle for example stated that they deliberately wanted to stay in Wanroij, but could only do so because they had access to a car. Their parents bought a car for them but if car sharing had been available, this would not have been necessary. One challenge that especially MaaS could have a positive impact on is the social life of youth. People could go out to visit their friends more often and not feel bothered because they have to sleep over at friends, not drink, or ask their parents to pick them up. To this extent, car sharing and MaaS does have potential.

There is also an extent to which there is no potential for introducing car sharing and MaaS in Wanroij. The first reason for this is that interviewees are afraid that there, especially in the case of car sharing, will not be enough supply. Many noted that they believe they will miss out on the car because it will be gone at the moments or times that they want to take it. They do not want to risk to miss out and therefore rather rely on their own car. The car remains to be associated with flexibility and freedom (Steg et al. 2001; Beirao and Sarsfield Cabral 2007). Although not all youth has their own car, they rather rely on their parents' car or public transport than be late for school or something else because there was no car available for them. The second reason, related to the first, are the costs. Many fear that the costs of both car sharing and MaaS are too high since the level of personalization and customization is high. This will cost money but since the target group researched in this thesis is youth, they often do not have too much to spend. The third reason is that some youth does not necessarily need better access to transport because they will be moving out of Wanroij nevertheless. As discussed in the literature review, they are drawn to the city. However, many state that returning to Wanroij is a possibility in the future and that they would like to use car sharing and MaaS when they have a job or for their own children.

Chapter 7.

Conclusion.

Normally, I would say auf Wiedersehen but since this actually means 'till I see you again, and since I never wish to see you again, I say goodbye.

This research has focused on the case study of Wanroij, a rural village in the Netherlands. It has done so because, although not unique, it faces challenges that are related to its rural character. These challenges are, for example, accessibility and in- and exclusion of people. Wanroij is poorly accessible and one target group that suffers from this, is the youth. Access to a car is not a matter of course for them and as a result, they might move away. However, opportunities are present with the emergence of mobility innovations and this thesis has taken car sharing and MaaS as two examples. These two have been used and applied in cities in the Netherlands, but not so much in rural areas. The question that this thesis researched was then to what extent can car sharing and Mobility as a Service potentially improve the daily travels of youth in rural Wanroij?

In order to answer this main research question, three sub questions were set up which will briefly be rehearsed in this conclusion.

To what extent does mobility have an influence on the decisions/life aspects of rural youth and what is the effect on the village in which the youth lives?

This question is covered in chapter 2, which first clearly defines the age limits of the target group. Youth in this thesis is any person between the 16 and 35. This question is further answered on the basis of a review of the literature. Chapter 2 shows the aspects on which mobility has an influence, which are mainly education and employment opportunities, according to the literature. Education and work are also the reasons that people daily travel and which should be easy and fluent. The chapter also shows the importance of the presence of youth in rural villages, which is to prevent a brain drain and a vicious circle. Transport justice is mentioned, and although not specifically aimed at youth, it does make the point that everyone should have equal access to transport, everywhere.

What are car sharing and Mobility as a Service and how can these terms be conceptualized using social practice theory and applied literature?

This sub question, which is a combination of two questions, is answered in different chapters. The first part on car sharing and MaaS is answered in chapter 3, which provides a literature review in order to define what car sharing and MaaS are. The additional benefit of this chapter was that it provides a brief insight into how complex a practice actually is and that one simple definition does not cover it. Further details on what a practice consists of are given in chapter 4, which forms the theoretical framework of this thesis. It shows how any practice is made up of at least three elements, when applying Shove's model, or even more when applying Reckwitz's model. However, there are many similarities between these models and that is why both are used.

What are the current transport challenges for youth in Wanroij and what are the opportunities that car sharing and Mobility as a Service offer?

This question, again actually two questions, is answered in chapter 6. This chapter has a more practical approach when compared to the other chapters because this chapter covers the answers of the interviews. It shows that there are multiple transport challenges that youth face but that these can be divided in organizational, social or personal dimensions. The interviews are further analyzed on the basis of Shove's 3-Elements model, which shows which advantages and disadvantages car sharing and MaaS have. This is compared to the challenges that youth face, from which can be concluded whether car sharing and MaaS could improve or solve these challenges.

This last chapter, chapter 6, also discusses the potential for introducing car sharing and MaaS in rural areas for youth. It does have potential to the extent that accessibility is increased because it becomes easier for the youth to get what they need. Many believed that it would be easier to maintain a social life because they would no longer be held back. Some also mentioned that access to education and employment would improve as the innovations increase access to the larger spatial network and make it easier to go to big cities. It also has potential because it increases transport justice, making it tempting for the municipality to carry out. It has less potential to the extent that many questions were raised concerning the logistics. Who would pay for the installment, will there be enough supply, what are the costs and more questions like these were raised. Much of these questions are related to flexibility and freedom and it would seem that these insecurities could have a negative impact.

In sum, it can be stated that there is potential for introducing car sharing and MaaS in rural areas and much can be gained from it, but the drawbacks should not be ignored. Otherwise, as Astrid wisely pointed out ‘’’if you do not pay attention [to the developments, this development] will die before it really even had a chance’’ (interview Astrid van der Straaten)

7.1 Recommendations.

This research wants to provide the general advice to the municipality of Sint Anthonis to invest more time in mobility policies. The municipality is well aware of the importance of mobility and accessibility but yet has few policies that demonstrate this. Although the location of Wanroij is quite isolated, the area in which the municipality is located is opportune when looking at the places that surround us. The larger places Venlo, Eindhoven, Den Bosch and Nijmegen are all close and the municipality should make use of this. There are two specific recommendations that the researcher would like to make in light of this subject. The first recommendation is that the municipality should try to connect with municipalities nearby that are already actively focusing on mobility. The municipalities Venray and Horst are for example very active in the field. There are two advantages in working together with other municipalities, of which the first is that the municipalities can share knowledge on the challenges they face concerning rurality and the second is that the infrastructural network can be strengthened when municipalities co-operate. The second recommendation is to conduct a research on electric vehicles, which the municipality noted as a new mobility innovation, on the basis of social practice theory. This research has shown that social practice theory research can lead to surprising and unexpected insights, which might not have been demonstrated if the research had been done on the basis of another research theory. A final recommendation that this thesis would like to make, without relating it to mobility, is to involve specific target groups more. Much of the policy documents of the municipality note specific target groups but these groups are not involved in the process. Involving these groups can be done relatively easily and with low thresholds, for example by means of a hackathon. The researcher believes that this can strengthen the policies as the support for these policies will increase.

7.2 Limitations and further research.

It is important to acknowledge the limitations of this research. One limitation that was presumed and accepted beforehand, is that this research looks forward to the future. Most people were relatively positive about car sharing and MaaS in Wanroij but people might react differently if it were to be actually implemented in Wanroij. This is always the risk when carrying out future research and it should not stop research from being conducted because the outcomes can be valuable. The second limitation is that MaaS is a young and growing innovation and has therefore not been properly defined. This made it hard for the interviewees to grasp what it actually is, to picture it and to frame an answer to it. Although the author of the thesis tried to explain MaaS as well as possible but also faced the difficulty that is has not been properly defined in the literature. This might have affected the results if someone interpreted the definition of MaaS wrong, although most interviewees actually asked for a confirmation on whether they understood it right. Something that also might have affected the results is the interviewee's level of involvement with the topic. The author of this thesis witnessed that mobility and the effect of mobility on personal lives is not something that everyone is consciously thinking about. Most of the younger youth politely answered the questions but kept it brief, which the author tried to circumnavigate by asking more following up questions. The older youth was thinking more consciously about the topic because they feel that it will affect their choice of jobs or where they will live. They were more aware of the differences in mobility between rural and urban areas as they had witnessed it and knew the implications of living in a rural area. All this might have affected the answers they gave, although this is not something that can be known for sure.

This thesis believes that it is valuable to conduct further research in the field of car sharing. Although car sharing is a new innovation, environment-wise it is still one of the poor choices. It would be valuable to conduct a social practice research on car sharing in comparison to owning and driving a vehicle to see which aspects of car sharing are related to the environment. A second research suggestion would be to conduct this research but with as target group elderly. Many interviewees noted that they believed that elderly in rural areas are also at a disadvantage considering mobility, since they are often not able to drive anymore, and in the specific case of Wanroij, cannot cycle to a bus stop which is a town further away.

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Appendix 1.
Interview questions.

- Introduction of the thesis and what the goal of this interview is.
- Ask the interviewee for consent for recording it and making use of their statements in the thesis.
- Briefly explain car sharing and Mobility as a Service to the interviewee before the interview starts.
- Introduction by the interviewee; e.g. name, age, profession etc.

- What is the biggest personal motive for using the mode of transport which you are currently using the most?
- Which factors influence this choice?
- What do you think of the current public transport possibilities in Wanroij? (not only inside Wanroij but also to get out of Wanroij)
- If you believe public transport in Wanroij can change for the better, which recommendations would you like to make?
- Why do you use public transport (or not)?
- To what degree has transport ever formed a hindrance in doing what you would like to do? Larger or small example.
- To what degree has transport ever played a role in the choices that you made in life so far?
- If you were ever thinking of moving out of Wanroij, would a change for the better in transport be a reason to stay?
- What do you think are the advantages of car sharing and Mobility as a Service?
- What do you think are the disadvantages of car sharing and Mobility as a Service?
- What would be a reason for you to use car sharing?
- What would be a reason for you to use Mobility as a Service?
- If you were not to use it, what would you need in order to start using it?

Appendix 2.

Coding scheme.

Axial code	Open code	Example of words
Mindset	Comfort	• ‵′Dry when it rains′′ • ‵′Listening to music′′ • ‵′A way to relax after work′′ • ‵′I don′t feel save at night′′ • ‵′Taking the car is a habit′′ • ‵′If you don′t know your way around′′
	Understanding	• ‵′It is not possible to have a bus everywhere′′ • ‵′Really hard to exploit public transport here′′
	Make it work	• ‵′If I really wanted something, I just took any mode of transport′′ • ‵′This school is further away and harder to reach but is well-regarded so I wanted to go there anyways′′ • ‵′I never saw traveling as a dilemma to what I want′′
	Planning	• ‵′9292 app′′ • ‵′Check the weather for the next day′′ • ‵′Phone full of screenshots′′
Social life	Friends	• ‵′Missed birthdays′′ • ‵′Cycle together with the rests of my friends′′

		• ‵′I cannot spontaneously visit someone′′ • ‵′Going to a festival is hard because you want to drink alcohol′′ • ‵′Participation by refugees′′
	Family	• ‵′Someone from the family to pick me up′′ • ‵′I don′t want to ask my father to pick me up too often′′
Materials	Things	• ‵′Suitcase′′ • ‵′Big stuff′′
	Wanroij	• ‵′There is no bus stop in Wanroij′′ • ‵′My suggestion would be to install a bus stop′′
Time	Save time	• ‵′Work from home′′ • ‵′Better transfers′′ • ‵′I can get up much later in the city because the buses are driving on and off′′ • ‵′Taking the car is so much faster′′
	Waste of time	• ‵′Waiting for the bus′′ • ‵′Traveling during peak hours′′
	Takes much time	• ‵′From door to door′′
Costs	Car	• ‵′Driving a car is expensive, you could spend the money on something else

	Public transport	• ‘’Student travel card’’ • ‘’Taking the bus is free’’ • ‘’Taking a taxi is really expensive’’
	Car sharing and MaaS	‘’Who is paying for the implementation?’’ ‘’I wonder what the difference in costs will be’’ ‘’It needs a subsidy’’ ‘’It should be attractive for people who have less to spend’’ ‘’It could prevent the purchase of a second car’’
Network	Location	• ‘’Geographically really unfavorable’’ • ‘’Far away from everything’’ • ‘’I don’t think I would live here without a car’’
	Enough supply	• ‘’Would there always be enough available?’’ • ‘’I would be hesitant to use it because there might not be availability when I need it’’
	Connections	• ‘’There should be a direct line to Boxmeer and Uden’’ • ‘’We should be better connected to the cities because there are developments going on there’’

Vitality of places	Future	• ‘’If I become less mobile, I will move somewhere where I can make myself mobile’’ • ‘’My children shouldn’t feel the same as I do’’ • ‘’If I were to have kids, I would really think twice about living in a rural area’’
	Migration	• ‘’I was lucky that my parents bought a car, otherwise I might have had to move into dorms and I wanted to stay home’’
	Specific target groups	• ‘’Without a license, it is hard to come by here’’ • ‘’Live in a village without a car is not pretty’’
	Environment	• ‘’Having a car on the driveway is not really sustainable’’ • ‘’I bike because it’s better for the environment’’ • ‘’Hybrid car’’ • ‘’Electric car sharing’’ • ‘’It is better for my own health’’
	Flexibility	• ‘’Feel attached to’’ • ‘’Confined’’ • ‘’Restricted’’

		• ‘’What if I took a car sharing car and I visit someone but I want to stay longer, would that be possible’’? • ‘’Maybe we should introduce flexible public transport stops instead of rigid ones’’
	Awareness	• ‘’Insurance’’ • ‘’Marketing’’ • ‘’It should not die before it even had a chance’’ • ‘’Access to information’’ • ‘’Easy to use’’ • ‘’Fear of accidents’’