# MaaS

## Mobility-as-a-Service


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Exploring preferences in the Netherlands for MaaS mobility packages, as a transportation alternative for short-distance trips: A Stated Preference Experiment.

TU Delft

**Mobility-as-a-Service**

Exploring preferences in the Netherlands for MaaS mobility packages, as a transportation alternative for short-distance trips: A Stated Preference Experiment.

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In partial fulfillment to obtain the degree of

**Master of Science**
in Transport and Planning at the Delft University of Technology

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# Preface

This thesis is submitted in partial fulfillment of the requirements for the degree of Master of Science in Transport and Planning department. It contains work done from November 2019 till September 2020.

This study was part of an ongoing project done by the consultancy firm Movares. The company was interested in gaining insights on the preference of Dutch people in using MaaS service as an alternative to a private transportation (like car or bike) or status-quo mobility pattern in the context of short-distance trips. I worked part-time during the process of completing this research. Writing the current thesis, doing the relevant research, distributing the survey, and analyzing the data has been challenging. Nonetheless, continuous guidance and effort to learn made me understand and become familiar with the design of a SP survey with further processing of collected data in different types of discrete choice models.

I am obliged to all my committee supervisors (Prof.dr. Bart van Arem, Dr.ir. Gonçalo Correia, Dr. Fanchao Liao, and Richard Savenije) for the extended guidance and support during this tenure. Special thanks to Eline Jonkers (from Panteia), Eleni Charoniti (from TNO) for sharing the final survey further with their colleagues upon my request. Also, Subodh Dubey (PhD student in TU delft), and Boshuizen Cas (colleague at Movares) for needed support and advice.

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Saumyajit Parida
Delft, 2020.

# Executive summary

Cities of the Netherlands are the driving forces to develop and encompass a cluster of markets that boost productivity. In recent times, cities have tended to demonstrate the rapid transformation, more spatially dispersed and growing in demand for transportation. Reasonably, all the trips done intra-city are short-distance trips (i.e. trips less than 10km) accounting for approximately 30% of a person's total trips per month.

To make these short-distance trips for various trip purposes, the majority of the Dutch people prefer using their private cars or private bike. Thus, over the years, the usage of private transportation in the Netherlands has increased leading to an upsurge in roadway congestion and lack of parking space. The observations from the literature suggest that more than 50% of car usage for different trip purposes are non-essential and could be shifted to 'other modes'. Further, short-distance mobility poses as a core challenge for sustainable mobility, accounting for 60% of emissions in the city.

Therefore, there is a need for sustainable transportation and this could be achieved by providing Mobility as a Service (in short MaaS) which could be defined as

*"A service attributed to integrate various forms of transport services into a solo mobility service, accessible on demand"*

It is a novel approach to service bundling enabled technology that facilitates the usage of multiple means for travel. It has recently attracted more interest and it is observed that the notion of MaaS tends to be linked to the context of multi-modal transportation. However, it is still unknown regarding the true influence of MaaS for unimodal (i.e. short-distance) trips, spurring a clear gap in the available literature on MaaS. Hence, the main research question for the study is formulated as follows

***"What is the preference of Dutch people, regarding MaaS mobility package as a transportation alternative (to status-quo mobility pattern), for carrying out short-distance trips?"***

To achieve the goal, a web-based survey is carried out and there were 3 choice experiments. The survey had two parts. The first part consisted a stated preference (SP) experiment, while the second part collected information for a wide range of socio-economic variables and attitudinal questions. The survey was sent out to Dutch people via email (in the Netherlands) and about 555 respondents filled out the survey substantially. The data of respondents who spent 15 minutes to complete the survey were considered (remaining were considered as outliers) for further analysis because the survey was lengthy.

To deepen the knowledge, the final dataset is then used for estimating consumer utility by applying a multinomial logit model, nested logit, and mixed logit model. The knowledge from the final mixed logit model is further applied to get insight into different latent classes and the probable share of MaaS class by applying the latent class model.

The results on the attributes' influence on the choice were mostly consistent and of the expected sign. In all the three models, the subscription pricing, as well as time parameters (i.e. access/waiting time), have a negative coefficient indicating dislike towards higher mobility expenses or access/waiting time in the process of carrying out a short trip.

Regarding socio-demographics, it is observed that younger and mid-age people have a significant inclination towards using the MaaS mobility package. Alternatively, older people have shown a higher preference for using private transportation to carry out short-distance trips. Highly educated people are more inclined to use the MaaS package though being aware of the environment and traffic-related problems.

People having a higher car trip usage for short-distance trips are more inclined to subscribe MaaS package. Similarly, in the scenario of the bike, people with high bike trip usage per month tend to find it convenient to use a private bike. However, for person with fewer number of bike trips (like less than 20 trips per month), tends to be preferring MaaS subscription package.

For MaaS package with car included, higher-income group tend to have an inclination towards it whereas lower-income group are inclined towards integrated package with only bike as mode of transportation. Furthermore, regarding the attitudinal factors, people who are open-minded, tech-loving, always compare products, enthusiastic, and love traveling have a positive contribution to the choice for MaaS mobility package. The study also, reveals that people are highly sensitive towards the subscription price and are willingness to pay more towards reducing waiting or access time of shared vehicles in MaaS package.

There is noticeable preference heterogeneity regarding preference for the MaaS subscription package. The same has been identified with the application of the LC model. The results from the LC model suggest a lower share of the MaaS alternative in comparison to the status-quo mobility pattern (like use of private car, private bike, etc.) for short-distance trips. Regarding the probable discrete preference profiles: people who are young and mid-aged people (<60 years), earning mid-level income (between 20,000 to 60,000 euros per year), residing with one or two family members, and have a high educational background (WO or HBO) possess a high likelihood to be a MaaS subscriber.

In comparison between single-mode shared mobility package and MaaS integrated package, the study reveals a higher preference of Dutch people towards later. Nonetheless, the aggregate preference remains high for the private mode of transportation (for both primary/secondary choice). The estimated results from models reveal lower share of MaaS class for which it is currently realized that for the MaaS service to become popular, it shall take further time and familiarity to build upon the trust of people and bring about change in individual mobility preferences. There is a need for greater subsidy to MaaS initiatives (at the initial stage) to gain popularity.

This has been the contribution of the study to the literature.

# Contents

**1. Introduction**

1.1 Research gap and motivation ..... 1

1.2 Research question and scope ..... 4

*1.2.1 Research design* ..... 4

1.3 Relevance of the research ..... 6

1.4 Outline of the report ..... 6

**2. Literature review**

2.1 MaaS in the context of short-distance trips ..... 7

2.2 MaaS bundle package and factors influencing preference for it ..... 8

**3. Concept description and methodology**

3.1 Concept description ..... 11

3.2 Data collection strategy ..... 15

*3.2.1 Initial inquiries, interviews and verbal collection of individual views* ..... 15

*3.2.2 Stated preference (SP) choice experiment* ..... 16

3.3 Data analysis strategy ..... 17

**4. Design of survey**

4.1 Design of SP experiment ..... 21

*4.1.1 Car experiment* ..... 22

*4.1.2 Bike experiment* ..... 25

*4.1.3 Last mile in another city experiment* ..... 26

4.2 Remaining questions in the survey (addition to SP experiment) ..... 27

4.3 Generating choice sets from NGENE ..... 29

4.4 Pilot survey and results ..... 30

4.5 Final survey design ..... 31

**5. Model results**

5.1 Description of data ..... 34

5.2 Attitudes towards mobility packages ..... 39

5.3 Estimation of choice model ..... 41

*5.3.1 Multinomial logit model(MNL)* ..... 43

*5.3.2 Nested logit model (NL)* ..... 45

*5.3.3 Panel mixed logit model (ML)* ..... 45

*5.3.4 Panel mixed logit model (ML) with socio-demo and attitudinal factors* ..... 45

*5.3.5 Latent class (LC) by applying MNL* ..... 46

5.4 Interpretation of results from the choice model ..... 46
5.4.1 Interpretation of results from a 'car' choice experiment ..... 46
*5.4.1.1 Sensitivity of parameters (Car choice experiment)* ..... 49
*5.4.1.2 Willingness to pay (Car choice experiment)* ..... 50
5.4.2 Interpretation of results from 'bike' choice experiment ..... 51
*5.4.2.1 Sensitivity of parameters (Bike choice experiment)* ..... 54
*5.4.2.2 Willingness to pay (Bike choice experiment)* ..... 54
5.4.3 Interpretation of results from 'Last mile in another city' choice experiment ..... 55
5.5 Interpretation of results from Latent class (LC) model ..... 57
*5.5.1 Results of Latent class (LC) model: Car choice experiment* ..... 58
*5.5.2 Results of Latent class (LC) model: Bike choice experiment* ..... 61
*5.5.3 Results of Latent class (LC) model: 'Last mile in another city' choice experiment* ..... 63
**6. Conclusion, discussion, recommendations, and limitations**
6.1 Conclusion ..... 66
*6.1.1 Qualitative conclusion (based on experience during study)* ..... 66
*6.1.2 Reasons for pessimism towards mobility package* ..... 67
*6.1.3 Quantitative conclusion* ..... 68
6.2 Discussion ..... 71
6.3 Limitations ..... 72
6.4 Recommendations ..... 73
6.5 Reflection for the study ..... 73
**7. References** ..... 75
**8. Appendix** ..... 75

# List of figures

*Figure 1 Research design for the study* ..... 5
*Figure 2 List of socio-demographic factors (inspired by Kamargianni et al. (2017))* ..... 12
*Figure 3 and 4 : Proposed conceptual framework for car experiment (I) and Bike experiment (II)* ..... 13
*Figure 5 Proposed conceptual framework for last mile experiment* ..... 14
*Figure 6 Services in MaaS bundle* ..... 15
*Figure 7 Sections in the survey* ..... 22
*Figure 8 Sections in the pilot survey* ..... 30
*Figure 9 Survey outline* ..... 32
*Figure 10 Purpose of survey and introductory video* ..... 32
*Figure 11& 12 Sample choice task (context and task)* ..... 33
*Figure 13 Geographical distribution of respondents in the Netherlands* ..... 35
*Figure 14 Frequency of trips* ..... 38
*Figure 15 Sensitivity analysis in car experiment* ..... 50
*Figure 16 Sensitivity analysis in bike experiment* ..... 54
*Figure 17 Sensitivity analysis in Last mile in another city experiment* ..... 57
*Figure 18 Underlying latent classes in data (car experiment)* ..... 60
*Figure 19 Underlying latent classes in data (bike experiment)* ..... 63
*Figure 20 Underlying latent classes in data (Last mile in another city experiment)* ..... 65

# List of tables

*Table 1 Distribution of trips by modality (Bingen (2017))* ..... 2
*Table 2 Summary of factors/attributes in study* ..... 10
*Table 3 Summary of altered terminologies in the SP experiment* ..... 22
*Table 4 Summary of main attributes and levels in the SP experiment* ..... 23
*Table 5 Summary of main attributes and levels in the SP experiment* ..... 25
*Table 6 Summary of main attributes and levels in the SP experiment* ..... 27
*Table 7 Summary of attributes and levels for socio-demographics in SP experiment* ..... 28
*Table 8 Statements included in SP experiment* ..... 28
*Table 9 Description of the data sample* ..... 35
*Table 10 Share of each alternative in the data sample* ..... 38
*Table 11 Summary of mean and SD for attitudinal statements* ..... 39
*Table 12 Estimated results from factor component analysis* ..... 40
*Table 13 Description of coefficients (betas) for car choice task experiment and latent class* ..... 41
*Table 14 Description of coefficients (betas) for bike choice task experiment* ..... 42
*Table 15 Description of coefficients (betas) for Last mile in another city experiment* ..... 43
*Table 16 Summary of significance relation from chi-square test* ..... 45
*Table 17 Summary of results for car experiment* ..... 47
*Table 18 Summary of results for car experiment* ..... 50
*Table 19 Summary of results for bike experiment* ..... 52
*Table 20 Summary of results for bike experiment* ..... 54
*Table 21 Summary of results for 'Last mile in another city' experiment* ..... 56
*Table 22 Optimal number of classes with data set of car experiment* ..... 57
*Table 23 Optimal number of classes with data set of bike experiment* ..... 58
*Table 24 Optimal number of classes with data set of 'Last mile in another city' experiment* ..... 58
*Table 25 Latent class estimated parameters for car experiment* ..... 58
*Table 26 Distribution of covariates* ..... 59
*Table 27 Characteristics of respondents in different classes (car)* ..... 60
*Table 28 Latent class estimated parameters for bike experiment* ..... 61
*Table 29 Distribution of covariates (bike)* ..... 62
*Table 30 Characteristics of respondents in different classes (bike)* ..... 63
*Table 31 Latent class estimated parameters for 'Last mile in another city' experiment* ..... 64
*Table 32 Distribution of covariates (Last mile)* ..... 64
*Table 33 Characteristics of respondents in different classes (Last mile in another city)* ..... 65
*Table 34 Probable conclusions for different MaaS packages* ..... 69

# Glossary

The glossary also includes abbreviations

**User / People**
Different terms referring to probable consumers residing in the Netherlands.

**Experiment**
Corresponds to stated preference experiment done in the study. There were 3 choice experiments included in the web-based survey.

**Car experiment**
Corresponds to the first choice experiment in the study. The choice task has private car in the context with alternative as MaaS package constituting ride-hailing (pooled)/ one-way car sharing service.

**Bike experiment**
Corresponds to the second choice experiment in the study. The choice task has private bike in the context with alternative as MaaS package constituting shared E-bike and shared normal bike.

**Last mile in another city experiment**
Corresponds to the third choice experiment in the study. In other experiments consumers are making trips inside the city of living but in this context, people are travelling to another city and for last mile what could be their preference. It is similar to bike experiment.

**SP**
Corresponds to stated preference experiment done in the study. There were 3 choice experiments included in the web-based survey.

**Private transportation**
Corresponds to private car and private bike.

**Short-distance trips**
Correspond to intra-city trips which are less than 10km.

**MaaS**
Corresponds to Mobility as a Service.

**MNL**
Corresponds to Multinomial logit model. It is applied to final data set of all three experiments

**NL**
Corresponds to Nested logit model. It is applied to final data set of all three experiments

**ML**
Corresponds to Mixed logit model. It is the final model in the study. It is applied to final data set of all three experiments

**LC**
Corresponds to Latent class model. It is applied to identify the different latent classes from the final data set.

# 1 Introduction

Urban mobility concepts have witnessed a substantial and increasingly rapid change over the past two decades. This is due to tighter economic conditions as well as shifting mobility norms and attitudes against various transport modes which is altering the way people travel (Pangbourne et al. (2020), Smith et al. (2018)). In recent times, bundled offerings (like monthly packages) that facilitate the usage of multiple means for travel have been gaining popularity (UITP (2016)), and the type of offering is frequently coined as Mobility as a Service (in short MaaS). It could be defined as

*"A service attributed to integrate various forms of transport services into a solo mobility service, accessible on demand"*

MaaS is being marketed as a novel transport concept that could bring about integrated and seamless mobility in a city landscape (Hoadley (2017)). It is envisaged that the MaaS shall change or disrupt how the mobility system works resulting in the transition away from a technological regime dominated by private vehicles. It is further believed that the service is intended to make a positive contribution by bringing more accessibility to cities and countryside by offering the option to travelers towards buying monthly subscription plans personalized to each use (Matyas et al. (2019a)). Existing studies suggest that the MaaS is not only just about integrating mobility (Ho et al. (2018)) but also gives extended access to new modes (like public transport, ride-hailing, car-sharing, etc.) with aspects of real-time information for each journey as well as planning and booking of the corresponding journey. Many countries (like the UK, The Netherlands, Canada, Germany, Australia, etc.) have expressed their intention to implement the novel MaaS service model (Jittrapirom et al. (2017), intending to reorganize mobility distribution by having a single MaaS operator or a single stakeholders cluster. Moreover, ongoing research and studies within the past 3 years, has given much recognition to the concept of MaaS in the mobility sector (Matyas et al. (2019a)).

Despite a growing amount of studies dedicated to the topics of shared mobility and MaaS, it is still unknown regarding the true influence that MaaS as an alternative to the private transportation or single mode shared mobility services for carrying out short-distance trips (Intra-city trips and distance is less than 10km (Ashkrof et al. (2019)). In this regard, Caiati et al. (2020) have stated that any new product/service upon incompatibility with user needs or requirements, tend to fail in gaining popularity. Similarly, MaaS is a new offer available in the market expected to change people's conventional ways of making a trip and its compatibility is required to be confirmed for both multi-modal and unimodal trips to remain sustainable in long term. Hence, before endeavoring wide-scale MaaS application in the Netherlands, it is crucial to carry out studies by gaining insight into people's preferences for MaaS as an alternative towards executing short distance trips. That is what the focus of this research will be on.

## 1.1 Research gap and motivation

Private transportation (i.e. cars and bikes) are the most popular modes in the Netherlands for short-distance trips (Priscilla (2018)). A similar study by Bingen (2017), has revealed about higher

modal usage of cars and bikes towards trips in the Netherlands with added information regarding mode usage for trips within the city and outside the city. Table 1, highlights the trip distribution by modality.

*Table 1 Distribution of trips by modality (Bingen (2017))*

| Mode of transport | The Netherlands | Within the city | Outside the city |
|---|---|---|---|
| **Car as a driver** | 33% | 19% | 33% |
| **Car as a passenger** | 14% | 10% | 15% |
| **Bus/Tram/Metro** | 3% | 11% | 4% |
| **Bike** | 27% | 25% | 24% |

Over the years' the ownership of private cars have significantly increased in the Netherlands (observation based on statistics presented in CBS statline (2020)) which could be possibly due to factors like comfort, convenient, status symbol, etc. Nonetheless, a higher usage of private cars is producing severe impacts on society (Martinez et al. (2017)). It is leading to harsh environmental overloading at parking place, and climate changes; loss of efficiency (i.e. long waiting and travel times) of the transport system due to congestion. Plus, study reveals short-distance mobility in this regard has high accountability. Also, Brimont et al. (2016) regarded short-distance mobility as the core challenge for sustainable mobility, accounting for 60% of emissions in the city.

The impact unsustainable mobility was already envisioned by Topp (1994) who then expressed his concern towards the survival of European cities due to rising congestion levels. As a solution it has been recommended to 'shift' demand towards more sustainable transport options like shared mobility services to reduce mobility miles with the personalized car.

For private bikes, it is already known that Dutch people like their bicycles. The municipalities, as well as the Dutch Government, have been promoting the usage of bicycles (Van Heijningen, H. M. C. (2016)) for reducing traffic and it has also emerged globally as a key part of the solution to traffic problems (e.g. Krizek et al. (2009)). Nonetheless, upsurge in bicycle ownership has opened doors to new types of problems (Boztas, S. (2019)) like bicycle theft, regular maintenance (old bikes), broken bikes dumped in the parking area and unavailability of bigger parking space in the city. Dutchnews. (2019) reported that in the year 2018 itself, there were 8316 number of officially reported cases for bike theft (additional unreported cases are not discussed). This tends to have created an opportunity for alternatives with bicycles as a mode, i.e. shared bicycle system. There are 2 types of bicycles as a sharing mode available in the market, i.e. Non-electric bicycle and Electric bicycle (E-bike). Recently, both types have gained high popularity in the Netherlands (Van Heijningen, H. M. C. (2016)).

Notwithstanding the impact of private bike and private car, experts like Wagner et al. (1998) have anticipated a gradual decrease in usage of private transportation further in future. In this reference, Jorritsma et al. (2015) have tended to reveal that 40% of the Dutch motorists are willing to use a shared car system for attending their travel needs with already 14,000 shared cars available in the market. Further, the expansion of single mode shared mobility services like ridesharing and ride-sourcing has been helping drive the sharing economy (Mobility (2020)). This has made experts like Arendsen, K. (2019), to express concern over popularity and market share of MaaS against the status quo like car-sharing (e.g. car2go) or ride-hailing pooled services (like UBER) or bike-sharing services (like Mobike, URBEE) that have been emerging as a popular mode of transport for short-distance trips. However, Brimont et al. (2016) have disagreed with the same and further revealed that the first generation of ride-hailing pooling services and car-sharing services are struggling to grow beyond certain geographical areas and population groups. Like

for example in Sweden, the single mode shared mobility services have taken a setback with being operational in some neighborhoods or particular zones/areas, thus concluding upon the fact that the shared mobility services are not an absolute replacement but complementary to existing private transportation usage in the cities (Bocken et al. (2020)).

In light of above, Brimont et al. (2016) have suggested that there is an opportunity for new mobility concepts that could win over new users and have a chance to further extend shared mobility services into new extents and MaaS tends to be that new concept (Matyas et al. (2019a)). By integrating several shared modes of transport into one package, MaaS actors tend to provide flexibility and a myriad range of choices for the people and thus contribute towards improving the sustainability of mobility. However, so far to authors' knowledge, there is no research available that explores the preference of people towards using MaaS as an alternative for carrying out short distance tips because of high preference towards private transportation (Mackett, R. L. (1999)). This in contrast with suggestions from the literature that MaaS has a real potential to makeshift the existing mobility system works.

Moreover, Brimont et al. (2016) have raised concerns towards business model of MaaS. It is predicted that for MaaS model to work, it requires a large number of regular users and given that short distance trips account for one-third of the total number of trips (FHWA (2019)), it is thus important for MaaS to have its influence over both long and short distance trips.

Currently, in the Netherlands, the majority of all short trips within the city tend to be executed by private transportation (i.e. private car and private bike), hence, for MaaS to be largely successful, users should also be willing to extend the usage of the MaaS package to make short trips. People have a high preference towards using private transportation in the Netherlands, and both Kim (2018) and Strömberg et al. (2018) have expressed concerns over change in travel preferences, which is hard to bring about (Graham-Rowe et al. (2011), Dieten 2015).

Nonetheless, it doesn't mean that the existing mobility pattern won't change, and this requires investigation for identifying the causality factors of user preferences given the context of the MaaS package as an alternative for carrying out short-distance trips. People's mobility demand and individual choice of using MaaS for short-distance trips are based on trade-offs of a wide range of attributes. Because of this, Harms et al. (2018) have notified that the expectations regarding MaaS are extremely high with uncertainty around its acceptance and potential for various kinds of trips (i.e. long or short-distance trips). Furthermore, the notion of MaaS tends to be linked to the context of multi-modal transportation and further letting users choose and facilitate in their intermodal trips (Jittrapirom et al. (2017), Spickermann et al. (2014)) having its effectiveness remaining uncertain in the context of (unimodal) short-distance trips. Added, extensive research by Knowledge institute for Mobility Policy (KiM) of the Netherlands (Waterstaat. (2019)), have regarded the first users of MaaS to be the people who travel long distances and use public transport a lot. KiM. (2019b), based on the study in the Netherlands have tended to state that the concept of MaaS might not be used for short-distance trips.

This illustrates the gap and scope of research. The current study adopts the notion provided by Ashkrof et al. (2019), classifying 'short distance trips' as unimodal trips having distance less than 10km. In this context, Kuzmanović et al. (2011) have mentioned that the concern is not with the successful formation of any service product but understanding the necessity of people to make the product more sustainable.

Despite considerable literature exploration, it is observed that most of the studies only explore the effectiveness of MaaS service bundling (like Guidon et al. (2020), related to policy (Matyas et al. (2019a, 2019b) and various feasibility studies but none of the study has been attributed towards investigating user preference of MaaS subscription for short-distance trips. This is taken as a research gap for the current study to provide necessary insights and fill some gaps in knowledge towards the MaaS study.

## 1.2 Research question and scope

To further define the scope of research, the study is conducted involving the popular mobility modes for short trips, i.e. car and bike. Literature related to the MaaS study tends to suggest public transport as the backbone of MaaS service (Jittrapirom et al. (2017), Spickermann et al. (2014), Arendsen (2019)). However, it is excluded from the current study as it shall add the additional complexity of incorporating additional information with access and egress distance than direct trips in case of car and bike. Further, for short trips within the city, public transport can't cover all locations spatially due to distance or location of stops, like friends staying in remote locations, etc. MOMENTUM (2020), in this context also pointed out that the short public transport trips have been found susceptible to substitution by bikes.

Moreover, walking as a mode is also not considered under study scope for short trips within the city as Lee et al. (2006) reported it to be limited to 1km - 1.5km, not fitting for all purposes of short trips. Thus, to avoid complexity and make the study feasible with limited availability of time, it is decided to proceed with bicycle and car as only two modes for assessing the preference of people in the study. Hence, based on the research gap discussed in section 1.1 of the report, the main research question is

***"What is the preference of Dutch people, regarding MaaS mobility package as a transportation alternative (to status-quo mobility pattern), for carrying out short-distance trips?"***

To address the main research question, the following sub-questions are proposed:

a. What factors/attributes have a significant impact on the choice of consumers'?
b. To what extent consumers' attitudes account for influencing the choice?
c. What is the consumers' willingness to pay for using the MaaS service package?
d. Does heterogeneity exist in choice of individual consumers'?

### *1.2.1 Research design*

To answer the main research question and its corresponding sub-questions, the following research design (shown in figure 1) has been proposed, to provide an overview of the entire research.

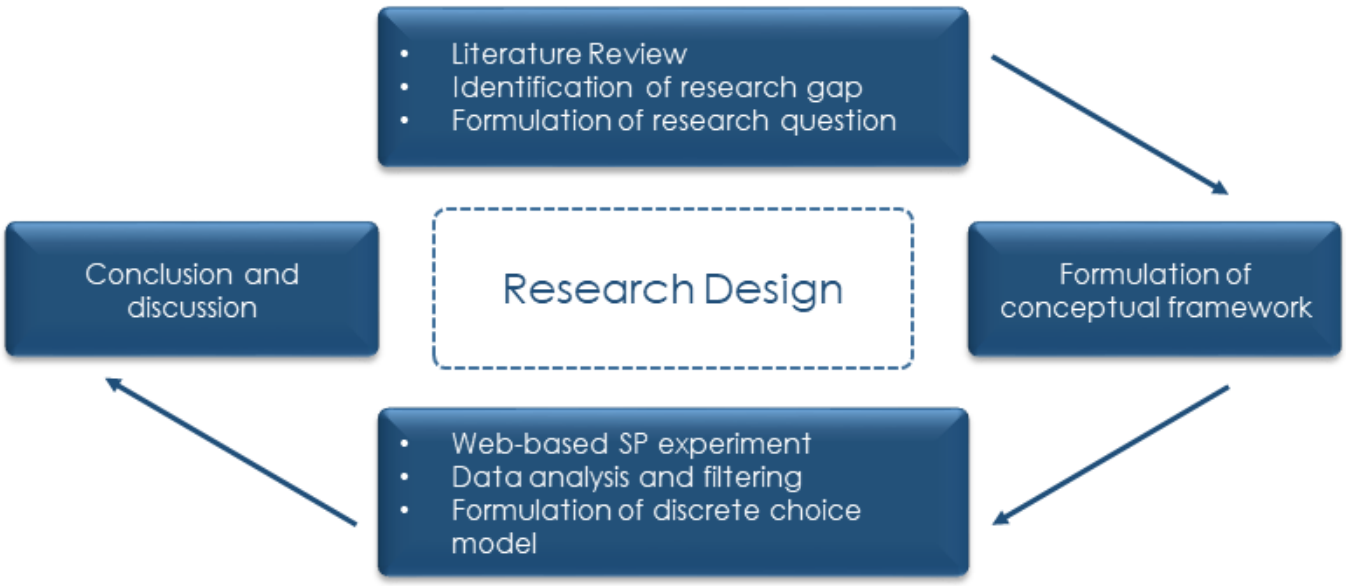



*Figure 1 Research design for the study*

The research design constitutes the following essential elements

a. Identification of problem formulation of research questions

Problem exploration and formulating the research question is one of the important aspects of the current study and section 1.1 already discusses the contributing factors towards the relevance of the study.

b. A conceptual framework to reach the goal

The work shall commence with a detailed literature review for conceptualizing the various aspects and elements discussed in earlier sections like the user characteristics, mobility package characteristics, etc. Besides, expert judgment shall be sought to streamline the approach and conclude upon the conceptual framework with the final set of factors that tend to be most relevant to have an impact on the decision-making process of travelers.

c. Data collection, analysis and formulation of model

Data collection is an important aspect of the research and quality of outcome is highly dependent upon it. The study geographical scope is in the Netherlands context so, for expediting the data collection process, a web-based stated preference experiment (Matyas et al. 2019) is followed to gather data. This allows for measuring the effect of diverse factors on consumer's or people's decisions (Sanko, 2001). The choice situations are considered using the factors from the conceptual framework (discussed in subsequent sections). In the SP survey, the respondents in study are presented with a hypothetical situation, and later they are asked to choose between 4 alternatives with varying attribute features. The survey also constitutes various psychological questions to gain more insight into the latent factors involved in making a decision.

Next to data analysis, the choice model, using random utility theory, shall be applied to gain insights into the extent each factor that has a significant impact on the decision. Higher-order modeling is applied to capture nesting and heterogeneity effects.

d. Discussion of results

Lastly, there shall be a discussion of results and further recommendations for follow up research using the current research as a reference.

## 1.3 Relevance of the research

Durand et al. (2018), in the Netherlands context, have expressed concern regarding the success of MaaS and stated the benefits / positive impacts on travel preference and travel behavior. This study shall add insights to the existing knowledge in the field of MaaS study, tending to be relevant for service providers. The study is more related to the impact of MaaS on an overall rather than specific to trip type. The study shall reveal heterogeneity in preference within Dutch people, relating to individual specific attributes and identify user groups having a high probability to buy the MaaS subscription package particular to short-distance trips. Apart from scientific relevance, the current study has a social relevance in strategizing city-level policymaking by various administrative bodies. The SP experiment provides evidence on the preference of people based on price, waiting time, and other attributes to which stakeholders could take decisions on various aspects like subsidy level, etc.

## 1.4 Outline of the report

The research design of the entire study has been outlined in figure 1. Chapter 2 provides a brief overview of existing literature contributing to the research gap and relevance of research. Based on the literature, chapter 3 outlines the conceptual plan and methodology adopted for the study. In the first part, a briefly introduction to the data needed for carrying out the study is done with discussion of the relevant factors that take part in the choice-making process of the consumer. Later in the second part, the chapter briefly introduces the SP method and different choice models. Followed by chapter 4 which explains the design of the entire survey questionnaire and learnings from the pilot to design the final survey. The results of the model are displayed in chapter 5 with a detailed discussion on estimated parameters and underlying insights gained from it.

Lastly, chapter 6 concludes by answering the research questions, interpreting the study results, stating the limitations of the study, and recommending further research. The same chapter includes a reflection of the study.

# 2 Literature review

The current chapter is a literature review and the contents introduced in chapter-1 are discussed here in more detail. There was limited availability of relevant literature, but the author made an attempt towards constructing a theoretical foundation upon the current research on MaaS (in the context of short trips).

The chapter is segregated into 2 parts and the first part shall discuss relevant findings from literature the about role of MaaS in the context of short-distance trips. Further discussion regarding the associated benefits towards the application of MaaS shall be done. The second part shall then zoom into the aspects of probable MaaS package design which shall be applicable in the current study.

## 2.1 MaaS in the context of short-distance trips

Studies like FHWA (2019) have stated that short distance trips account for one-third of the total number of trips done by a person per year. Added, the majority of all short-distance trips within the city tend to be executed by private transportation like car and bike (Bouwman (1970), Mackett (2003)). However, many of the trips are unnecessary.

The study by Mackett (2003) suggested that the majority of the short distance trips by car (like greater than 50%) are non-essential and could be shifted to 'other modes'. Smartwayz. (2018) deliberated regarding 'other modes' as the emergence of alternatives in the form of single mode shared mobility platforms in large cities, proving to be a better alternative than owning your car. In support, Wagner et al. (1998) asserted towards implementing novel concepts like 'modality integration' which could diminish the role of personal vehicle and Smartwayz. (2018) have represented Mobility-as-a-service (in short MaaS) as an efficient business model to imply modality integration.

Irrespective of short or long-distance trips, Kamargianni et al. (2017) have stated that the MaaS model tends to offer its customers easy, price-worthy, and personalized mobility. Harms et al. (2018), have presented an optimistic view of MaaS and stated that its adoption shall bring added value for the user relative to his or her current mobility behavior. The extent could be that the importance of private vehicles could shift from a 'dominant' mode to just one alternative among a wide range of attractive mobility options.

In the Netherlands, the study by Harms et al. (2018) has concluded towards the requirement for MaaS due to advent of the 'shift' from the year 2005, towards more sustainable transport modes (i.e. shared mobility platforms). The 'shift' mostly applies to short-distance trips over distances starting from 1 kilometer. Besides, it is said that the shift tends to be stronger in urban areas than in suburban areas. The shift is pointed out towards the shared mobility paradigm and with the emergence of the online platform, the shared mobility services (like car-sharing, ride-hailing, etc.) have gained much popularity in recent years. Empirical data reveals that the global car-sharing fleet increased between the year 2006 and the year 2014 from 0.35 million to 4.82 million (Shaheen & Cohen, 2016). The shared mobility concepts are also gaining much popularity in the

Netherlands and the fleet size has been increasing at a rate of 25% per year (Arendsen, K. (2019)). Besides the cars, also shared usage of other modes like shared Electric bike (like URBEE) is emerging as a popular new transportation mode for urban areas (Arendsen, K. (2019)). It is already known about ride-hailing pooling services provided by UBER and LYFT provided as on-demand services on a door to door basis. Brimont et al. (2016) revealed that the modal share of short-distance carpooling is estimated at between 2 and 4% for commutes, and between 7 and 9% when all journeys are included.

Unfortunately, Brimont et al. (2016) contrary to earlier statements have further mentioned issues with single mode shared mobility platforms. Those services have been struggling to grow beyond a certain zones and population groups, thus, requiring a collaborative mobility system with a hope to win over new users. In the same study, it is stated that the collaborative mobility system (like as defined for MaaS) could contribute towards improving sustainable mobility with the benefits being greater for short-distance trips than for long-distance mobility. It is because there is not as much of competition with public transport in the short-distance segment.

Considering the optimistic viewpoint towards application of MaaS services, it is vital to understand whether Dutch people have any preference for using MaaS services for executing their respective short trips or not? Hence, this is taken as a research gap for the current study to provide necessary insights and fill some voids in knowledge towards the MaaS study. Further, Kamargianni et al. (2017) have raised concerns about implementing the MaaS service and its usage to roam from city to city as a challenging complex task. It is suggested, MaaS service within city limit (or intra-city trips) is less difficult to attain and further could help the local authority (if a stakeholder) to keep a check and regulate efficiently towards constructing a sustainable urban mobility (Li, et al. (2017)).

## 2.2 MaaS bundle package and factors influencing preference for it

There is no standard or definite knowledge regarding factors that affect consumer preferences for bundle composition. Matyas et al. (2017) in this context have concluded that consumers have myriad preferences for what to include in the bundle. It is often created with complementary products/services, offering an added value to consumers (Matyas et al. (2019)). Complementary products/services could be unknown and offering them together with ones that are familiar to the users' result in favorable evaluation (by the same users') of the new product more (Reinders et al. 2010). Like OV chipkaart in the Netherlands (Smart Card Alliance (2003)) which could be used for metro, bus, tram, and renting bike services. One payment platform for different use of services makes it highly convenient not only for users but also for the stakeholders to manage the services effectively.

Considering the rationality of MaaS in context of short-distance trips, studies like Matyas et al. (2019) have tended to affirm the usability of MaaS as a mobility management tool and the consumers have agreed to the fact that they are willing to try new mobility modes that they haven't used before. Thus, the MaaS bundle to be more attractive should be appealing and include modes that are not commonly used. Studies like Ho et al. (2018) and Matyas et al. (2019), reported a higher willingness to pay (WTP) for the MaaS plan and further revealed from SP survey that frequent car users (like 5-7 days per week) are less willing to take MaaS plan. Caiati et al. (2020) concluded that respondents are highly sensitive to the price of the subscription and their preference depends on the options available. Consumers have a high preference for a flat-rate plan, and different people based on age, lifestyle, attitude, education, income level, etc., (for different socio-demographics) outweigh the different factors of a package.

Ratilainen (2017) further suggested that including a myriad of transport modes in the monthly subscription package could lead to many modes being unused, which consequently affect sustainability. In the same study, it is further articulated about the importance of bundled package attributes and pointed out that to have choice/preference for MaaS bundle there should be a fit between the attributes valued by the target markets (here in this study are people who are more inclined towards using car and bike).

It is already known that the 'choice' is always about comparing alternatives and therefore factors influencing choice for the MaaS package (in general) are examined based on the study by other researchers. So, the following part discusses the factors that tend to be linked with the choice of the MaaS package. These are transport-related factors and primarily concerned with 'package', 'trip' and 'traveler'

a. Factors related to MaaS bundle package

Kamargianni, et al., 2016, presented a rational view on package cost attribute and stated that consumers are highly sensitive to subscription price. Consumers tend to also be selective towards the type of mode combination included in package. Also, the time as a factor (like access time to the vehicle and waiting time) possesses a significant influence on the choice of consumer. Nonetheless, time as a factor is perceived differently for different individuals (Arendsen, K. (2019)).

Apart from the above factors, expectations towards inclusion of additional features in the package (like rollover of the balance amount or unused rides to the subsequent month, etc.) plays a significant role in influencing the choice of an individual (Jittrapirom et al. (2017)).

b. Factors related to trips using MaaS plan

Package influencing factors harmonized with trip characteristics might make a great combination. Like 'trip distance' which tends to have strong attractiveness to the type of mode, i.e. bike for a distance up to 2-6 km (Mackett (2003)), one-way car-sharing for a distance greater than 1km (Costain et al. (2012)), etc. Trip distance has a direct combination with speed, i.e. more is the trip distance mode that is faster, gets the preference.

Another factor, i.e. 'trip motive combined with weather effect', basically an unmeasurable qualitative factor tends to influence largely upon the decision of mode (Molin et al. (2010)). It is general that based on the type of trips done in a month, a consumer selects the best fitting mobility package suitable to need. So, the inclusion of different modes in the MaaS plan should be carefully selected based upon the type of target market before rolling out any service. The combination of modes should bestow a complementary effect satisfying all the requirements to a large extent like a combination of car and bike satisfying different range of trip purposes.

c. Factors related to traveler

The choice of package is done by a consumer and socio-demographic and psychological factors play a significant role (Ettema et al. (2007)). Like study by CBS (BNNVARA (2019)) has tended to reveal that change in family composition could be a potential-stimuli for people towards giving up their ownership of the vehicle. The traditional socio-demographic features like age, income, education, number of trips per month with car or bike, income, driver's license, vehicle ownership, etc. are considered in the present study.

Similarly, psychological factors like experiences, habits, lifestyle, perceptions, and attitudes (Ben-Akiva & Bierlaire (1999)) also been revealed to influence the choice of a person. Hence to

summarize, table 2 presents an overview of factors that are presumed to be relevant for the current study and development of a conceptual plan.

*Table 2 Summary of factors/attributes in study*

| Factors related to MaaS bundle package | Factors related to trips | Factors related to traveler |
|---|---|---|
| • Package cost<br>• Access time to the vehicle and Waiting time<br>• Additional features like rollover of unused rides to next month<br>• Type of mode integration | • Trip distance<br>• Trip motive | • Age<br>• Gender<br>• Income<br>• Education<br>• Frequency of mode usage and trips<br>• Driver's license<br>• Vehicle ownership<br>• Habits<br>• Lifestyle<br>• Perceptions<br>• Attitudes |

The most relevant factors shall be decided and used in the study further based on expert judgment. Lastly, Karlsson et al. (2016), have stated that for successful implementation of MaaS, the key service attributes (like subscription price, accessibility, type of service integration) are required to be tailored carefully because people tend to be greedy in their decision and tend to carefully balance pros and cons while making a choice.

Apart from the aggregate preference, Matyas et al. (2019b) have pointed out in his study towards existence of heterogeneity within the sample population (conducted using stated preference survey (in short SP survey)). It was also observed in other studies like Caiati et al. (2018), wherein discussion regarding individual preferences (or unobserved heterogeneity in individual preferences) for the MaaS package is done. Caiati et al. (2020) have further suggested that the heterogeneity does exist concerning the preference for MaaS and the service attributes, especially the price value of the monthly subscription, and the social variables (like socio-demographics) have a vital effect on the person's intention to subscribe.

# 3 Concept definition and Methodology

The current chapter is divided into two parts. The first part (i.e. section 3.1) provides a conceptual framework for addressing the main research question. The concept is discussed in detail and expert judgment is taken into account for selecting the final set of factors.

The second part (from 3.2 onwards) shall discuss the methodology to be implemented in the study. The MaaS as a product is not yet fully operational/wide-scale available in the Netherlands. There is a lot of ongoing research to identify uncertainties with ongoing pilot studies (refer to chapter 2). Under these circumstances, the stated preference technique is used to gather data and information (Kamargianni et al. (2016)). This chapter shall further introduce the data analysis techniques with the introduction of discrete choice theory and choice modeling.

## 3.1 Concept description

There are uncertainties looming around the future of MaaS service like KiM (2019b) have expressed concern regarding the usage of MaaS service for some trips in particular like short distances, known routes and routine journeys with Pangbourne et al. (2020) raising concerns over the sustainability of the MaaS system. Thus, the research question aims to assess the preference towards the MaaS bundle package as an alternative for carrying out short-distance trips. To evaluate the preference of several attributes/factors, play a role. See figure 3,4 and 5, for the proposed conceptual frameworks (in relation to planned study) to answer the main research question. For 3 experiments three concepts are proposed:

i. Car experiment (figure 3) where the idea is to assess whether people are willing to replace some of their private car trips for mobility packages.
ii. Bike experiment (figure 4) to assess whether people have any preference to mobility packages by selling their private bike.
iii. Last mile experiment (figure 5) to assess whether people have any preference to mobility packages than status-quo mobility pattern.

The conceptual frameworks are intended towards applicability for all types of short-distance trips in the Netherlands i.e. trips within the residing city (with mode car or bike) or last mile in another city (as the last mile to the destination from public transport (PT) stop). Also, it is in line with the discussions in chapter 1 and chapter 2 of the report and comprise of following modes

a. Car (constituting private car, one-way car-sharing (pick and drop), or ride-hailing (pooled) service), and
b. Bike (private bike, shared Ebike, or normal bike).

Since the preference for mode is dependent upon (a) socio-demographic and psychological factors of a user and (b) Attributes of offered package alternatives, the conceptual framework lists the relevant factors influencing the choice. Figure 2 lists out the relevant socio-demographic factors adopted in the conceptual plan.

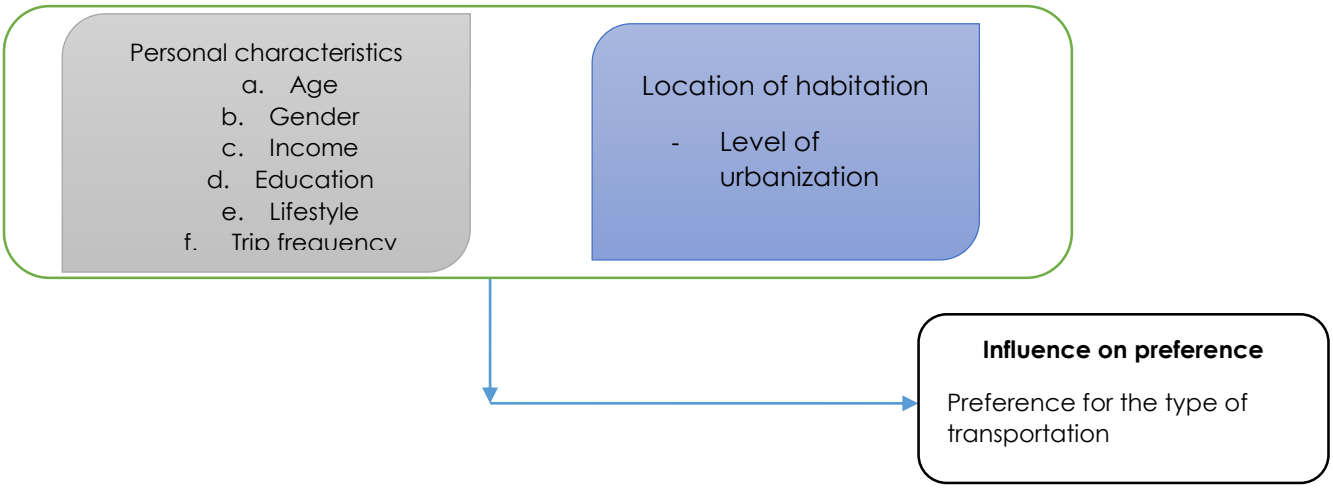
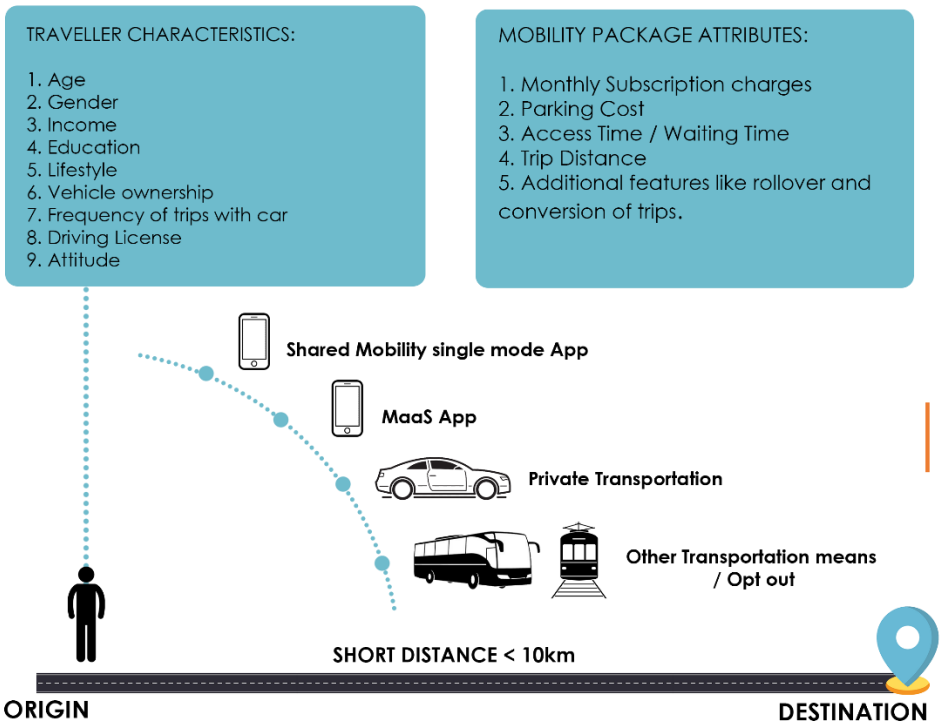



*Figure 2 List of socio-demographic factors (inspired by Kamargianni et al. (2017))*

The personal attributes define the characteristics of a person and literature reveals that it plays an important role in the selection of any mobility service (discussed extensively in Durand et.al (2018)). Like, adults are more prone to try out new technology, new means of travel and are believed to adopt the MaaS plan easily. The working class though have a high value of time and demand for comfortable and seamless service could be a considerable target group for adaptation of the MaaS plan, etc. Also, frequency of trips with car or bike in a month might have a considerable influence on choice of a person, like, if short-distance trips with car are numerous (more than 35) then people might consider adapting to MaaS plan. One of the possible reasons could be that it is expensive to use private car for short-distance trips due to inefficient fuel burning.

The housing location is based on the level of urbanization that has been classified into rural, suburban, and urban areas. The extent to which MaaS will be adopted and instigate changes in the choice preference also tends to be influenced by the level of urbanization as research suggests it has directly proportional to the number of jobs with additional facilities like better shopping malls, education facilities, and other recreational arrangements. The relevant factors based upon discussion with supervisors and colleagues are mentioned in the conceptual plan, having its connection with the 'preference of users'.

Similar to socio-demographics, the identified attributes of subscription package in the previous chapter (like subscription price, parking cost, access time/waiting time, trip distance, and additional features) are inserted in the conceptual plans shown in fig 3,4 and 5 (for 3 planned experiments).



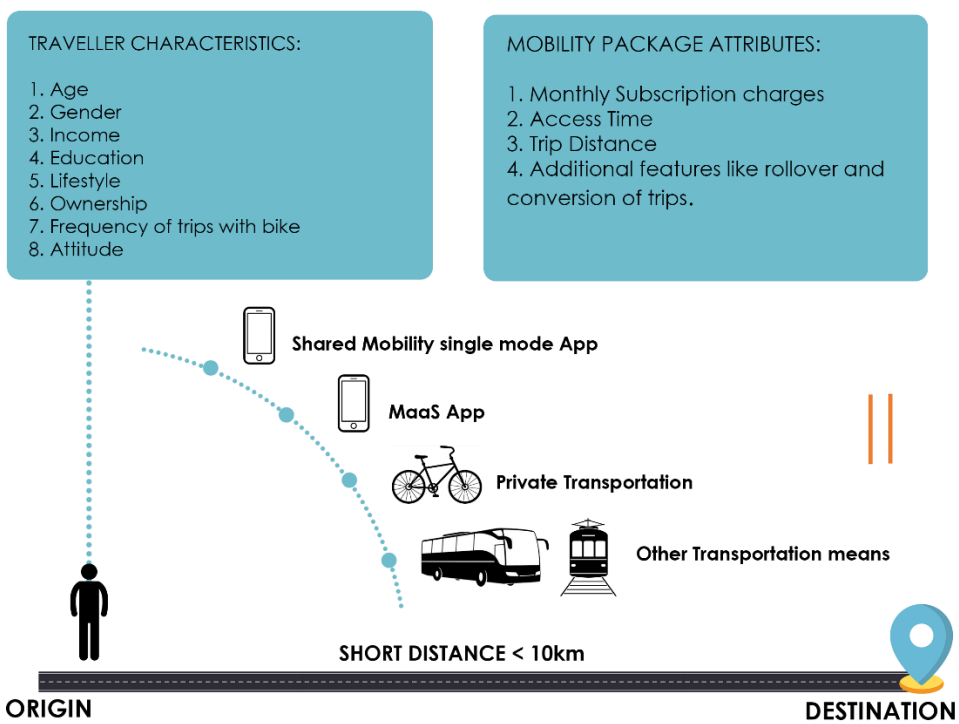




*Figure 3 and 4 : Proposed conceptual framework for car experiment (I) and Bike experiment (II)*

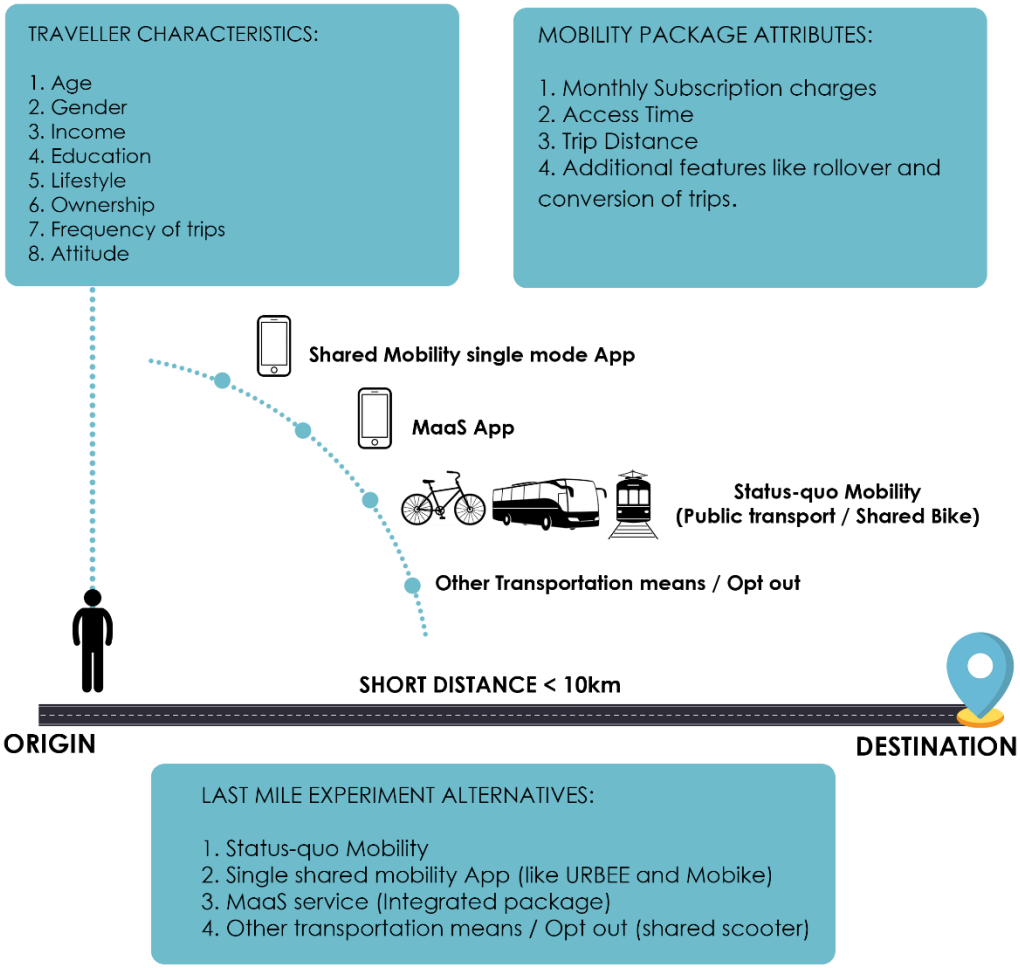



*Figure 5 Proposed conceptual framework for last mile experiment*

Based on traveler characteristics, the user has the option to continue with status-quo (i.e. using private transportation or single mode shared mobility services) or opt for new service, i.e. MaaS service. Further, the conceptual plan only constitutes car or bike as available modes in mobility package for study. Including an additional mode would have further increased the scope of works and complexity in the study, given the limited availability of budget and duration. Then, from the mode alternatives, each consumer has four sub-alternatives to choose from i.e. private transportation/Single mode shared mobility / MaaS service / Others (like the tram, bus, micro-mobility services, etc.).

There is a possibility to include myriad types of services within the MaaS bundle, but it is further decided to limit the scope with three types of bundle shown in figure 4. So, in car experiment (figure 3) where the proposed context is to replace some of the trips of private car, two bundles are offered in MaaS package (one at a time for each choice task), which are

a. Ride hailing (pooled) service and Shared Ebike
b. Car sharing and Sharedbike

Similarly, in bike experiment, MaaS bundle package has fixed integration of modes, i.e. Shared normal bike (non E-bike) and Shared Ebike. Figure 6 summarizes the types of MaaS bundles. The

included services in the MaaS bundle were finalized after a series of discussions with supervisors and added inputs from experts.

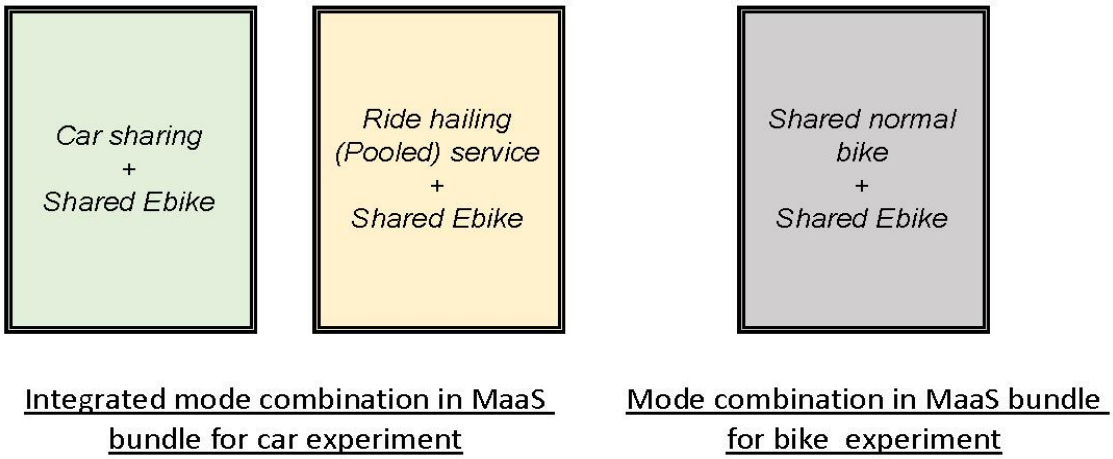



*Figure 6 Services in MaaS bundle*

Lastly, when the respondents are presented with a different set of choice tasks with varying attribute levels, the information regarding attributes for each kind of service tends to be weighed differently (Ben-Akiva, M., & Bierlaire, M. (1999)). It tends to undergo a cognitive process in which the attribute values are aggregated into a utility index, based on an individual's preferences and constraints (like subscription price, access/waiting time, etc.) (Liao, F. (2014)). Thereby, the choice is made based on maximum utility.

Based on the cumulative choices, the author could then infer regarding the possible impact that MaaS could have and further estimate the willingness to pay (WTP) for the service. The author deems the figure 3,4 and 5 to be the final conceptual frameworks adopted in the study and further use in the stated preference experiment (refer to research design in fig 1). Thus, having defined a clear conceptual framework and a set of factors to be included in the MaaS study, the conceptualization phase of this study is complete and can be used to design the SP survey to collect necessary data.

## 3.2 Data collection strategy

The discussion in this section commences with the initial set of inquiries needed to develop strategy followed by the development of a questionnaire for stated preference web-based questionnaire (refer appendix for screenshots). Thereinafter, discussion regarding the modeling methods shall be done to analyze the stated preference data. Lastly, there is a discussion of the method to incorporate attitudinal factors in the study.

### *3.2.1 Initial inquiries, interviews and verbal collection of individual views*

Preliminary data collection in the form of queries, interviews, and verbal discussion. The initial inquiries transpired with some of the Dutch employees (both young and old) in the Movares office during the start of the literature review.

The author aimed at not only knowing the expectations but also gain information regarding the type of services to include in the bundled package, tentative extent of subscription price limit, and access / waiting time values. The discussion happened with 11 employees inside Movares office along with some TU Delft Dutch students and it was learned that lower subscription price

tends to be the first expectation. Their vehicle like personal cars or bike shall always remain their first choice but appealing offers could make Dutch people think otherwise. Lastly, it was suggested that as short trips are generally for a shorter period, so expectations from the level of service is to have lower waiting time or access time. Regarding views on selling private transportation for the monthly MaaS subscription package, none of the colleagues were ready to sell the car. However, for appealing and profitable offers, there is a possibility of selling a bike.

### *3.2.2 Stated preference (SP) choice experiment*

The research question aims at investigating the choice of Dutch people towards using the MaaS bundle package for short-distance trips and to know their choices a quantitative approach by implementing stated preference experiment tends to be ideal for data collection (Kamargianni et al. (2017)). Further, MaaS mobility service in the Netherlands is yet to be operational for which revealed preference experiment is not possible. The stated preference experiment is decided to be web-based because it enables maximizing the received responses (Greenlaw et al. (2009)) with ease in the construction of tailor-made choice situations. Regarding the design of SP choice tasks, a detailed discussion is done in chapter 4.

The respondents shall be presented with different choice tasks and in every task, there shall be 4 options to select one, i.e. a. Private transportation, b. Single mode shared mode service, c. MaaS service and d. Opt-out and prefer other services (which could be walking, public transport, micro-mobility modes, etc.). Including the 'opt-out' option tends to make the experiment more realistic (Haaijer et al. (2001)). For each choice layout, it is determined to keep the private/own vehicle as to the context (like "imagine that you travel 200km per month inside the city ….") along with the value of its attributes and present the other alternatives (except 'opt-out' option) with their corresponding attributes. It is also decided to keep the packages labeled enabling for estimating Alternative specific constant (ASC) (Jin et al. (2017)).

The 'opt-out' option has no attributes. In the choice experiment, there is a base alternative to which utility index of other alternatives shall be compared. It also indicates that the respondents continue using their current mode of choice other than the private transportation, single mode shared mobility service, and MaaS package.

In the current study, the author adopts a classic SP choice experiment approach (Matyas (2019a)), wherein the choice task is presented to each respondent based upon the different combinations of attribute levels (maintaining consistency in the presented format). This makes the task of respondents easier as they only have to select their most preferred option. In that way, the respondent tends to spend less time per question (ideally 20-30 seconds), to avoid fatigue and bias (Çullhaj (2016)). Alternatively, it is observed that in SP choice experiments, there has been increasing interest in designing and analyzing menu-based choice (MBC) questionnaires, as it tends to be more reflecting more realistic bundle preference situations than classic SP method (Bharati, P., & Chaudhury, A. (2004)). Nonetheless, it increases the task of respondents as it involves choosing their preferred levels of each attribute and that tends to increase the time spent for each question. To avoid complexity and based upon existing knowledge, the author decided to adopt a classic SP choice experiment (with pivot style attribute levels) to collect data.

Regarding the respondents, the survey is planned to be distributed randomly by email to respondents above 18 years because the study has a car as a mode included and the legal age

after which a Dutch person can own a driving license is 18. Lastly, the survey shall be designed in Qualtrics and further present a certain number of choice tasks randomly to the respondents.

## 3.3 Data analysis strategy

This section is corresponding to the later part of the study after the collection of SP data. The data is the preference for the mobility package. As mentioned earlier, the study shall present respondents with hypothetical scenarios, and from the available alternatives, the respondents have to choose from the list of mobility options. Kamargianni et al. (2017) in this reference stated that the preference towards a mobility bundle package is not the result of an individual attribute in the package but due to a combination of all attributes.

After the survey, preparation of data set followed by data filtering shall be done to obtain a final data set. Then, the discrete choice modeling (DCM) technique shall be applied. An overview of the DCM theory and the applied models is presented below (Ben-Akiva & Bierlaire (1999)).

### 3.3.1 Random utility maximization

Discrete choice modeling is built upon a framework that consists of four assumptions (Ben-Akiva & Bierlaire, 1999) i.e. (1) The decision-maker that makes a choice or takes a decision; in this study, the Dutch respondent. Second, the decision-maker can choose from a set of choice options, referred to as (2) the alternatives. The third is the specification of (3) attributes, which are variables that describe the alternative and are taken into account by the decision-maker when choosing. The last assumption is that of the (4) decision rule, which describes the process that the decision-maker uses to make a choice. In the current research, the decision rule used is that of Random Utility Maximization (RUM). The RUM theory assumes that the decision-maker always aims at maximizing utility. This decision rule can be formulated into a formula shown in Equation 1:

$$U_{ni} = V_{ni} + e_{ni} = V(x_{ni}, s_n) + e_{ni} \quad \{\forall \text{ i = 1,2,3,4 and } \forall \text{ n = 1,2,3....N}\} \quad \textit{(Equation 1)}$$

*Where,*

$n = Decision\ maker$
$i = Alternatives\ in\ the\ choice\ task$
$U_{ni} = Total\ utility\ associated\ with\ alternative\ i$
$V_{ni} = Observed\ part\ of\ utility\ associated\ with\ alternative\ i$
$e_{ni} = the\ random\ error\ component$
$x_{ni} = the\ value\ of\ an\ attribute\ for\ alternative\ i$
$s_n = the\ characteristics\ of\ the\ decision - maker$

The total utility associated with an alternative is the summation of observed utility (i.e. the sum of attribute levels that are each multiplied with decision weights) and the error component that could be said as unobserved factors (like comfort, lifestyle, etc.) or measurement errors

### 3.3.2 Type of choice models

The decision weight parameters discussed in the earlier section could be calculated with multiple models (Ben-Akiva & Bierlaire, (1999)). Literature suggests that the most commonly used models are the Multinomial Logit (MNL) model, the Nested Logit (NL) model, the Mixed Logit (ML), and the Latent class (LC) model.

a. Multinomial Logit Model (MNL)

The MNL model was proposed by McFadden (1974) and is the most applied utility estimation model. All the alternatives are assumed to be independent and it assumes that the respondent always chooses the maximum utility. It assumes that the error components in the RUM decision-

rule are independently and identically distributed which means the error terms are assumed to be uncorrelated and have the same variance (, McFadden et al. (2000), Train (2003)). Nonetheless, it is limited in a way that it is not able to account for dependencies between alternatives. So, if the number of alternatives is denoted by ***k***, the probability for choosing the alternative as ***p*** and the chosen alternative ***i***, then its probability is calculated by

$$p_i = \frac{e^{Vi}}{\Sigma_{j=1}^{J} e^{Vj}} \; ; j = 1,2,3, \ldots . J \qquad \textit{(Equation 2)}$$

In this study, there are 4 options given to respondents for choosing, among which 2 are in form of mobility packages, 1 is the option to continue using the personalized vehicle, and the last option as 'opt-out'. Further, the observable part of the utility takes the following form

$$V_{ni} = \beta_j * \; x_{ni} \; ; j = 1,2,3, \ldots . J \qquad \textit{(Equation 3)}$$

$\beta_j = vector\ of\ parameters\ that\ are\ alternative\ specific\ (of\ attribute\ x_{ni})$
$x_{ni} = vector\ of\ observed\ attributes\ of\ alternative\ i$
$n = Decision\ maker$

The MNL model is easy to understand and takes less computation time but the model is limited in several ways. Due to the I.I.D. assumption, the MNL model is unable to account for dependencies between alternatives like the current study has two alternatives as Single mode shared mobility package and MaaS package which includes a combination of shared modes, people might tend to think both to be similar in concept of shared mobility aspect. Thus, to overcome this drawback, Nested Logit models were also estimated in this study. Also, MNL models assume that each choice of respondents to be independent of other choices and can hence, cannot deal with panel effects (correlation between multiple choices of one respondent). As a solution to this shortcoming, Mixed Logit models are also applied in this study.

b. Nested logit model (NL)

In the event of two or more alternatives intuitively have unknown commonality, the NL models can be used to account for this in the discrete choice model (Train (2009)). Upon including a nest-parameter, the model can capture (unobserved) correlations between alternatives that "are in the same nest only". Nevertheless, the NL models are not able to deal with panel effects.

c. Mixed logit model (ML)

The mixed logit model is a statistical model and its requirements arise due to three limitations of the MNL. The limitations are random inability to capture taste variation, panel effect of respondents group of choices, and correlation in unobserved factors over time. The model application is done by specifying variables that can induce correlations over alternatives in a parsimonious fashion to provide sufficiently realistic substitution patterns (Brownstone et al. (1999)). The ML models are complex and take high simulation time.

d. Latent class model (LC)

Mixed logit models are not suited to account for the origins of heterogeneity. It does not provide sufficient reasons leading to heterogeneity like divergent in socio-demographic factors and attitudes (Boxall et al. (2002)).

The latent class model is made up of two parts: a logit model and a class membership function. The logit model takes the form as MNL, only with main parameters. Assume there are S classes in the population and the choice probability of alternative i being chosen by a person in class s becomes

$$P_{(n|S)}(i) = \frac{\exp(\beta_S * X_i)}{\Sigma_{j=1}^{J} \exp(\beta_S * X_j)}$$

Where, $\beta_S$ are class-specific taste parameters.

The class membership function classifies individuals into the latent classes based on socio-demographic characteristics

$$C_{ns} = \lambda_s * Z_n + \zeta_{ns}$$

Where,

$Z_n = vector\ of\ individual\ characteristics$
$\lambda_s = vector\ of\ parameters$
$\zeta_{ns} = Error\ term$

By assuming the error terms are independently distributed across individuals and segments, the probability (P) of person n belonging to class s is

$$P_{ns} = \frac{\exp(\lambda_s * Z_n)}{\Sigma_{s=1}^{S} \exp(\lambda_s * Z_n)}$$

Lastly, the unconditional probability of person $n$ choosing alternative $i$

$$P_{ni} = \sum_{s=1}^{S} P_{(n|S)}(i) * P_{ns}$$

As a note, a detailed discussion regarding the LC model is avoided in the current study as the purpose is only to gain insight into the type of users (origin of heterogeneity).

3.3.3 The measure of model performance

To assess the performance of the model upon each addition of attributes, the following statistical measurements are carried out for "goodness of fit", (refer equation 4 and 5)

- Firstly, checking the final loglikelihood, AIC, and BIC values which measures the goodness of fit (Shi et al. (2002)) but it doesn't always reveal accurate information as adding a large number of predictors improves the likelihood value even further. So, the following indicators are collectively required to improve the explanatory power.

- Mc Fadden's rho squared test (Mc Fadden (1974)): Comparison of performance of the model with the full version. It means that the new model is a simplification of the old model. The rho square value is given by

$$\rho^2 = 1 - LL(\beta) \ / \ LL\ (0) \qquad \textit{(Equation 4)}$$

$\rho^2$= Rho-square
$LL(\beta)$ = Final log-likelihood
$LL(0)$= Null log-likelihood

- The use of adjusted rho square (Kamakura et al. (1993))

$$\text{Adjusted } \rho^2 = 1 - ((LL(\beta) - K)/LL\ (0)) \qquad \textit{(Equation 5)}$$

*K* is the number of predictors in the model

Though the value of Rho-square suggests the performance of the model its value might be misleading when a model has many predictors (Frost, J. (2019)). In that case, adjusted R-squared relates the explanatory power of different regression models with different numbers of predictors.

- Lastly, assessment of model predicting capacity: It is to evaluate predictive ability of final model by estimating the percentage of correctly predicted preferences. Simulation is applied to the final model for getting the estimated choices.

### 3.3.4 Attitudes

MaaS is still in its initial stages (Alonso-González et al. (2020)) and its completely unknown of its long-term operation impact. Therefore, opinion about MaaS is still limited to the small number of literature and documents about MaaS pilots. Thus, to gain insight towards people's willingness towards using shared mobility platforms, new mobility services, a framework to measure attitude is made by including statements to be ranked on basis of Likert scale (Adelson et al. (2010)) in SP survey. Then the latent factors from those ranked statements are extracted through the method of Principal Axis Factoring with varimax rotation (Henson & Roberts, 2006).

Thereinafter, the resultant probable latent factors are added to the discrete choice models to check the performance and explanatory power of the model.

# 4 Design of survey

This chapter discusses various aspects taken into consideration for designing the SP experiment. The whole process was divided into 5 sections. The first section shall discuss the SP experiment attributes and corresponding levels for the choice experiment. The second section shall then discuss regarding remaining part of the survey like socio-demographic attributes. The third section continues with discussions regarding generating choice sets for different experiments. The fourth section deliberates strategy towards a pilot survey and discussion of learnings from it. The last section shall discuss the development of necessary improvements towards the final survey and further strategy.

## 4.1 Design of SP experiment

The SP experiment choice tasks should be comprehensive, realistic with fewer attributes enabling respondents in immediate understanding and make appropriate tradeoff (Arentze and Molin (2013)). It is also contemplated to present the hypothetical contexts of the question, easily imaginable.

In the available literature (Jittrapirom et al. (2017); Kamargianni et al. (2016); Matyas et al. (2019a)), it is commonly spotted towards categorizing attributes of SP experiment into two parts, i.e. transport mode specific attributes and non-model specific attributes. The former includes attributes like subscription cost, waiting / access time and travel distance whereas the latter includes the additional features like rolling over of balance amount to next month or opportunity to convert unused rides to equivalent preferred rides in the same package. The various attributes and their corresponding levels are decided based upon information available over the internet, apriori reasoning, discussion with experts, and from literature. The table 4,5 and 6 shows the attribute levels and list of attributes in the SP experiment. Typically, the attributes are varying in 2-4 levels (Hess & Rose (2009), so in the current study with attributes varying between 2-3 levels. The SP experiment follows the structure in figure 7, wherein the study scope is segregated into two parts, i.e. preferences if short trips are within the residing city? (in short: 'trips within the city') and preferences for Last mile from PT stop to destination if traveling to another city (using public transport)? (in short: 'trips upon traveling to another city')

For trips within the city, two experiments are determined, i.e. experiment with a car as the primary mode for carrying out short trips (labeled as 'car experiment') and experiment with no cars but with different types of bikes as a mode of travel (labeled as 'bike experiment'). In the second part of SP scope, i.e. trips upon traveling to another city ('Last mile in another city'), the choice experiment is similar to bike experiment but with varying attribute levels. The three SP experiments in fig 7 are bordered with a dotted line with further indication on type of choice tasks having varying mode integration in MaaS packages. A detailed discussion regarding each experiment is done in the following sub-sections.

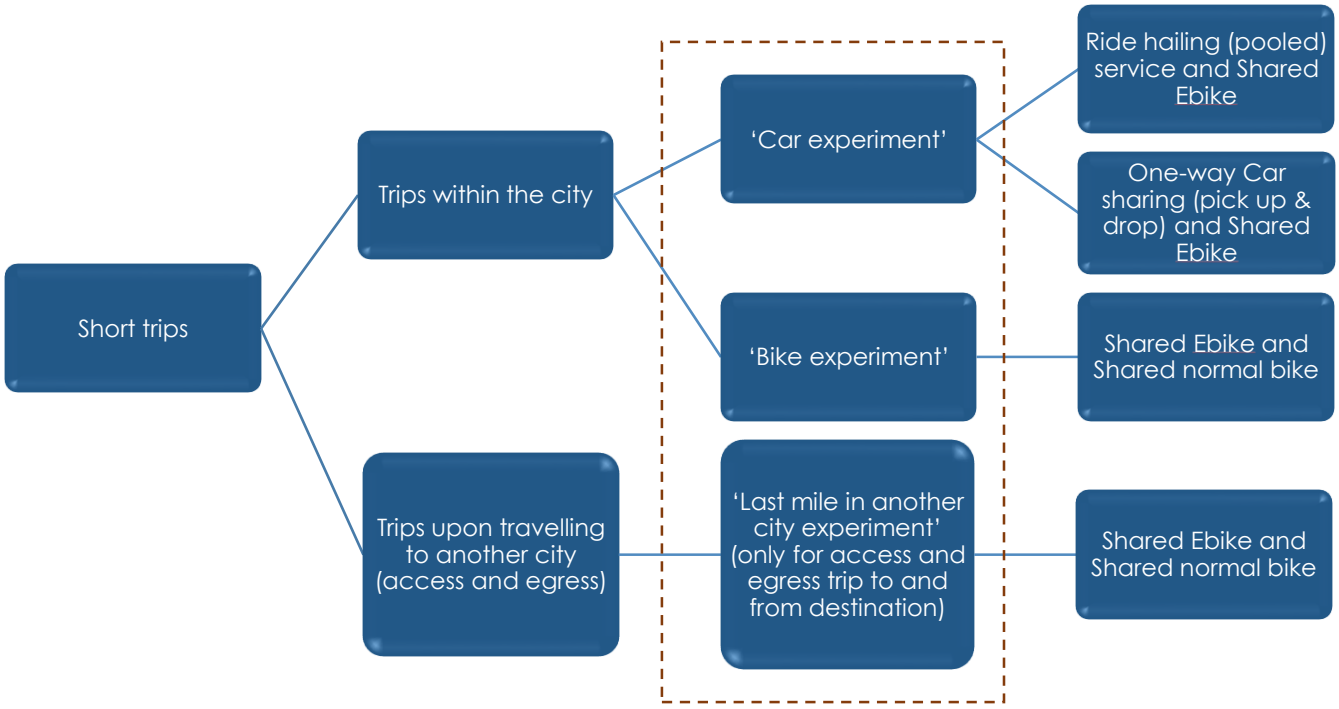



*Figure 7 Sections in the survey*

Lastly, considering MaaS service is a novel concept and many people in the Netherlands might not be aware of it, so, it was strictly advised by experts to avoid using complex technical names (like shown in table 3) by substituting it with the following easy terminologies cognizant to maximum people.

*Table 3 Summary of altered terminologies in the SP experiment*

| **The terminology used in the transport domain** | **The terminology used in the SP design experiment** |
|---|---|
| *Mobility as a Service* | Combo-Mobility package |
| *Ride-hailing pool service package* | Taxi mobility package |

### *4.1.1 Car experiment*

It was earlier discussed in chapters 1 and 2 regarding upsurge in car ownership in the Netherlands with the present total number of cars standing to be 8,677,911 (CBS statline (2020)) and with the rise in the number of cars, the vehicle kilometers have been up-surging as well. The increase in usage of cars has added strain in the traffic management system with a rise in congestion, overloading at parking facility and emissions within the city limits (RIVM, 2018). This has resulted in advent of 'shift'. Studies by Harms et al. (2018) reveals the so-called 'shift' among Dutch people (residing in urban and suburban areas) towards more sustainable transport modes.

Hence, considering the aspect of 'shift' and high expectations from the MaaS mobility package (as per literature) with further aim to assess the extent of preference by consumers, the car experiment is conducted. People who have a car, have already invested a huge amount, and prefer to continue using it. Moreover, it was learnt from initial queries (refer section 3.2.1) that

Dutch people who possess car are not willing to sell their cars for mobility package. Thus, it is decided to study the preferences in the context of replacing some of the short-distance trips (of private vehicle) per month. As an alternative to replacing some of the trips by private vehicle, the bundles proposed in MaaS package are shown in figure 6. Screenshots of the survey are shown in appendix 1 and section 4.5.

The SP choice experiment is web-based, and each respondent has to select one among the 4 options to the given choice tasks, having varying attribute levels presented in table 4. The attributes are in line with discussions done during the description of the conceptual plan in chapter 3

*Table 4 Summary of main attributes and levels in the SP experiment*

| **Context variables for car experiment** | |
|---|---|
| Imagine for trips within the city you live, if monthly costs associated with your private car are as follows. If you are provided with alternatives to replace some of your trips, then what option would you prefer | |
| Vehicle km | 200km / 300km / 400km |
| Cost of parking (euro/month) | 30/50 |
| Fuel cost | @ 1.7 euro per liter for 10km/lit (per km cost is fixed in choice experiment) |
| Time is taken to park the car inside the city | 5min / 10min |
| **Main attributes for car experiment** | |
| **Mode** | **Level** |
| **Mode specific attributes for single mode shared mobility package** | |
| Vehicle km | As per context variable |
| Mode alternatives | shared car (0) / pooled car (1) |
| Expenses per month (euros) for pooled car | (35/60/85) for 200km or (65/90/115) for 300km or (95/120/145) for 400km |
| Expenses per month (euros) for a shared car | (40/65/90) for 200km or (70/95/120) for 300km or (100/125/150) for 400km |
| Waiting time of vehicle arrival / Accessibility to vehicle | (4min/ 6min/8min) |
| | |
| **Attributes for combo-mobility package** | |
| Mode alternatives | Shared car and Shared Ebike |
| **For car** | |
| Shared car | Fixed (100% - Ebike veh-km% ) |
| Pooled car | |
| Access time / Waiting time for vehicle arrival | 2min / 3min / 4min |
| | |
| **For shared e-bike** | |
| Shared Ebike veh-km | (20% / 30% / 40%) of context vehicle kms |
| Time to access bike | 1min / 2min / 3min |

| | |
|---|---|
| Expenses per month (euros) | (40/50/60) for 200km or<br>(65/75/85) for 300km or<br>(90/100/110) for 400km |
| Expenses per month (euros) | (35/45/55) for 200km or<br>(60/70/80) for 300km or<br>(85/95/105) for 400km |
| Additional package features | Rollover to next month / Leftover rides could be converted into equivalent preferred trips |

Description of attributes and levels

i. Vehicle kilometers:
It is the total distance per month to be traveled per month either by private vehicle or by the help of a mobility package. ITF (2013) has reported that on average a Dutch person makes 3 trips a day, wherein, half of the trips are made by car and 25% by bicycle. This derives to approximately 1.5 trips of the car per day and 0.75 trips of bike per day.
Further, ITF (2013) and Waterstaat (2018) have reported that 70% of short-distance trips by car are less than or equal to 7.5 km. Thus, the maximum extent of short distance kilometers covered by car in a month could be derived as 70% * 1.5 trips/day * 7.5km per trip = 7.875 km per day or 7.875 * 30 = 236 km per month. Based upon this information, the author decided to round up the values of the attribute and vary the levels of vehicle kilometers in car experiments as 200km, 300km, and 400km. As a note, 100 km was believed to be less for a monthly package so the levels were kept on higher side in the experiment with additional features to package (refer point (v) below).

ii. Time (Access / Waiting time / Parking time):
It is the time (per trip) that a user has to wait for a car to arrive or search for the car to get access. Parking time corresponds to the time spent in searching for a suitable parking spot within the city.
For deciding the levels of the time parameter, suggestions from experts and colleagues were taken into account. It was advised to keep the time parameter on a lower side though the short-distance trips are for a short period. Thus, by being reasonable the author further determined the attribute levels in table 4.

iii. Percentage of shared Ebike in MaaS bundle: This attribute is specific to the MaaS alternative. The vehicle-kilometer parameter is constant across all alternatives. However, for assessing the impact of secondary mode (i.e. shared e-bike) included in an integrated package, the proportion is varied in different choice tasks. The levels of shared e-bike proportions are carefully determined so that share of cars is always higher.

iv. Subscription price / private transportation expenses per month: It refers to the monthly expenses to be incurred by the consumer for using the services (i.e. subscription price for shared mobility and parking cost for private transportation). In designing the attribute level ranges, it is important to obtain a balance between wide ranges which are preferred from a statistical point of view, and smaller ranges which are more realistic

to the respondent (Bliemer & Rose, 2011). The same is taken into consideration and the levels are mostly pivoted off existing prices with fixed intervals between lower and upper levels. The parking cost for a private car is apriori based upon discussions with experienced experts. Lastly, the range of levels is determined in such a manner that its values tend to be realistic. As a note, fuel cost is fixed because it shall be irrational to have different levles for it.

v. The additional package features: This attribute is included based upon inspiration from available MaaS literature (like Ho et al. (2018)). This non-mode specific attribute tends to act as an incentive attribute for motivating and tempting the consumers to subscribe to the plan (Matyas et al. (2019a)). The author tends to aim towards eliminating the regret factor associated with not using the subscription package to its full extent (like unused rides at the end of the month could be used in subsequent month).

### *4.1.2 Bike experiment*

Owning and using a private bike is a liking among all Dutch people (Bicycle-Dutch. (2018)). Nonetheless, it includes maintenance like 30 euro for each tire, 18 euro for replacing the tube, and others with added service charges. If all the costs are added like the variable costs combined with the capital cost of the bike, it tends to yield significant mobility expenses per month.

Added, the MaaS package is an integration of different modes like shared e-bike and shared normal bikes. It further provides consumers with opportunities to try new modes. Also, in recent times the usage of shared bikes like Mobike has been observed to grow in popularity which enables a possibility for MaaS to bring about so-called 'shift'. Thus, it is decided to study the preferences in the context of replacing the private bike and the attribute levels are presented in table 5. Screenshots of the survey are shown in appendix 1.

*Table 5 Summary of main attributes and levels in the SP experiment*

| **Context variables for bike experiment** | |
|---|---|
| Imagine for trips within the city you live, if monthly costs associated with your private bike are as follows. If you are provided with alternatives to replace your bike, then what option would you prefer | |
| Vehicle km (1h = 10km) | 100km/200km / 300km |
| Cost of first-hand normal bike (euro) | 300 / 400 |
| Accessories, maintenance, and servicing (euro per year) | 60/100 |
| **Main attributes for bike experiment** | |
| **Mode** | **Level** |
| **Mode specific attributes for the shared bike package** | |
| Mode | E-bike |
| The intra-city subscription includes a ride limit of | Fixed (100% of bike kilometers in context variable) |
| Expenses per month (euros) | (5/10/15) for 100 km or<br>(15/20/25) for 200km or<br>(25/30/35) for 300km |
| Time to access vehicle | 3min/5min/7min |
| **Attributes for combo-mobility package** | |
| **For shared e-bike** | |

| | |
|---|---|
| Shared E-bike vehicle kilometers | Fixed (100% - shared normal bike %) |
| Time to access shared E-bike | 1min / 3min / 5min |
| **For shared non-e-bike** | |
| Shared normal bike vehicle kilometers | 40% / 50% / 60% of context variable kilometers |
| Time to access shared normal bike | 1min / 3min / 5min |
| Expenses per month (euros) | (4/6/8) for 100km or<br>(10/12/14) for 200km or<br>(16/18/20) for 300km |
| Additional package features | Rollover to next month / Leftover rides could be converted into equivalent preferred trips |

Regarding, the description of attributes and levels, it is similar to the car experiment.

i. Vehicle kilometers
For bike experiment, Bicycle-Dutch. (2018) reported that an average Dutch person tends to ride 1,000 – 1,100 kilometers in a year (for all kind of trips). Nonetheless, based upon the experience of the author Dutch people use a lot more. Thus, the attribute levels of bike kilometers were determined to vary as 100km, 200km, and 300km.

ii. Access time to a shared bike
It is the searching time to access the bike, each time to make a short-distance trip. For deciding the levels of the time parameter, suggestions from experts and colleagues were taken into account. The levels are carefully selected so that it could appear realistic.

iii. Percentage of shared non-Ebike in MaaS bundle
Unlike the car experiment, the shared normal (non-e-bike) is varied in different choice tasks. The levels are varied from 40% to 60% because it shall be interesting to check whether the preference is more towards increasing share of normal bike or electric bike in the context of short-distance trips.

iv. Subscription price / private bike expenses per month
The levels are mostly pivoted off existing prices (like 10 euros per month for mobike (shared normal bike) and 0.05 euros per minute for URBEE (shared Ebike)) with fixed intervals between lower and upper levels. The varying proportion of shared non-e-bike (point iii) is also taken into account to calculate the monthly subscription price. The levels are determined reasonably to make it appear more realistic to respondents.

v. The additional package features
Similar to the car experiment, there are two additional features added to the MaaS alternative.

### *4.1.3 Last mile in another city experiment*

Upon traveling to another city, personal vehicles (i.e car or bike) are unavailable. This has led to the increasing popularity of shared mobility services for the last mile (Arendsen (2019)). It also overlays an opportunity for MaaS to gain higher preference due to its novel characteristics.

Moreover, the rides with PT for Last mile are expensive. To avoid complexity, the study includes similar modes as in bike experiment with varying levels. The only significant change is that the proportion of shared normal bike is fixed. As, it was the last experiment in survey, modes like car sharing or ride hailing pooled service, which could have been an appealing option to MaaS mobility package, were avoided to reduce complexity in modeling and fatigue to respondents.

Hence, to study the preferences in the context of substituting the status-quo with a different alternative, the attribute levels are presented in table 6. Screenshots of the survey are shown in appendix 1.

*Table 6 Summary of main attributes and levels in the SP experiment*

| **Context variables for Last mile in another city experiment** | |
|---|---|
| Imagine that following are the monthly expenses in the current scenario for using PT towards the last mile or for egress trips to the destination Last mile in another city of your living. If you are provided with alternatives then what would you prefer | |
| Rides per month | 50km/100km/150km |
| Expenses per month (euro) | 10/25/40 |
| | |
| **Main attributes for Last mile in another city experiment** | |
| **Mode** | **Level** |
| **Mode specific attributes for shared e-bike package** | |
| Mode | E-bike |
| The monthly subscription includes a ride limit of | Fixed (Same as context value) |
| Expenses per month (euros) | 10/15/20 |
| Time to access vehicle | 3min/5min/7min |
| **Attributes for combo-mobility package** | |
| **For shared e-bike** | |
| Monthly rides for Shared E-bike | Fixed (40% of context value ) |
| Time to access E-bike | 1min / 3min / 5min |
| **For shared bike (normal)** | |
| Monthly rides for Shared normal bike | Fixed (60% of context value ) |
| Time to access normal bike | 1min / 3min / 5min |
| Expenses per month (euros) | 5/10/15 euro |
| Additional package features | Rollover to next month / Leftover rides could be converted into equivalent preferred trips |

As a note, the current experiment is optional for respondents (while earlier are compulsory) as it was added in a later period of study to gather more data.

## 4.2 Remaining questions in the survey (addition to SP experiment)

Furthermore, to the choice task attributes, sociodemographic factors tend to have a significant role in the context of mobility preference of Dutch consumers for making short-distance trips (Ratilainen (2017)). Discussion regarding the same are already done in chapter 3 of the report and thus, the following variables are included in the survey to gather data

*Table 7 Summary of attributes and levels for socio-demographics in SP experiment*

| Variable type | Levels | Remark |
|---|---|---|
| Age | Any from range 20-100 years | |
| Gender | 0/1/2 | Male, Female and others |
| Family members | 0/1/2/3/4/5/6/>6 | |
| Education | WO/HBO/MBO/VMBO/HAVO/Others | WO/HBO (highly educated) |
| Occupation | Fulltime/Parttime/Student/No-work | |
| Income (euro per year) | <20k / 20k-60k / >60k / Cannot disclose | k stands for thousand<br><20k is low income<br>20k-60k is mid-level<br>>60k is high income |
| Car trips per month | <5 / 5-20 / 20-35 / >35 | <20 is low<br>20-35 mid-level<br>>35 high |
| Bike trips per month | <5 / 5-20 / 20-35 / >35 | |
| Driving license | 0/1 | Yes/No |

In addition to the above, questions regarding the preferred mode of travel for different trip purposes like leisure, work, etc., are also asked in the survey.

a. Statements to measure attitude

Lastly, questions in the form of statements are provided in the survey questionnaire for measuring respondents' attitudes towards new technology and sharing. Many of the questions are inspired based upon reference to existing MaaS and shared mobility surveys. The included statements are as follows

*Table 8 Statements included in SP experiment*

| Question index | Statements | References |
|---|---|---|
| Q1 | I am willing to try new ways of traveling (such as electric bicycle, car sharing, etc. | Sochor et al. (2016), Alonso-González et al. (2020), Ho et al. (2018) Choo et al. (2004) |
| Q2 | I would like to have multiple transport options for a single journey | |
| Q3 | I make many short trips a day and I don't feel tired | |
| Q4 | I prefer to use my vehicle (car or bike) over the shared mode of transport | |
| Q5 | I find it interesting to try out new technology after getting information from family/friends, youtube, news or other media | |
| Q6 | I always compare a product (by specification and price) with an alternative product before buying (for example: buying a phone) | |
| Q7 | I prefer to save money through discounts and offers, although it costs me more travel time | |
| Q8 | I use an app to plan my trip and / or get travel information | |
| Q9 | I am willing to pay more for getting information about my trip | |
| Q10 | I support new technology initiatives to find innovative solutions to accessibility problems | |
| Q11 | I do not drive my vehicle (bicycle or car) when I am tired but prefer other travel options | |
| Q12 | I would like to contribute more to reducing congestion (traffic jams) in the city where I live | |

For answering the above statements, the respondents are advised to score the statements based on a 5-point Likert scale index (Alonso-González et al. (2020)) for ease in performing factor analysis upon the data.

## 4.3 Generating choice sets from NGENE

For the SP experiment, it is necessary to design both context and choice profiles which are merged later to make a choice task. So, the first experiment in the study is built to vary the choice alternatives and then nested with the relevant context to arrive at a set of context-choice set descriptions. Hence, the total number of sets is equal to choice sets multiplied with total contexts.

For generating choice sets, it is known that SP experiments make use of various experimental designs to construct choice sets for describing two or more imaginary choice alternatives in several attributes (Molin, E. J. (2014)). In the current study, the scope of using the fully factorial design is eliminated owing to its feature to generate a large number of choice sets (ChoiceMetrics (2014)) which then combined with context profiles, will create the requirement of a large number of respondents for the survey, which is not feasible on the part of the author, given the available period. Then, applying fractional design in the study was the best possible option as per the knowledge of the author. Nonetheless, the next question was to choose an approach from the two popular fractional design theories, i.e. Orthogonal design and Efficient design, for creating the choice sets of alternatives. The orthogonal design aims to minimize the correlation between the attribute levels in the choice sets, while the efficient design aims to be statistically as efficient as possible in terms of predicted standard errors of the parameters (ChoiceMetrics, 2014).

It further noted from literature (Rose & Bliemer, 2009), that orthogonal design tends to be not always in line with the desirable properties of logit and probit models while the efficient design is. Besides, the efficient design maximizes the information of tradeoff (Molin et al. (2010)) and minimize the standard error of parameters by minimizing the probability of occurrence of dominant alternatives and keeping the utilities of alternatives in the same choice situation rather balanced. It tends to be necessary for the current study. Efficient designs though need not be orthogonal also allow generating a smaller number of choice sets which further lead to a lesser number of choice tasks for the respondents and this prevents fatigue (ChoiceMetrics, 2014). Thus considering all the aspects, it is decided to apply D-efficient design for constructing the choice sets. From above tables, it is observed that all the attributes don't have the same number of levels. Some attributes have 3 levels while some have 2, hence for gaining more information 12 number of choice sets (in each experiment) were generated not only to have a better prior estimate but to also gain more information.

As a note, to construct the D-efficient designs (using NGENE software), a prior estimate of the parameter is required. In the absence of data, it is common to consider the value of priors from literature (Arentze et al. (2013)). The same was done by assigning corresponding cost and time priors as -0.1 (de loof (2017)) during the generation of choice sets. The distance and additional features prior were assigned +0.1 (respectively) as more is the discount more the package gets appealing for a consumer. Later, the choice sets for different experiments were generated from NGENE and further used to construct a questionnaire in the Qualtrics software package.

The context profiles are generated using foldover design (i.e. Orthogonal fractional factorial designs with two-way interactions) to have un-correlation with the main effects (Molin et al.

(2010)). The 3 types of context profiles for 3 experiments (i.e. car, bike, and Last mile in another city experiment) are generated separately with car experiment constituting; 24 context profiles; 24 context profiles in bike experiment; and 18 context profiles in Last mile in another city experiment, were generated.

For nesting the generated choice sets with the contexts, each context was first grouped based upon vehicle-kilometers (veh-km). Like in car experiment, veh-km constitute categories of 200km, 300km, and 400km. Then each context belonging to each (veh-km) group was randomly assigned with 2 choice tasks. The total number of generated sets are 24*12 = 288 for car experiment, 24*12 = 288 for bike experiment and 18*12 = 216 for 'Last mile in another city' experiment. As a note, each respondent was assigned to 18 choice tasks.

## 4.4 Pilot survey and results

Commonly, a pilot survey before the final survey is done to check the quality of the survey, check for errors, and collect feedback on whether the questions are easy to understand or not. Thus, the pilot study was done. The survey is structured in three categories and the figure 8 portrays the primary constituents of the pilot survey based on which data is collected.

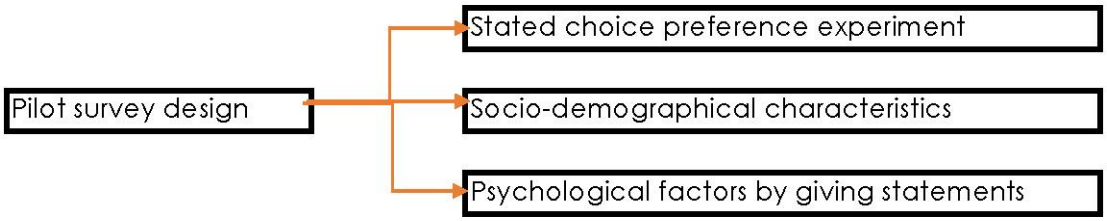



*Figure 8 Sections in the pilot survey*

The first category of questions asked to the respondents was their current travel pattern and mode use. The same section constituted 12 statements for measuring attitudinal factors towards shared mobility and new technology. The second category of questions corresponds to the choice experiment and the last category of questions were socio-demographic and additional feedback.

The pilot survey was web-based and was in the English language. In the pilot survey, the choice experiment 'Last mile' in another city was not included because it was later planned and decided by the author to be part of the study. The web-based survey was shared with the employees of Movares for necessary feedback but before that, it was also shared with key personnel for review and suggestions on the survey quality. Before submitting the survey online, 2 to 3 self-trials were done to check the data output from the survey and it is found that there is no attribute level balance which means attribute levels are not shown an equal number of times to several respondents. It is also not necessary in D-efficient design (Kitamura et al. (2009)). It might result in a higher or lower value to the standard error of some parameters.

The pilot was then distributed online by mail on 27th January 2020 and ended on 04th February 2020. In the pilot, 20 respondents participated and 19 respondents filled it as a whole. 1 respondent completed only 20% of the survey so the response was eliminated and the responses obtained from 19 respondents are discussed in the following section.

- Results of the pilot survey

A pilot survey was done to just evaluate the performance of the survey design and layout. In total 19 respondents completed the pilot survey.

About parameter estimation, the data was very less and the first trial revealed that the majority of the priors are insignificant, which was expected. The prior values were estimated using the MNL model using Biogeme. Most of the prior signs are as per expectation. The survey is treated in such a manner that there are only main effects and no interaction between attributes. Based upon the detailed evaluation of the pilot survey, the following lessons / feedbacks / suggestions were given which was later incorporated in the final survey:

a. The design of the pilot survey was complicated, specifically layout representation. It was further informed that for some of the respondents the choice tasks of car experiments were confusing. Thus, forcing them to choose random alternatives.
b. The survey was in English which tends to have added to the complexity. Thus, it was suggested by all to construct the survey in the Dutch language.
c. Suggestion towards adding representative pictures in the choice tasks rather than only numbers.
d. Suggestion towards making the introductory statement more clear.
e. People belonging to rural and semi-urban areas were biased due to their reasoning towards service level. It is believed that MaaS mobility packages tend to be best suited in urban areas, not in the countryside.
f. It was advised to ask about age, not in categorical format but keep the box empty for respondents to fill.
g. Some of the respondents reasoned that the mobility packages are too expensive for them to choose, resulting in no tradeoff but selecting their private transportation.

The learnings from the pilot survey were further used to make necessary modifications to the final survey. The entire layout concept of the survey was scrapped twice and remaking of new interactive layouts which finally lead to confirmation by experts to proceed for the final survey.

## 4.5 Final survey design

The final SP survey was designed based on results and lessons learnt from the pilot survey. All the suggested adjustments were made based on feedback. The introductory video (link: *https://youtu.be/WXzT2Wd8lcA*) and the introduction of research were made very precise and brief. Infographics were added on the first page for better understanding. The whole survey was translated in Dutch from English which was burdensome but support from Dutch colleagues made it possible. The Dutch subtitles were added to the introductory video and its length was reduced.

The attribute levels were slightly adjusted to have tradeoffs and the fixed attributes like waiting time for private transportation = 0, were removed from the study. Some additional package features like "add more rides at 1 euro" were removed to avoid unnecessary complexity and fatigue to the respondents. The third choice experiment, i.e. "Last mile in another city", was made optional by adding a gateway question that whether they like to continue further or end. Feedback was collected after every choice experiment regarding their second preference and additional feedback for further improvement of the survey. Figure 9 demonstrates the structure and routing course of the entire survey. The final survey elements can be found in appendix 1.

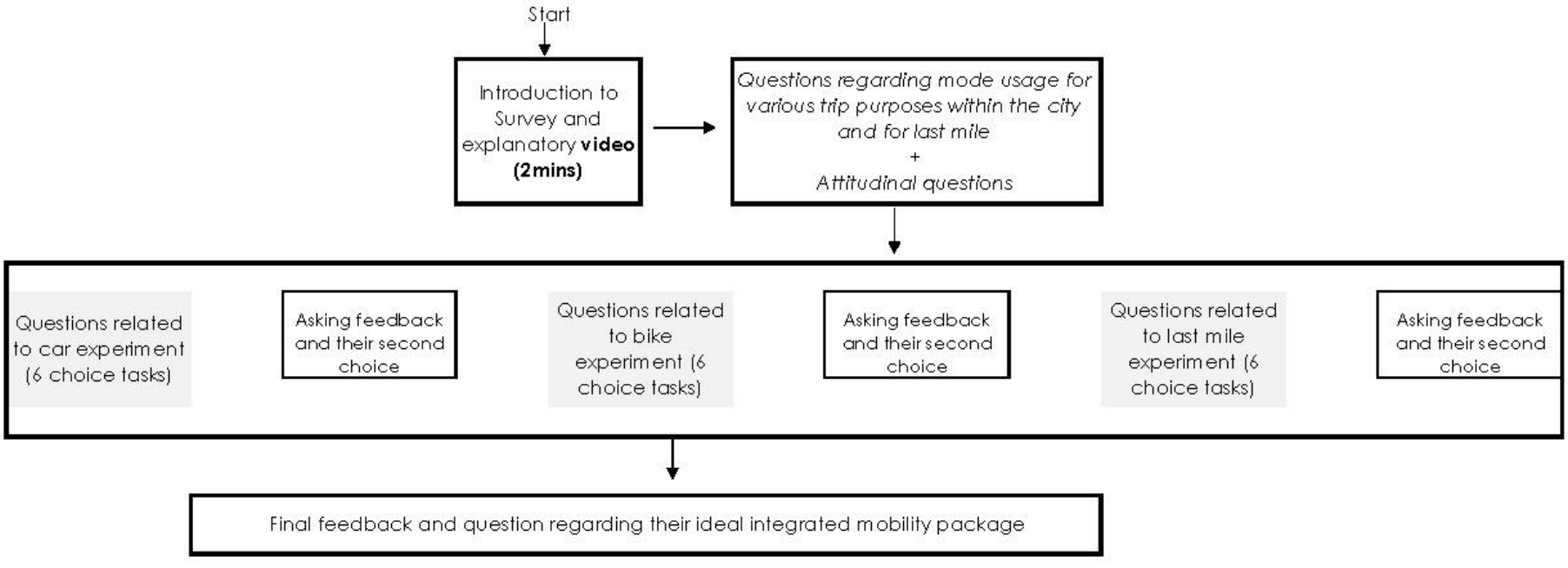



*Figure 9 Survey outline*

As mentioned earlier, a brief introduction towards purpose of the survey with a self-made introductory video (refer figure 10) showing the relevant modes in the choice experiments were presented (at the start). The intent was to make the respondents familiar with different terminologies (in the survey) and relevant modes. Thereinafter, some questions were asked regarding their mobility pattern and attitudinal questions.

Subsequently, each choice experiment commenced by introducing respondents with an imaginary short distance trip, based on the corresponding context profile. Then, the respondents are assigned to respond to choice tasks. In each experiment, a respondent is shown with 3 context profiles with each context having 2 choice tasks, by varying the monthly distance. Figure 11 and 12 shows a sample choice task (along with a context).

Further, to avoid fatigue, after each choice experiment, a feedback was asked with an additional question of second preference than their primary response in the choice task. Lastly, to collect further insights, respondents were asked to provide information about their ideal integrated mobility package which they would tend to prefer for satisfying their monthly mobility needs.

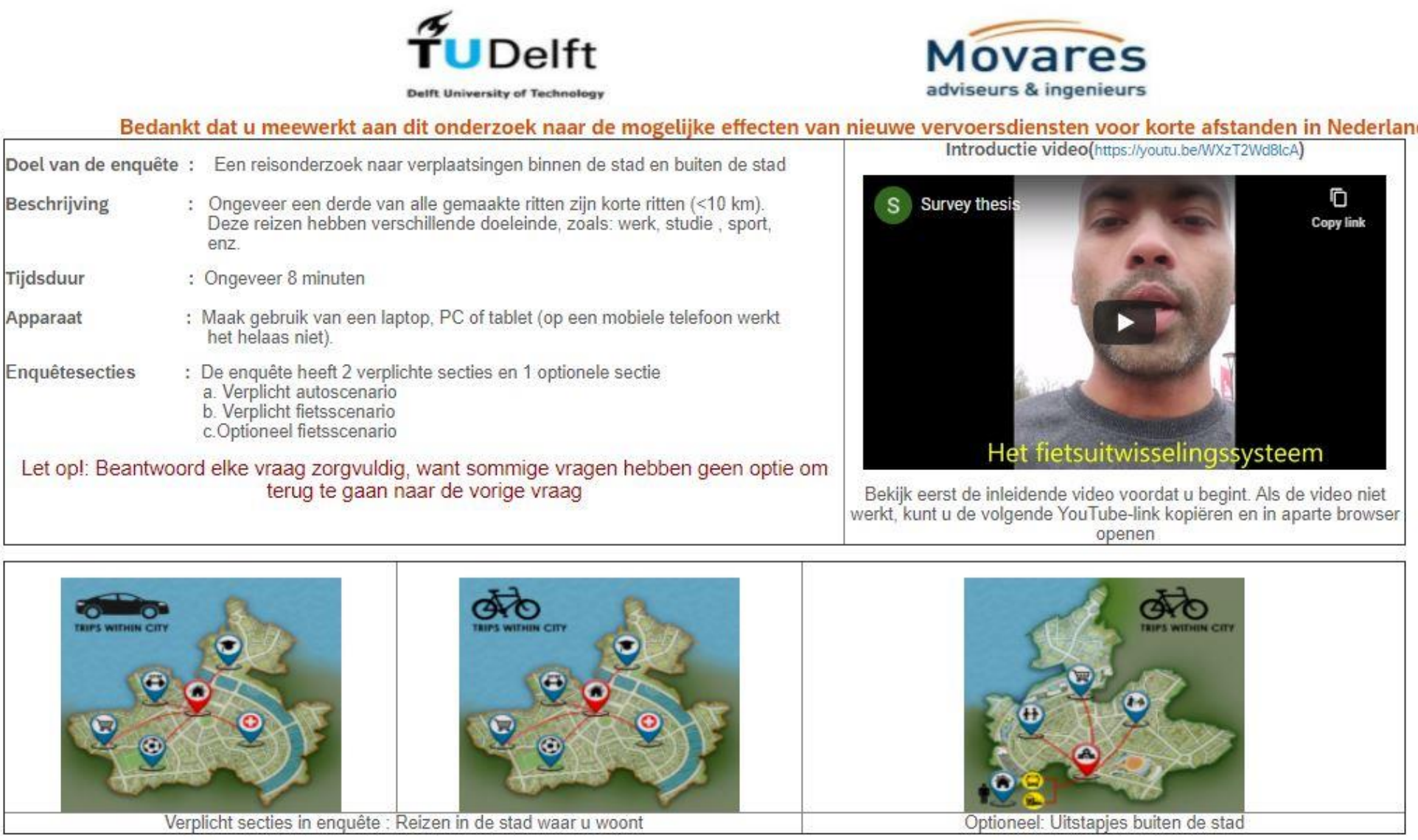



*Figure 10 Purpose of survey and introductory video*

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 35 | € 45 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 200 km | 140 km (70%) | 60 km (30%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 8 minuten | 4 minuten | 1 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand | |

Wat is uw eerste voorkeur?

- ○ Taxi
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

*Figure 11& 12 Sample choice task (context and task)*

Efforts were put to make the design and appearance of the final survey more appealing and a second pilot was done with 3 employees from Movares for final feedback. The feedbacks on draft final survey were satisfactory with suggestions to modify minor grammatical mistakes in the choice tasks. Further, the author had limited availability of time, so the respondent's panel was purchased from an external agency for fast data collection. Hence, the final survey was sponsored from Movares. The final survey was also distributed in organizations like TNO and Panteia (with the help of corresponding employees based upon request) for additional respondents.

In paid survey, people might skip key questions resulting in loss of data. Thus, to avoid that, all the choice tasks except for the questions in 'Last mile' experiment were made compulsory. Further, the survey was in Dutch language and people who are non-Dutch might out of curiosity take an attempt, thus, few gateway questions were also included at the start of the survey to disqualify such attempts.

The final survey commenced around 24th April 2020 and ended in the last week of May 2020. As a note, the study was conducted during on-going pandemic (COVID-19) in the Netherlands, wherein, 'work from home' restrictions were in place. Thus, this might impact the model results by introducing a bias in favor of 'single occupancy' with an open-mind towards 'shared occupancy'.

# 5 Model results

In this chapter, discussion regarding the insights from collected data and different models is done. The chapter commences with a description of data to characterize both samples of the respondent and their respective choices. Data filtering is done followed by the formulation of the choice model and description of estimated results. Based on the estimated parameters of the final model, the WTP values are estimated with further performance of sensitivity analysis to model.

## 5.1 Description of data

The sponsored survey was targeted for 500 respondents, hence, after achieving the desired target, the web-based survey was ended. The muddled raw file was extracted from Qualtrics and then processed with a complex program using python. The final SP experiment (web-based) gained 1496 respondents out of which many respondents didn't qualify to answer the survey. From the respondents who qualified, about 555 respondents filled out the survey substantially (like completed choice scenarios of car and bike experiments). Among, the filled-out responses, the respondents with low response time, i.e. those who took less than 15 minutes to fill out the complete survey, were eliminated. This is because, the survey constitutes 18 choice tasks, 13 statements related to attitude, socio-demographical and additional questions of feedback to fill. Considering the length of each choice question, it was expected from a respondent to dedicate at least 20 seconds per choice task (Jonpuleston. (1970)), amounting to 6 minutes with tentatively 9 minutes for filling out the rest of the details. In this reference, the survey data tend to reveal that 73% of the respondents took more than 15 minutes, implying that the respondents took appropriate time for answering the questionnaire suitably by considering all the information. Hence, from 555 respondents, the responses of 406 respondents are used to conduct further analysis. Overall, the majority of the respondents have provided feedback on the survey to be 'good and interesting research'. There are neither missing data nor any errors in the final data set for analysis.

Table 9 portrays the characteristics of the final data sample and frequency distribution about socio-demographics and transport-related characteristics. It tends to reveal that the data sample constitutes both higher shares of the elderly and of highly educated people, who were interested in the topic with the willingness to spend time filling out the survey. The young traveler has a lower share in the final respondent's list. The frequency distribution of the sample, based on geography (refer fig 13), age and other socio-demographic characteristics shows that it is sufficiently heterogeneous. The sample tends to have good representativeness of the Dutch population as the sample gender classification is approximately 56.9% male and 43.1% female, whereas, actual population distribution in the year 2020 is approximately 51% male and 49% female (Kamer, L. (2020)). In terms of age, the sample is not representative of the Dutch population as the mean age of respondents in the sample is 57 years whereas for the Dutch population is 42 years (Kamer, L. (2020)). This is because the people aged between 18 to 35 are underrepresented with only 11% of total respondents and 89% above the age of 35 years.

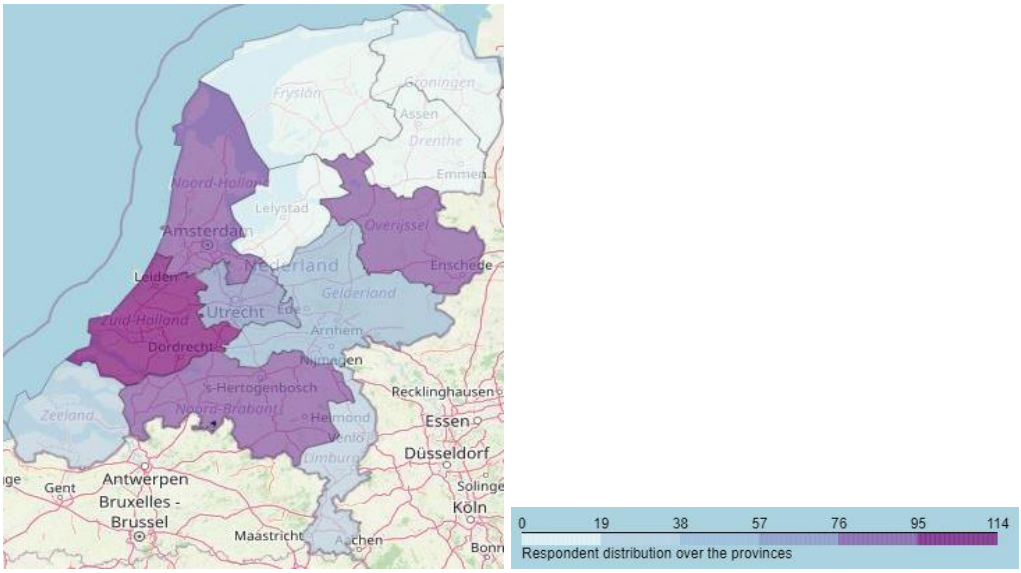



*Figure 13 Geographical distribution of respondents in the Netherlands*

There was over-representation of working class and under-representation of students. Thus, the respondents were not representative of the Dutch population as per CBS (2018). Further, the sample of respondents is scattered over the different provinces in the Netherlands (refer fig 13), but the sample is not equally distributed geographically due to fewer respondents in the North Holland region. Thus, the results from the study are not generalizable to the population of the Netherlands but insights can be inferred.

The majority of the respondents live with one or two family members and tend to earn between 20 to 60 thousand euros per year. In the data sample, more than 90% of respondents have a driving license and approximately 82% of the respondents have car and 76% have bike which is a little more than declared in the DNS (Dutch National Statistics) in CBS (2018b) (i.e. 81% of the population have a driving license and 70% are the owner of the car). Looking at Electric bike, 20% of respondents have Ebike, which is slightly more than the possession with the actual population in the Netherlands (12.5%) (Kroesen et al. (2018)). Moreover, the sample data tends to reveal that usage of shared mobility for short-distance trips is approximately 7%, demonstrating the limited usage of shared mobility platform by Dutch people. It also tends to provide insight towards low familiarity with various shared modes in comparison to the popularity and use of private transportation for various trip purposes.

*Table 9 Description of the data sample*

| **Variable** | **Levels** | **Percentage** |
|---|---|---|
| Gender | *Female* | *43.13%* |
| | *Male* | *56.87%* |
| Age | *Less than 35* | *11.30%* |
| | *35-60 years* | *36.31%* |
| | *More than 60 years* | *52.39%* |
| Household situation | *Living with another member* | *43.92%* |
| | *Living with 2 other members* | *30.44%* |
| | *Living with 3 other members* | *7.78%* |
| | *Living with 4 other members* | *7.10%* |

| Variable | Levels | Percentage |
|---|---|---|
| | *Living with 5 other members* | *1.67%* |
| | *Living with 6 other members* | *0.81%* |
| | *Living with more than 6 members* | *0.27%* |
| | *Living alone* | *8.01%* |
| Yearly income ('k' represents thousands) | *<20k per year* | *13.48%* |
| | *20k-60k per year* | *54.59%* |
| | *>60k per year* | *18.54%* |
| | *Not willing to disclose* | *13.39%* |
| Education | *WO* | *35.10%* |
| | *HBO* | *37.90%* |
| | *MBO* | *14.97%* |
| | *VMBO/LBO* | *2.53%* |
| | *HAVO/VWO* | *8.14%* |
| | *Others* | *1.36%* |
| Driving license | *Yes* | *92.54%* |
| | *No* | *7.46%* |
| Car ownership | | *82%* |
| Normal bike ownership | | *76%* |
| Ebike ownership | | *20%* |
| Occasionally use shared mobility services | | *7%* |
| Frequency of short-distance trips with the car within the city you live | *<5 trips per month* | *28%* |
| | *5-20 trips per month* | *35%* |
| | *20-35 trips per month* | *9%* |
| | *>35 trips per month* | *5%* |
| | *I don't use the car for short-distance trips* | *22%* |
| Frequency of trips with bike | *I don't use a bike for short-distance trips* | *17%* |
| | *<5 trips per month* | *32%* |
| | *5-20 trips per month* | *22%* |
| | *20-35 trips per month* | *19%* |
| | *>35 trips per month* | *11%* |
| Frequency of trips per month | *<5 trips per month* | *13%* |
| | *5-30 trips per month* | *50%* |
| | *30-55 trips per month* | *24%* |
| | *>55 trips per month* | *14%* |
| Mode usage within the city one lives | | |
| For leisure | *Private car* | *39%* |
| | *Shared car* | *0%* |
| | *Ride-hailing pooled service* | *2%* |
| | *Private bike* | *66%* |
| | *Shared bike* | *0%* |
| | *Scooter* | *1%* |

| Variable | Levels | Percentage |
|---|---|---|
| | *Public transport* | *28%* |
| | *Walking* | *45%* |
| | *Others* | *3%* |
| For shopping | *Private car* | *19%* |
| | *Shared taxi* | *0%* |
| | *Ride-hailing pooled service* | *1%* |
| | *Private bike* | *40%* |
| | *Shared bike* | *0%* |
| | *Scooter* | *0%* |
| | *Public transport* | *22%* |
| | *Walking* | *38%* |
| | *Others* | *15%* |
| For daily commute (like going for work or university) | *Private car* | *29%* |
| | *Shared taxi* | *1%* |
| | *Ride-hailing pooled service* | *1%* |
| | *Private bike* | *51%* |
| | *Shared bike* | *2%* |
| | *Scooter* | *1%* |
| | *Public transport* | *21%* |
| | *Walking* | *27%* |
| | *Others* | *32%* |
| Mode usage in another city for Last mile to the destination | *Private car* | *4%* |
| | *Shared taxi* | *0%* |
| | *Ride-hailing pooled service* | *3%* |
| | *Private bike* | *7%* |
| | *Shared bike* | *11%* |
| | *Scooter* | *1%* |
| | *Public transport* | *37%* |
| | *Walking* | *71%* |
| | *Others* | *9%* |

Further, to have some information regarding the frequency/intensity of short trips by using mode as car and bike, data was collected from respondents. The data sample tends to disclose that for the majority of respondents, the usage of bike and car for short trips lies between 5 and 20 trips per month. Upon visualization in figure 14 tends to provide an interesting insight.

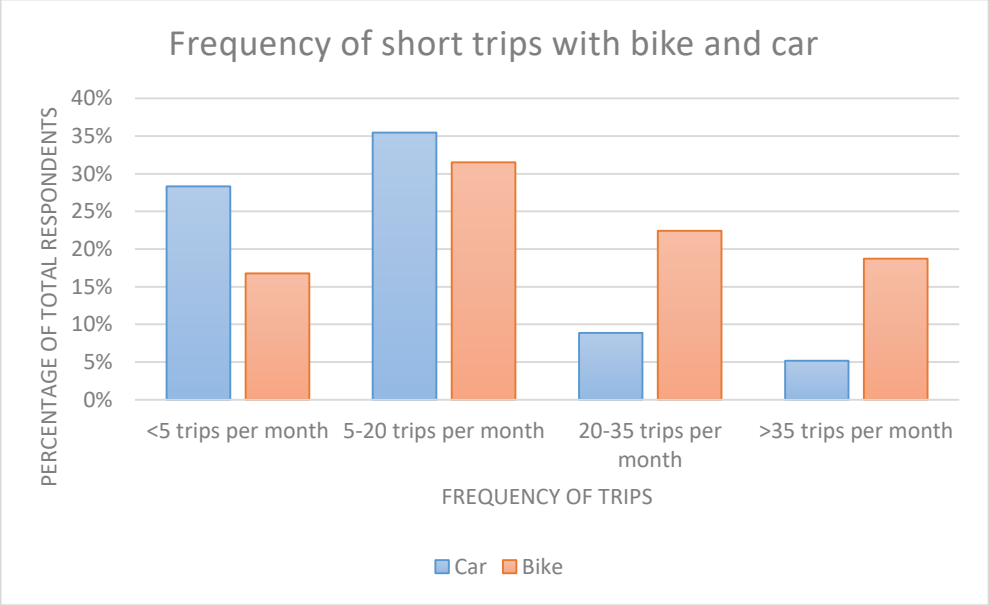



*Figure 14 Frequency of trips*

The use of a car is more when the number of short trips is less than 20 (trips per month) while the usage of bikes tends to be more if the number of short trips is more than 20 (trips per month). It is unexpected and it might be due to a myriad of reasons including

a. More number of short trips are expensive with the car than a bike (Mackett (2003))
b. For more trips bike is convenient due to less parking hassle.

These numbers demonstrate that there is indeed a higher usage of car and bike for short trips in a month. Lastly, it is worth observing the frequency of each alternative (or choice distribution) from the data sample to know in general how many respondents preferred MaaS. Table 10 summarizes the share of each alternative in the data sample

*Table 10 Share of each alternative in the data sample*

| Alternatives | Car experiment (within the city you live) | Bike experiment (within the city you live) | Last mile in another city experiment (last mile) | Remarks |
|---|---|---|---|---|
| Single mode shared mobility package | 8% (14%**) | 12% (11%**) | 11% (30%**) | |
| MaaS package | 35% (21%**) | 18% (21%**) | 28% (36%**) | |
| Private transportation / Continue maintaining status-quo | 35% (38%**). | 59% (43%**) | 53% (34%**) | |
| Opt-out or any other mode (like walking, public transport, etc.) | 22% (27%**) | 11% (25%**) | | |

*Note: ** As the second preferred choice for making short trips.*

Table 10 tends to reveal that the share of a private transportation is dominating in each of the choice experiments and in the car scenario the share of MaaS is the same as the share of a private transportation. Further, in each choice experiment, the share of MaaS is higher than the single mode shared mobility alternative indicating the higher relative potential of MaaS and a

higher degree of familiarity. The numbers tend to demonstrate a higher frequency of preference for the private transportation than shared mobility packages as first choice and more towards the shared mobility package as the second choice. Although, the choices are primarily dependent upon the presented attributes in the choice task but insights into the understanding of the survey choice tasks and presented alternatives could be obtained.

It is noted that many respondents had many-a-times fixed preference for one alternative (also called Non-traders) in the SP experiment. Regardless of the change in attribute levels, the respondents never varied their choices and by mapping the diversity for preferences, a portfolio can be constructed (Alonso-González et al. (2020) and Dubernet et al. (2020)). In the car experiment, the share of non-traders was 42%, in bike experiment 67%, and 52% in Last mile in another city experiment amongst which many were attributed to a private transportation. Non-trading does not necessarily imply inconsistent responses, so, was included in the modeling process rather than excluding non-traders (Dubernet et al. (2020)). The observation regarding non-traders is an important notion to consider for the model estimation and the intrinsic mobility package preferences are expected to might play an important role.

The above findings from the data sample are insightful for consideration when interpreting the choice model. Moreover, information from feedbacks of respondents are also deducted and then discussed in Section 6.1.2 for further insights.

## 5.2 Attitudes towards mobility packages

This section shall discuss the findings gained by assessing the qualitative data (in the form of statements) from the respondent's given score. As discussed earlier, it is used to understand the underlying psychological factors of a user, and 12 attitudinal questions (to score from a 5-point Likert scale) were asked based on knowledge from the literature review.

Before processing the data to estimate the latent factors, it is necessary to remove the erroneous responses. Survey responses (2019), have suggested towards inspecting for variation in the data set with the removal of data having the same Likert scale to different statements (for each respondent). It tends to be the fact that the same Likert scale score has standard deviation as 0 which is labeled as unusable for analysis and is stated as an 'unengaged response' or 'thoughtless response'.

The data set constituted 2 'unengaged response' and hence are removed before factor analysis. Table 11 summarizes the mean and standard deviation value of each statement.

*Table 11 Summary of mean and SD for attitudinal statements*

| Question index | Question | Mean | SD |
|---|---|---|---|
| **Q1** | I am willing to try new ways of traveling (such as electric bicycle, car sharing, etc. | 3.45 | 1.05 |
| **Q2** | I would like to have multiple transport options for a single journey | 3.41 | 0.98 |
| **Q3** | I make many short trips a day and I don't feel tired | 3.25 | 1.19 |
| **Q4** | I prefer to use my vehicle (car or bike) over the shared mode of transport | 3.86 | 0.94 |
| **Q5** | I find it interesting to try out new technology after getting information from family/friends, YouTube, news or other media | 3.33 | 0.91 |

| Question index | Question | Mean | SD |
|---|---|---|---|
| **Q6** | I always compare a product (by specification and price) with an alternative product before buying (for example: buying a phone) | 4.00 | 0.85 |
| **Q7** | I prefer to save money through discounts and offers, although it costs me more travel time | 2.88 | 0.98 |
| **Q8** | I use an app to plan my trip and/or get travel information | 3.65 | 1.23 |
| **Q9** | I am willing to pay more for getting information about my trip | 2.22 | 0.85 |
| **Q10** | I support new technology initiatives to find innovative solutions to accessibility problems | 3.68 | 0.86 |
| **Q11** | I do not drive my vehicle (bicycle or car) when I am tired but prefer other travel options | 2.50 | 0.96 |
| **Q12** | I would like to contribute more to reducing congestion (traffic jams) in the city where I live | 3.60 | 0.89 |

Table 11 tends to reveal a high score for comparing price for a certain product based upon importance and value (question 6) and lowest upon the payment for information to make short trips (question 9). This could be possibly because, in a short trip context, people are already aware of the route they are going to take, thus getting information is perceived to be irrelevant.

Then, to carry out factor analysis, the first step is the evaluation of sampling adequacy (Williams et al. (2010)). Kaiser-Meyer-Olkin (KMO) value is computed in this regard using the SPSS software package and the value for the current data sample is estimated to be 0.727, which is higher than the adequacy level of 0.6. Additionally, in Bartlett's Test of Sphericity, the significance value (or the p-value) is estimated to be less than 0.05, indicating sufficient correlation.

Then, the factor extraction is applied using Principal Axis Factoring with Varimax rotation with maximum iterations for convergence to be 250. The estimated values of communality extraction indicate the amount of variance in each variable and Samuels, P. (2017) and Yap et al (2016) suggested that for each variable the corresponding score should be greater than 0.4 for factor analysis. From the 12 statements, the estimated factor scores of questions 2, 8, and 12 were less than 0.4, hence were excluded from analysis, and the iteration was done with remaining data.

The communality extraction values of remaining questions improved and are estimated to be greater than 0.5 (refer table 12). The factors estimated for each psychological question in the rotated component matrix (i.e. the output of principal components analysis), is positive except for question 4 which tends to reveal that it is negatively related. Now it is necessary to revert, the negative factor, for the quantitative usability of the factors in subsequent choice models. So, the variable transformation technique was applied in SPSS (Huizingh, E. (2007)) to reverse the sign of scores. The final estimated factor scores are shown in table 12

*Table 12 Estimated results from factor component analysis*

| Questions | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
|---|---|---|---|---|
| **Q5** | .749 | | | |
| **Q10** | .739 | | | |
| **Q1** | .670 | | | |
| **Q7** | | .796 | | |
| **Q6** | | .640 | | |
| **Q11** | | | .811 | |
| **Q9** | | | .719 | |

| | | | | |
|---|---|---|---|---|
| **Q3** | | | | .780 |
| **Q4** | | | | .538 |

To validate the consistency of factors, a reliability test is also performed in SPSS using Cronbach's alpha test (Leech et al. (2014)). The estimated alpha value is estimated to be greater than 0.6 indicating the factors are sufficiently reliable. To have ease in the understanding of the factors, it could be best described as follows

a. Factor 1 reflects people who are enthusiastic, open-minded, tech-savvy and precise in their decisions
b. Factor 2 reflects people who are tightwad towards spending money and expect a high return on their investment. Their attitude reflects 'Frugal' behavior.
c. Factor 3 reflects people who believe in optimizing their goals and are 'constructive' in making decisions
d. Factor 4 reflects people who love to travel and could be described as 'Travel-zeal' attitude

Lastly, to save and assign the factor score values for each respondent in the data table, the Anderson-Rubin method (DiStefano et al. (2009)) is applied. It shall generate 4 new columns to the final data set which shall later be used as an input in the choice model.

## 5.3 Estimation of choice model

To assess the effect of attributes included in the SP choice experiment, discrete choice modeling is applied. In this section, discussion regarding several model types (like MNL, NL, and ML) is done which were already introduced in earlier chapters of the report. The modeling approach constituted a 4-step process, i.e. Commencement with MNL as a base model. Then applying the NL model to assess nesting effect and subsequently ML model for the data being panel type. In the 4$^{th}$ step socio-demographics and attitudinal factors are added to ML to formulate the final model. As discussed earlier there are three choice experiments, i.e. Car experiment, bike experiment, and Last mile in another city experiment, and each choice experiment has 4 options for the respondents to choose from which indicates the requirement to formulate 4 functions per model. Later, for gaining insight into the characteristics of people who have a higher probability to choose MaaS bundled package, a Latent Class model is applied to all three choice experiments.

The modeling is done using Python Biogeme and to validate the performance of the model multiple scenarios are tested assigning random variables to attributes in the model. Lastly, table13,14,15 and 16 describes all the coefficients used in different choice models

*Table 13 Description of coefficients (betas) for car choice task experiment and latent class*

| Coefficients | Description |
|---|---|
| *dtaxi, dshare* | • Dummy for taxi service and car sharing |
| *ASC* | • Alternative specific constant |
| $\beta_{shtaxi\_sub\_price}$, $\beta_{sh\_sub\_price}$, $\beta_{sharetime}$, $\beta_{dist}$ | • Coefficients shown are only included in the alternative for the single model shared mobility package.<br>• The sub_price coefficients are attributed to the mobility bundle price for taxi and car-sharing. Beta share time is for car waiting time and beta distance is for vehicle kilometers included in the mobility bundle. |

| | |
|---|---|
| $\beta_{MaaS\_sub\_price\_taxi}$, $\beta_{MaaS\_sub\_price\_share}$, $\beta_{MaaStimecar}$, $\beta_{MaaStimebike}$, $\beta_{MaaSdist\_for\_Ebike}$, $\beta_{extra}$, $\beta_{MaaSdist}$ | • Coefficients shown are only included in alternatives for the MaaS package.<br>• The MaaS_sub_price_taxi and MaaS_sub_price_shared car coefficients are attributed to the mobility bundle price for taxi and car_sharing.<br>• Beta MaaStime is for the car waiting time and shared Ebike access time.<br>• Beta MaaSdistance is for total vehicle kilometers included in the mobility bundle and for change in the percentage of the distance of shared e-bike in the MaaS bundle, there is another beta.<br>• Beta extra represents additional features shown during the choice experiment which is a dichotomous variable [0,1]. |
| $\beta_{parktime}$, $\beta_{parkcost}$, $\beta_{dist3}$ | • Beta park-time and park-cost refer to time taken to park car in the city and fee paid for it (per month).<br>• Beta distance is for total vehicle kilometers with a car in a month |
| MU and Sigma | MU is constant used in the NL model that can account for the shared elements between alternatives<br><br>Sigma is shared error component (that follows a distribution) in ML model |
| $\beta_{enthu}$, $\beta_{fru}$, $\beta_{constructive}$, $\beta_{travel\_zeal}$ | • The coefficients of factors obtained from the factor analysis (used in ML model) |
| $\beta_{edu}$, $\beta_{fam}$, $\beta_{income}$, $\beta_{age}$, $\beta_{freq}$ | • Coefficients are for socio-demographics attributes like education, family, age, frequency of trips in a month, and income (after significance test by chi-square).<br>• The coefficients are alternative specific for mobility packages (i.e for MaaS and single mode shared mobility alternative) and towards using a private vehicle like $\beta_{edu\_package}$ and $\beta_{edu\_private}$ |

*Table 14 Description of coefficients (betas) for bike choice task experiment*

| Coefficients | Description |
|---|---|
| $\beta_{shared\_sub\_price}$, $\beta_{sharetime1}$, $\beta_{share\_dist}$ | • Coefficients shown are only included in the alternative for the single mode shared mobility package.<br>• The share subscription price coefficients are attributed to the mobility bundle price. Beta sharetime1 is for bike access time and beta share_dist is for vehicle kilometers included in the mobility bundle. |
| $\beta_{MaaS\_sub\_price}$, $\beta_{MaaSEbike\_accessibility\_time}$, $\beta_{MaaS\_nonEbike\_accessibility\_time}$, $\beta_{MaaSdist\_for\_nonEbike}$, | • Coefficients shown are only included in alternatives for the MaaS package.<br>• The MaaS_sub_price coefficient is attributed to the mobility bundle price. The time coefficient is for shared Ebike and non-Ebike access time. |

| | |
|---|---|
| $\beta_{extra}$, $\beta_{MaaSdist}$ | • Beta MaaSdist is for total vehicle kilometers included in the mobility bundle and for change in percentage of the distance of shared non-Ebike in the MaaS bundle, there is another beta.<br>• Beta extra represents additional features shown during the choice experiment which is a dichotomous variable [0,1]. |
| $\beta_{totcost}$, $\beta_{dist3}$ | • Coefficients shown are only included in the alternative for private bike (which is shown as a context variable in SP experiment).<br>• The coefficient for cost describes monthly expenses per month over a personalized bike. |

*Table 15 Description of coefficients (betas) for Last mile in another city experiment*

| Coefficients | Description |
|---|---|
| $\beta_{shared\_subprice\_perdist}$, $\beta_{shtime}$ | • Coefficients shown are only included in alternative for the shared package.<br>• The shared_subprice_perdist coefficient is attributed to the mobility bundle price per unit distance. Beta sharetime is for shared Ebike access time. |
| $\beta_{MaaS\_subprice\_perdist}$, $\beta_{MaaSEbike\_accessibility\_time}$, $\beta_{MaaS\_nonEbike\_accessibility\_time}$, $\beta_{extra}$ | • Coefficients shown are only included in alternatives for the MaaS package.<br>• The MaaS_ subprice _perdist coefficient is attributed to the mobility bundle price per unit distance. The time coefficient is for shared Ebike and non-Ebike access time.<br>• Beta extra represents additional features shown during the choice experiment which is a dichotomous variable [0,1]. |
| $\beta_{totcost\_perdist}$ | • The coefficient is attributed to unit cost per distance based on the current mobility pattern. |

### *5.3.1 Multinomial logit model(MNL)*

The MNL model was formulated with the main parameters having an alternative specific constant for each alternative. As it may be recalled, in the car choice experiment, there were further two types of choice tasks due to different service types i.e. Ride-hailing pooled car service (as a taxi) and car-sharing, which were sequentially presented to the respondents to answer. Thus, to model through the aggregated data, 2 dummies are used with the ASC and cost attributes during the formulation of the model, i.e. dummy for taxi service and a dummy for car sharing. Remaining attributes like time attribute (i.e. waiting time of car and access time for a shared e-bike), attribute for additional features and distance attributes are kept generic. In the interim, substantial efforts were also made to test the results of the model with all attributes as alternative specific but the quality of the model deteriorated which might be due to numerous alternative specific variables in place. In the end, being able to estimate the model was valued more rather than making numerous attempts to get a perfect utility model having high adjusted Rho square value. The composition of the final MNL model for all three choice experiments is illustrated in following equations with description of all coefficients in table 13.

a. MNL model for car choice experiment

The MNL model as a start is added with all the main parameters. The utility model is shown from equation 6 to 9. The constants added in the model are alternative specific constant (or ASCs). During estimation of parameters, it is common to assign one ASC as 0 in the model, to indicate a reference alternative. In current study, the data set of car and bike experiment has reference ASC assigned to the 4th alternative, i.e. Opt-out option or 'others', whereas in the 'Last mile in another city' experiment data, reference ASC is assigned to the 1st alternative, i.e. single mode shared mobility alternative. An important aspect to note, there is no travel time or in-vehicle time attribute included in the model as the aim is to only evaluate the preference of people towards MaaS (which is an integration of mobility packages). The differences in travel time or in-vehicle time tend to load on ASC's.

$$Shared = ASC\_1 * dtaxi + ASC\_11 * dshare + \beta_{sharecost} * (subscription\ price) * dtaxi/10 + \beta_{sharecost\_sharedcar} * subscription\ price * dshare/10 + \beta_{sharetime} * (sharetime) + \beta_{dist} * dist/10 \quad \text{Eq 6}$$

$$MaaS = ASC\_2 * dtaxi + ASC\_21 * dshare + \beta_{MaaScost_{taxi}} * (subscription\_price) * dtaxi/10 + \beta_{MaaScost_{share}} * subscription\_price * dshare/10 + \beta_{MaaStimecar} * (maastime1) + \beta_{MaaStimebike} * (maastime2) + \beta_{extra} * extra + \beta_{MaaSdist\_for\_Ebike} * maaskm2/10 + \beta_{MaaSdist} * dist/10 \quad \text{Eq 7}$$

$$Private\_vehicle = ASC\_3 + \beta_{parktime} * (parktime) + \beta_{parkcost} * (parkcost)/10 + \beta_{dist3} * dist/10 \quad \text{Eq 8}$$

$$Others = ASC\_4 \quad \text{Eq 9}$$

b. MNL model for bike choice experiment

The utility model is shown from equation 10 to 13. The reference alternative (having ASC=0) during model formulation was assigned to private vehicles owing to high preference by respondents.

$$Shared = ASC\_1 + \beta_{sharetime1} * sharetime + \beta_{shared\_price} * (subscription\ price) + \beta_{share\_dist} * vehkm/10 \quad \text{Eq 10}$$

$$MaaS = ASC\_2 + \beta_{MaaScost} * (subscription\_price) + \beta_{MaaS\_nonEbike\_accessibility\_time} * (maastime1) + \beta_{MaaSEbike\_accessibility\_time} * (maastime2) + \beta_{extra} * extra + \beta_{MaaSdist\_for\_nonEbike} * maaskm1/10 + \beta_{MaaSdist} * vehkm/10 \quad \text{Eq 11}$$

$$Private\_bike = ASC\_3 + \beta_{totcost} * (Total\_cost) + \beta_{dist3} * vehkm/10 \quad \text{Eq 12}$$

$$Others = ASC\_4 \quad \text{Eq 13}$$

c. MNL model for Last mile in another city choice experiment

The utility model is shown from equation 14 to 16. The reference alternative (having ASC=0) during model formulation was assigned to shared vehicle. As a note, in the third choice experiment none of the respondents chose for an opt-out option, thus, three alternatives are presented herewith.

$$Shared = ASC\_1 + \beta_{sharedcost_{perdist}} * (sharecost * 10/distance) + \beta_{shtime} * sharetime \quad \text{Eq14}$$

$$MaaS = ASC\_2 + \beta_{MaaScost_{perdist}} * (maascost * 10/distance) + \beta_{MaaS\_nonEbike\_accessibility\_time} * (maastime1) + \beta_{MaaS\_Ebike\_accessibility\_time} * maastime2 + \beta_{extra} * extra \quad \text{Eq15}$$

$$Continue\_following\_existing\_way = ASC\_3 + \beta_{totcost_{perdist}} * (currcost * 10/distance) \quad \text{Eq 16}$$

### 5.3.2 Nested logit model (NL)

Since, MaaS and single mode shared mobility alternatives have shared characteristics like the presence of the same common mode in each choice task, the MNL model is enhanced by including a common coefficient in both alternatives to show the nesting effect. All the parameters from equation 6 to 9 remains the same except MaaS and single mode shared mobility alternative have now a common constant available (assigned as MU) due to nesting.

$Shared = Eq\ 6$

$MaaS = Eq\ 7$

$Private\_vehicle = Eq\ 8$

$Others = Eq\ 9$

$$Nest = [Shared, MaaS], Private_{vehicle}, Others \quad \text{Eq 17}$$

### 5.3.3 Panel mixed logit model (ML)

As discussed earlier, the data collected from we SP choice experiment is a panel data type which tends to constitute correlations across the choices (Train (2009)). Thus, to that into account, the MNL model is replaced with an ML model by introducing the following shared error component taking a normal distribution. It is added in a parsimonious manner to account for heterogeneity.

$Shared = Eq\ 6$ + Sigma Eq 18

$MaaS = Eq\ 7$ + Sigma Eq 19

$Private\_vehicle = Eq\ 8$ Eq 20

$Others = E\ 9$

### 5.3.4 Panel mixed logit model (ML) with socio-demo and attitudinal factors

As a final step, socio-demographic attributes and attitudinal factors are added to the ML model for further improving the explanatory power of the model. The chi-square test was used to check the significance between choice and predictors and based upon significance (i.e. at 95% confidence interval), it was added to the ML model. Table 16 shows the summary of results.

*Table 16 Summary of significance relation from chi-square test*

| | Family members | Education | Income | Age |
|---|---|---|---|---|
| Car context | √ | √ | √ | √ |
| Bike context | √ | √ | √ | √ |
| Trips for Last mile in another city context | | √ | √ | √ |

As a note, only the boxes in table 16 that have a '√' mark tend to have a significant relationship between choice and the predictors/attributes. The representation of the final car utility model (as an example) is shown from equation 21 to 24 and the socio-demographics attributes are added

using dummy coding (0/1). Similar procedure is followed for the remaining 2 models. As a note, knowledge from literature (like Alonso et al. (2020), Caiati et al. (2020), and Shaheen et al. (2018)) was utilized to add socio-demographic parameters.

$Shared = Eq\ 6$ + Sigma Eq 21

$MaaS = Eq\ 7$ + Sigma + $\beta_{edu\_package}$* edu_HBO + $\beta_{edu\_package}$* edu_WO + $\beta_{inc\_package}$* income + $\beta_{fam\_package}$* fam_1 + $\beta_{fam\_package}$* fam_2 + $\beta_{age\_package}$* age(20-60) + $\beta_{freq}$* freq_high + $\beta_{freq}$* freq_med + (All 4 Attitudinal factors) Eq 22

$Private = Eq\ 8$ + $\beta_{edu\_private}$* edu_HBO + $\beta_{edu\_private}$* edu_WO + $\beta_{inc\_private}$* income + $\beta_{fam\_private}$* fam_1 + $\beta_{fam\_private}$* fam_2 + $\beta_{age\_private}$* age(>60) Eq 23

$Others = Eq\ 9$ Eq 24

### 5.3.5 Latent class (LC) by applying MNL

This is done to answer the research sub-question 4, where the aim is to identify which class or cluster of people that are tending to have a higher probability to accept MaaS package as their mobility needs to carry out short trips in the city. In the latent class model, there are two parts, i.e. class membership part and choice model part.

First, the number of classes is to be determined. The attributes to 'class for MaaS' are added based on insights (of socio-demographics like influence of education, age, income and family members) gained from the final ML model and literature. The data is then processed using latent gold package. Study suggests no theoretically expected number of latent clusters for a given data set. Nonetheless, application of rule of thumb to determine the possible number of clusters exists which is dependent upon the indicator BIC (Schreiber, J. B. (2017)). It is the Bayes Information Criterion, which is a statistically created indicator to aid finalizing model with optimal number of classes / clusters. Subsequent findings are discussed in later sections (i.e. section 5.5) of the report.

## 5.4 Interpretation of results from the choice model

This section provides an overview of the parameter estimates to gain insight into the effects of the attributes towards the choice of respondents. The results from each choice experiment are described separately.

### 5.4.1 Interpretation of results from a 'car' choice experiment

Table 17 presents a summary of all the estimated parameters. The estimated significant parameters (at 95% confidence interval) of final model are in bold.

*Table 17 Summary of results for car experiment*

| | MNL model (base) | | | NL model | | ML model | | **ML model + socio demo (Final model)** | |
|---|---|---|---|---|---|---|---|---|---|
| **Description** | **Parameters** | **value** | **tstat** | **value** | **tstat** | **value** | **tstat** | **value** | **tstat** |
| ***ASC estimation*** | | | | | | | | | |
| Shared_vehicle | ASC_1 | -0.495 | -1.03 | -2.58 | -1.72 | -0.507 | -0.934 | -0.801 | -1.45 |
| | ASC_11 | 0.267 | 0.54 | -0.464 | -0.401 | -0.00515 | -0.00914 | -0.189 | -0.33 |
| MaaS | ASC_2 | 1.96 | 2.62 | 1.14 | 1.22 | 2.97 | 2.94 | 1.68 | 1.56 |
| | ASC_21 | 2.25 | 2.79 | 1.59 | 1.59 | 3.66 | 3.33 | 2.4 | 2.07 |
| Private vehicle | ASC_3 | 1.04 | 3.41 | 1.02 | 3.36 | 0.97 | 2.89 | **1.26** | **3.42** |
| Opt_out / Others | ASC_4 | Not estimated (as it is constant) | | | | | | | |
| ***NL and ML parameters*** | | | | | | | | | |
| *Mu for the NL model* | MU | | | 0.36 | 2.94 | | | | |
| *Sigma for ML model* | *SIGMA_SH_MAAS_STD* | | | | | 3.04 | 16 | **-2.74** | **-15.3** |
| ***Main parameters*** | | | | | | | | | |
| Shared_vehicle | beta_shtaxi_sub_price | -0.156 | -3.29 | -0.322 | -2.7 | -0.189 | -3.7 | **-0.205** | **-3.89** |
| | beta_shcar_sub_price | -0.224 | -4.58 | -0.512 | -3.76 | -0.208 | -4.04 | **-0.239** | **-4.47** |
| | beta_shtime | -0.0371 | -0.82 | -0.158 | -1.49 | -0.0205 | -0.426 | -0.0155 | -0.312 |
| | beta_dist | 0.0331 | 2.07 | 0.0712 | 2.17 | 0.0312 | 1.77 | **0.0394** | **2.2** |
| MaaS | beta_maas_sub_price taxi | -0.371 | -2.99 | -0.399 | -2.7 | -0.713 | -4.24 | **-0.773** | **-4.39** |
| | beta_maas_sub_price share | -0.383 | -3.21 | -0.442 | -3.14 | -0.715 | -4.46 | **-0.776** | **-4.62** |
| | beta_maastime_for car | -0.285 | -1.82 | -0.205 | -1.12 | -0.528 | -2.49 | **-0.59** | **-2.66** |
| | beta_maastime_for bike | -0.211 | -1.6 | -0.221 | -1.43 | -0.441 | -2.5 | **-0.499** | **-2.72** |
| | beta_maasdist | 0.114 | 2.92 | 0.134 | 2.89 | 0.214 | 4.06 | **0.239** | **4.31** |
| | beta_dist_for_Ebike | -0.103 | -3.04 | -0.114 | -2.93 | -0.18 | -3.9 | **-0.208** | **-4.27** |
| | beta_extra | -0.305 | -2.43 | -0.358 | -2.42 | -0.436 | -2.6 | **-0.52** | **-2.98** |
| Private_vehicle | beta_parkcost | -0.0685 | -1.53 | -0.0651 | -1.45 | -0.0353 | -0.676 | -0.0409 | -0.781 |
| | beta_dist | -0.00976 | -1.37 | -0.0098 | -1.38 | -0.00973 | -1.37 | -0.00994 | -1.39 |
| | beta_parktime | -0.00177 | -0.1 | -0.00131 | -0.0724 | -0.0103 | -0.491 | -0.00844 | -0.401 |
| ***Socio-demo parameters*** | beta_age_package | | | | | | | **0.842** | **4.56** |
| | beta_age_private | | | | | | | 0.112 | 0.929 |
| | beta_edu_package | | | | | | | **0.499** | **2.6** |
| | beta_edu_private | | | | | | | 0.00614 | 0.0491 |
| | beta_fam_package | | | | | | | **0.5** | **2.44** |
| | beta_fam_private | | | | | | | **-0.475** | **-3.5** |
| | beta_inc_package | | | | | | | 0.267 | 1.62 |
| | beta_inc_private | | | | | | | 0.0167 | 0.147 |
| | beta_freq | | | | | | | 0.0885 | 0.413 |
| ***Attitudinal factors*** | beta_constructive | | | | | | | **0.245** | **2.98** |
| | beta_enthu | | | | | | | **0.521** | **5.55** |
| | beta_fru | | | | | | | **-0.253** | **-2.86** |
| | beta_travelzeal | | | | | | | **0.521** | **6.55** |
| ***Model performance*** | Null loglikelihood | -3065.097 | | | | | | | |
| | Final loglikelihood | | -2782.312 | | -2778.883 | | -2410.522 | | -2318.887 |
| | AIC | | 5602.623 | | 5597.766 | | 4861.044 | | 4703.773 |
| | BIC | | 5710.946 | | 5711.79 | | 4940.823 | | 4835.409 |
| | Rho square | | 0.09 | | 0.09 | | 0.21 | | 0.24 |
| | Adjusted rho square | | 0.09 | | 0.09 | | 0.21 | | 0.23 |

Following the methodology proposed in chapter 3 of the report, the model formulation started from the MNL (as a base model), then NL, ML (without socio-demo attributes), and ML with socio-demo & attitudinal attributes (as the final model). The model fit and performance-based upon final log-likelihood value and adjusted rho square value was evaluated which tends to show an improvement in explanatory power while progressing from MNL to ML. Comparing the results of MNL and ML, it is revealed that the model performance is high after applying ML, indicating that the choices of the same individual are highly correlated.

All main parameter signs are intuitive and have remained consistent throughout different modeling techniques. The subscription price and time signs are negative (with price coefficient more negative) suggesting a negative contribution to the utility. It is understood that people indeed dislike if they have to spend more or have to wait longer in the process of carrying out a short trip and the dislike is stronger in MaaS alternative in comparison to other alternatives. The distance coefficient for private vehicle alternative is negative indicating a dislike of Dutch people towards higher use of private car for making short distance trips because it involves repeated search of parking spots within the city. Surprisingly the distance coefficient of the shared e-bike in the MaaS bundle is negative indicating preference towards having fewer kilometers of shared Ebike. This might be because there is high preference towards having more rides of car (i.e. ride-hailing (pooled) service and car-sharing) than that of shared Ebike because it is more comfortable. Nonetheless, the parameter is significant indicating its relative importance.

The alternative specific constants in the model are positive and high in the MaaS alternative indicating the decision to subscribe is positive and the expectations of the benefits are high (Caiati et al. (2020)). It is difficult and beyond the scope of study to explore further into ASCs but as an example, the unknown factors could be like people trying to be supportive towards new initiatives or they like the new idea or happy about it. ASC just captures the average effect of all not included factors

As stated in earlier sections, the attribute representing additional features in MaaS is a dichotomous variable with '0' representing rollover of the balance amount to the subsequent month and '1' for converting rides (like for example 3km of a bike ride to 1 km of ride by car). The coefficient is negative which means respondents have more preference towards 'rolling over of balance amount to subsequent month' which could be due to more relative familiarity or ease in the understanding of the concept in the survey. The latter idea might be difficult to understand.

Majority of the price and waiting/access time related attributes in the final model are significant (at confidence interval 90%) except for the private car. The estimated parameter (parking time) of private vehicle alternatives tends to insignificant indicating that people hardly care for time to park in case of short trips. Moreover, the levels shown to respondents were 5 and 10 minutes which might tend to be insignificant for a user because (for finding a spot) many times it is more than 10 minutes (Person. (2017)). The estimated coefficients of time (i.e. access / waiting time of both car and bike) in MaaS alternatives are approximately similar indicating both the modes (ride-hailing/ car-sharing and shared Ebike included in MaaS package) are perceived to have an equal weightage in making a choice.

Regarding the socio-demographic, the education parameter is positive indicating that highly educated people are more aware of the urban issues and willing to reduce private vehicle usage. This is in line with the findings of Caiati et al. (2020). Moreover, studies like Jittrapirom et al.

(2017) have stated that the lower-income group is more likely to join a MaaS scheme probably due to their less expenditure power. In the current study, it is insignificant but the parameter sign is positive which tends to be a contrast. The parameter for the family has a positive coefficient for MaaS alternative, but negative for a private vehicle. This was expected based upon insights from employees of Movares, since finding a parking spot in the city is a big disutility for private vehicles whereas the user has no such concerns with one-way car-sharing or by using ride-hailing (pooled) service.

Although the parameter of car trip frequency per month, is insignificant, people who have a habit of making a lot of short-distance trips per month, are positively inclined towards using the MaaS package. The possible explanation could be that intermittently a car-in-the-house might not be available or down with some defects. Thus, for car lovers getting a mobility package could be a cost-effective possibility to fulfil their mobility needs. Regarding the personal characteristics, the age parameter has a positive impact on making a subscription, indicating younger people are more likely to buy the MaaS package.

The shared error (i.e. MU) component in NL is estimated to be significant, confirming unobserved commonality between the alternatives that could not be captured in the deterministic/observable part of the utility. The sigma parameter estimated from the ML model is also significant indicating the presence of correlation between unobserved utility.

Furthermore, respondent's attitude and the way to perceive different things is known to play a significant role in the choice making. People who are enthusiastic, open-minded, tech-savvy, love to travel more have a positive impact on the choice of MaaS than a private vehicle. Surprisingly, people who are economical in spending, and always compare products, have a negative impact on the choice of MaaS.

Lastly, about the insignificant main parameters, they are nevertheless retained in the model because it tends to be that their true values are not equal to zero. So, retaining the parameters in the model aims at minimizing 'type II' error which would weaken the model more than the inclusion of an insignificant parameter resulting in type I error (Bierlaire, 2016). The overall goodness of fit of the model is good as indicated by McFadden's pseudo-R-squared of 0.22 and the attempt to improve upon the model was unsuccessful. This is because there might be additional unobserved factors that are not considered in the survey. Lastly, upon applying simulation to the final model, the percentage of correctly predicted preferences is estimated to be 47.50%, which tends to be moderate in performance.

#### *5.4.1.1 Sensitivity of parameters (Car choice experiment)*

Figure 15 tend to add further insights to the final model by estimating the sensitivity of parameters (i.e. change in share of an alternative per unit change in a targeted attribute with remaining attributes unaffected). The sensitivity analysis uses the estimated parameters of the final ML model and includes main parameters of the model.

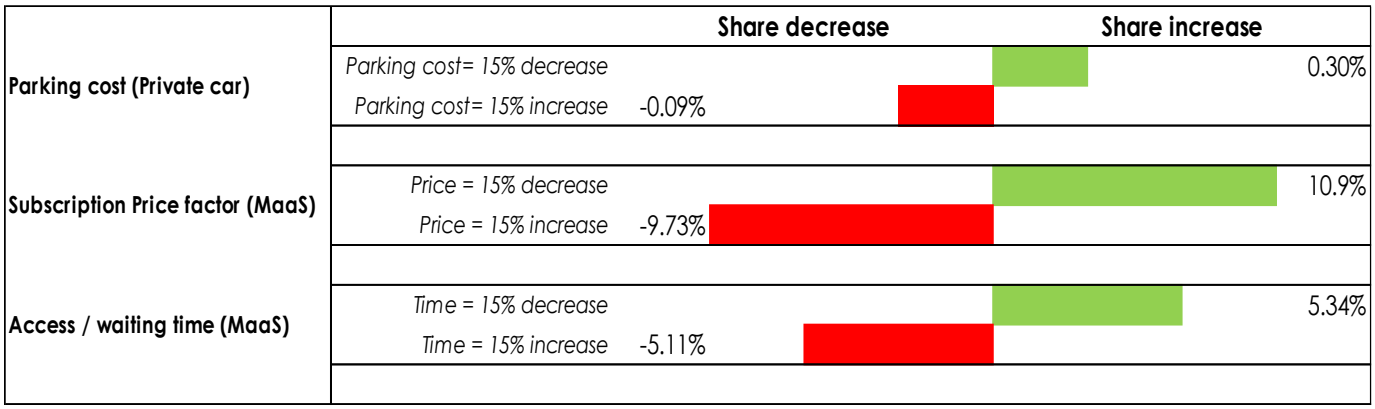



*Figure 15 Sensitivity analysis in car experiment*

The subscription price parameter has more sensitivity than access/waiting time due to higher shift in share of MaaS alternative. It was expected and tends to induce uncertainty towards a preference for MaaS alternative. The change in price tends to induce a considerable shift of consumers share to another alternative. Kagan, J. (2020) also have pointed out that people who tend to be more sensitive to price might perceive it to be not good in service or quality aspects (i.e. they lack trust). It also indicates the respondents thought-process during filling out the survey and could have been skeptical about the possibility of the level of service that MaaS can provide (Glasco, J. (2020)). It also indicates unfamiliarity.

For private vehicles, the sensitivity towards parking cost tends to be low indicating that users care more about quality, comfort, status, etc. rather than monthly expenses.

### *5.4.1.2 Willingness to pay (Car choice experiment)*

To further gain insight and provide advice for MaaS plans about short trips, the willingness to pay (WTP) value is estimated for various attributes within the package. WTP is the measure to calculate the monetary value upon a one-unit reduction in the attribute value. Like, how much the respondents are willing to pay for a 1-minute reduction in access / waiting time.

In current study, simply computed by the ratio of coefficients pertaining to the attribute of interest to price (from final ML model) shall calculate an overestimated value because subscription price is for all the trips in the entire month while waiting time coefficient is per trip. Hence, it is determined to estimate WTP per trip (i.e. $\beta_{time}$ / $\beta_{price}$ / Trips). Then, to estimate the minimum number of trips per month, average of all distance levels (in the choice experiment) divided by maximum length of a short-distance trip is done which results in value 30 (i.e. ((400+300+200)/3)/10). Table 18 presents the computed values for each alternative.

*Table 18 Summary of results for car experiment*

| Alternative | Attributes | WTP ( €/min) $\beta_{time}$ / $\beta_{price}$ | WTP ( €/min)/trip | WTP ( €/h)/trip |
|---|---|---|---|---|
| Shared | Waiting time | 0.0756 | 0.00252 | 0.151 |
| | Access time (shared car) | 0.0648 | 0.002162 | 0.129 |
| MaaS | Waiting time for ride-hailing pooled car | 0.7632 | 0.0254 | 1.524 |
| | Access time (shared car) | 0.760 | 0.025 | 1.520 |
| | Access time shared Ebike | 0.644 | 0.0214 | 1.284 |
| Private | Parking time | 0.206 | 0.00687 | 0.412 |

Noteworthy are the large difference between the parameters of access / waiting time of shared and MaaS alternative. It is because the time parameter in shared alternative is insignificant which tend to carry not much importance. Lastly, there is no literature available as per the knowledge of the author to validate the WTP findings of shared and MaaS alternatives except for the parking time of private vehicles by Arendsen (2019). Hence, the author is inconclusive towards the accuracy of the estimated values.

### 5.4.2 Interpretation of results from 'bike' choice experiment

Similar to section 5.4.1, the model run was done starting from MNL (as a base model), then NL, ML (without socio-demo attributes), and lastly ML with socio-demo and attitudinal attributes. The model fit and performance-based upon the final log-likelihood value and adjusted rho square value was evaluated which showed an improvement in explanatory power while progressing from MNL to ML. The results of ML presented in table 19 revealed a higher model fit, indicating a high correlation between the choices of a single respondent. The estimated significant parameters (at 95% confidence interval) of final model are in bold.

*Table 19 Summary of results for bike experiment*

| | | MNL model (Base) | | NL model | | ML model | | ML model + socio demo (Final model) | |
|---|---|---|---|---|---|---|---|---|---|
| **Description** | **Parameters** | **value** | **tstat** | **value** | **tstat** | **value** | **tstat** | **value** | **tstat** |
| ***ASC estimation*** | | | | | | | | | |
| Shared vehicle | ASC_1 | 1.33 | 4.48 | 1.37 | 6.85 | -0.196 | -0.39 | 0.29 | 0.575 |
| MaaS | ASC_2 | 1.66 | 3.54 | 1.38 | 6.2 | 0.108 | 0.161 | 0.217 | 0.29 |
| Private bike | ASC_3 | 2.49 | 0.409 | 2.48 | 6.07 | 1.77 | 3.26 | **1.37** | **2.35** |
| Opt_out / Others | ASC_4 | Not estimated as it is constant | | | | | | | |
| ***NL and ML parameters*** | | | | | | | | | |
| *Mu for the NL model* | MU | | | 7.86 | 0.692 | | | | |
| *Sigma for ML model* | *SIGMA_SH_MAAS_STD* | | | | | 5.38 | 12.4 | **6.2** | **12.2** |
| ***Main parameters*** | | | | | | | | | |
| Shared_vehicle | beta_shared_sub_price | -0.091 | -5.43 | -0.0141 | -0.666 | -0.1 | -5.14 | **-0.104** | **-5.19** |
| | beta_sharedist | 0.046 | 2.32 | -0.00673 | -0.366 | 0.0285 | 1.18 | 0.0304 | 1.23 |
| | beta_shtime1 | -0.0929 | -2.35 | -0.0155 | -0.719 | -0.0992 | -2 | **-0.122** | **-2.41** |
| MaaS | beta_maas_sub_price | -0.212 | -3.32 | -0.0432 | -0.66 | -0.295 | -3.53 | **-0.306** | **-3.59** |
| | beta_maas_ebike_accessibilitytime | -0.167 | -2.39 | -0.013 | -0.435 | -0.146 | -1.63 | -0.135 | -1.48 |
| | beta_maas_nonebike_accessibilitytime | -0.139 | -2.21 | -0.0209 | -0.604 | -0.147 | -1.9 | **-0.155** | **-1.96** |
| | beta_distnormalbike | -0.108 | -1.98 | -0.016 | -0.544 | -0.102 | -1.44 | -0.0914 | -1.27 |
| | beta_MaaSdist | 0.178 | 2.87 | 0.0186 | 0.327 | 0.198 | 2.46 | **0.2** | **2.44** |
| | beta_extra | -0.26 | -2.31 | -0.0352 | -0.56 | -0.333 | -2.21 | **-0.341** | **-2.22** |
| Private_bike | beta_totcost | -0.0327 | -1.92 | -0.032 | -1.89 | 0.00127 | 0.0529 | -0.00963 | -0.389 |
| | beta_dist3 | -0.00486 | -0.58 | -0.00486 | -0.576 | -0.00495 | -0.587 | -0.00562 | -0.643 |
| ***Socio-demo and*** | beta_edu_package | | | | | | | -0.144 | -0.744 |
| ***attitudinal factors*** | beta_edu_private | | | | | | | **1.01** | **6.96** |
| | beta_fam_package | | | | | | | -0.0739 | -0.345 |
| | beta_fam_private | | | | | | | **0.657** | **4.06** |
| | beta_inc_package | | | | | | | -0.154 | -0.869 |
| | beta_inc_private | | | | | | | **0.3** | **2.11** |
| | beta_age_package | | | | | | | **0.596** | **3.09** |
| | beta_age_private | | | | | | | **-1.12** | **-7.16** |
| | beta_constructive | | | | | | | 0.0324 | 0.391 |
| | beta_enthu | | | | | | | **0.319** | **3.21** |
| | beta_fru | | | | | | | **-0.25** | **-2.57** |
| | beta_travelzeal | | | | | | | **0.235** | **2.78** |
| | beta_freq | | | | | | | 0.0242 | 0.142 |
| ***Model performance*** | Null loglikelihood | -3177.387 | | | | | | | |
| | Final loglikelihood | | -2513.404 | | -2507.405 | | -1889.087 | | -1797.012 |
| | AIC | | 5054.809 | | 5044.809 | | 3808.173 | | 3650.024 |
| | BIC | | 5135.129 | | 5130.867 | | 3867.588 | | 3760.933 |
| | Rho square | | 0.21 | | 0.21 | | 0.41 | | 0.434 |
| | Adjusted rho square | | 0.20 | | 0.21 | | 0.40 | | 0.426 |

All main parameter signs are intuitive and have remained consistent throughout different modeling techniques. The subscription price and time signs are negative, suggesting decreaseing utility and dislike if people have to spend more or have to wait for longer to get access while carrying out a short trip.

The distance coefficient for private bike alternative is negative which is logical as the longer is the cumulative monthly distance, then higher are the number of short trips then more is the maintenance cost with higher chances of theft. Nonetheless, the monthly share of distance attribute for MaaS i.e. shared non-e-bike in the MaaS bundle, is negative indicating preference towards having fewer kilometers of shared non-Ebike and more rides of Ebike. It is understandable because Shared Ebike is fun to ride and it is faster. Similar to the car choice experiment results, the coefficient of additional feature attribute in MaaS alternative is negative which means respondents have more preference towards 'rolling over of balance amount to subsequent month'.

The alternative specific constants in all the models are positive and less positive in the MaaS alternative (and insignificant) indicating high explanatory power. The final model has majority of the parameters significant at 95% interval apart from the E-bike access time, indicating that people don't care much about time. Nevertheless, this could be the tradeoff with subscription price. Moreover, the levels shown to respondents were 1min/3min/5min which tends to be rather indifferent. Like the car scenario, the estimated coefficients of time (i.e. access time of bikes) in MaaS alternatives are approximately similar to each other with negative higher coefficient of access time for normal bike. This could be possibly due to its low speed.

All the socio-demographic parameters added to mobility subscription package have a negative sign (in MaaS alternative) except for age, indicating that younger and mid-aged people are more inclined towards using MaaS service (which is already established in literature). The age parameter for the private bike is negative, as expected, because older people tend to prefer cycling less (Bicycle-Dutch. (2018)).

Socio-demographic parameters added to private bike tends to be significant (at 90% confidence interval) and a positive sign indicates a high preference to own a bike. Towards mobility pattern, people having a habit of higher frequency (however, the parameter is insignificant) of trips with bike per month, tend to be less inclined towards getting a MaaS subscription. There could be several reasons for this such as that people are more attached to their private bike and searching a bike for each short trip could be burdensome.

The shared error (i.e. MU) component in the NL model is estimated to be significant and positive, confirming unobserved commonality between the alternatives that could not be captured in deterministic/observable part of the utility. Further, the sigma parameter estimated from the ML model is also significant indicating the presence of correlation between unobserved utility.

Towards the respondent's attitude, it is already known from the car choice experiment that people who are enthusiastic, open-minded, tech-savvy, love to travel more contribute positively towards the utility. Like car experiment results, people who are economical in spending and always compare products, have a negative impact on the choice of MaaS. Nevertheless, the factor is insignificant, having a negligent impact.

Lastly, about the insignificant main parameters, they are nevertheless retained in the model (refer section 5.4.1) to minimize 'type II' error which would weaken the model more than the inclusion of an insignificant parameter resulting in type I error (Bierlaire, 2016). The overall goodness of fit of the model is good as indicated by McFadden's pseudo-R-squared of 0.43 and the attempt to improve upon the model was unsuccessful. This is because there might be additional unobserved factors that are not considered in the survey. Lastly, upon applying simulation to the final model, the percentage of correctly predicted preferences is estimated to be 55.620%, which tends to be moderate in performance.

### *5.4.2.1 Sensitivity of parameters (Bike choice experiment)*

Figure 16 show results related to the sensitivity of estimated parameters. Similar to the sensitivity of attributes in the car choice experiment, subscription price parameters of MaaS alternative is observed to indicate high sensitivity than time parameters due to high variation in share of MaaS.

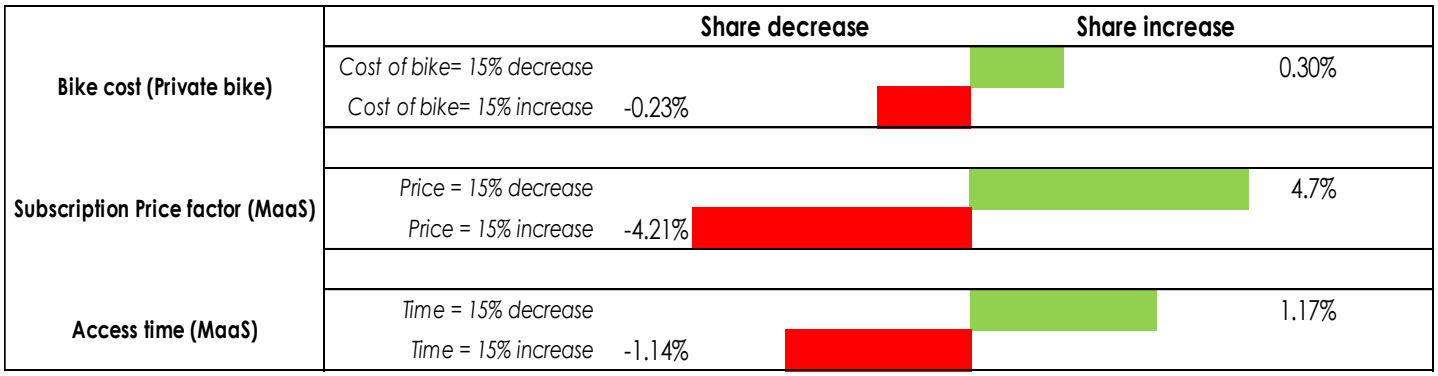



*Figure 16 Sensitivity analysis in bike experiment*

It is already discussed in earlier sections that people who tend to be more sensitive to price might perceive it to be not good in service or quality aspects (i.e. they lack trust) (Kagan, J. (2020)). It also indicates unfamiliarity. For private bike, the sensitivity towards total cost of bike is low which tends to indicate that users care more about their private bikes with less importance to price.

### *5.4.2.2 Willingness to pay (Bike choice experiment)*

To further gain insight and provide advice for MaaS plans on short trips, the willingness to pay value is estimated for various attributes within the package. Similar to procedure followed with car experiment data, WTP value is estimated per trip. The minimum number of trips per month is estimated (based on assumption) by taking average of all distance levels (in the choice experiment) divided by maximum length of a short-distance trip is done which results in 20 (i.e. ((300+200+100)/3)/10). Table 20 presents the computed values for each alternative.

*Table 20 Summary of results for bike experiment*

| Alternative | Attributes | WTP ( €/min) $\beta_{time}$ / $\beta_{price}$ | WTP ( €/min)/trip | WTP ( €/h)/trip |
|---|---|---|---|---|
| Shared | Shared Ebike access time | 1.17 | 0.0586 | 3.51 |
| MaaS | Shared normal bike Access time. | 0.506 | 0.0253 | 1.52 |
| | Shared Ebike Access time. | 0.441 | 0.02205 | 1.32 |

It is observed that WTP value is higher in single mode shared mobility alternative (which reflects high associated penalty in terms of euros per unit) and lowest in MaaS alternative (which is an

indication of higher sensitivity to subscription price). Nevertheless, there is no literature available as per the knowledge of the author to validate the WTP findings of shared and MaaS alternatives. Hence, the author is inconclusive towards the accuracy of the estimated values.

### 5.4.3 Interpretation of results from 'Last mile in another city' choice experiment

Similar to section 5.4.1 and 5.4.2, the model run was done starting from MNL (as a base model), then NL, ML (without socio-demo attributes), and ML with socio-demo and attitudinal attributes. The model fit and performance-based upon the final log-likelihood value and adjusted rho square value was evaluated which showed an improvement in explanatory power while progressing from MNL to ML. The results of ML showed in table 21 revealed a higher model fit, indicating a high correlation between the choices of a single respondent.

All the estimated main parameters have their corresponding signs as intuitive, significant, and have remained consistent throughout different modeling techniques. The subscription price per km and time signs are negative suggesting negative utility and dislike if people have to spend more or have to wait longer to get access in the process carrying out a short trip.

The alternative specific constants in the model are less negative in the MaaS alternative indicating that there are expectations to subscribe due to the possible fact that the benefits are high. The shared error (i.e. MU) component in the NL model is estimated to be significant and positive, confirming unobserved commonality between the alternatives that could not be captured in deterministic/observable part of the utility. Further, the sigma parameter estimated from the ML model is also significant indicating the presence of correlation between unobserved utility.

Towards the respondent's attitude, it is already known from the earlier discussions that people who are enthusiastic, open-minded, tech-savvy, love to travel more and contribute positively towards the utility (and so are the estimated parameters here). Parameter for people who are spendthrift has a positive and significant contribution to utility indicating the inclination of people to salvage from services of MaaS (and save more).

Education and income parameters are insignificant but not age. So, indeed younger and mid-aged people are inclined towards using new mobility services like MaaS whereas older people are more attached to their private vehicles (Glasco, J. (2020)).

*Table 21 Summary of results for 'Last mile in another city' experiment*

| | | MNL model (base) | | NL model | | ML model | | ML model + socio demo (Final model) | |
|---|---|---|---|---|---|---|---|---|---|
| **Description** | **Parameters** | **value** | **tstat** | **value** | **tstat** | **value** | **tstat** | **value** | **tstat** |
| ***ASC estimation*** | | | | | | | | | |
| Shared_vehicle | ASC_1 | Not estimated (as it is constant) | | | | | | | |
| MaaS | ASC_2 | 0.477 | 1.46 | 0.293 | 2.55 | 0.996 | 2.71 | **1.34** | **3.13** |
| Maintaining_status_quo | ASC_3 | -0.0306 | -0.12 | 0.0291 | 0.238 | -0.114 | -0.287 | 0.483 | 0.737 |
| ***NL and ML parameters*** | | | | | | | | | |
| *Mu for the NL model* | MU | | | 4.46 | 3.06 | | | | |
| *Sigma for ML model* | *SIGMA_SH_MAAS_STD* | | | | | 4.08 | 13.3 | **4.04** | **12.9** |
| | | | | | | | | | |
| ***Main parameters*** | | | | | | | | | |
| Shared_vehicle | beta_sh_sub_price perdist | -0.371 | -5.4 | -0.218 | -3.68 | -0.739 | -7.81 | **-0.752** | **-7.81** |
| | beta_shtime | -0.158 | -4.15 | -0.044 | -2.49 | -0.186 | -4.31 | **-0.18** | **-4.08** |
| MaaS | beta_maas_sub_price perdist | -0.337 | -4.61 | -0.254 | -3.79 | -0.81 | -7.23 | **-0.823** | **-7.21** |
| | beta_maasEbike_accessibilitytime | -0.186 | -4.81 | -0.0782 | -3.1 | -0.3 | -6.48 | **-0.277** | **-5.62** |
| | beta_maasnonEbike_accessibilitytime | -0.178 | -4.81 | -0.0846 | -3.27 | -0.299 | -6.24 | **-0.298** | **-6.23** |
| | beta_extra | -0.2 | -1.9 | -0.0925 | -2.29 | -0.373 | -2.91 | **-0.356** | **-2.69** |
| Maintaining_status_quo | beta_totcostperdist | -0.14 | -5.67 | -0.111 | -4.46 | -0.419 | -8.71 | **-0.429** | **-8.69** |
| ***Socio-demo and attitudinal factors*** | beta_freq | | | | | | | **-0.563** | **-3.42** |
| | beta_constructive | | | | | | | **0.188** | **2.65** |
| | beta_enthu | | | | | | | **0.256** | **3.27** |
| | beta_travelzeal | | | | | | | **0.333** | **4.78** |
| | beta_fru | | | | | | | **0.255** | **3.66** |
| | beta_edu_package | | | | | | | -0.127 | -0.799 |
| | beta_inc_package | | | | | | | -0.326 | -0.627 |
| | beta_age_package | | | | | | | **0.273** | **1.96** |
| | beta_age_statusquo | | | | | | | 0.64 | 1.39 |
| ***Model performance*** | Null loglikelihood | -2370.805 | | | | | | | |
| | Final loglikelihood | | -2151.96 | | -2142.51 | | -1636.63 | | -1586.387 |
| | AIC | | 4321.93 | | 4305.101 | | 3293.27 | | 3214.774 |
| | BIC | | 4373.03 | | 4361.871 | | 3332.186 | | 3296.499 |
| | Rho square | | 0.09 | | 0.10 | | 0.31 | | 0.33 |
| | Adjusted rho square | | 0.09 | | 0.09 | | 0.31 | | 0.32 |

The overall goodness of fit of the model is good as indicated by McFadden's pseudo-R-squared of 0.32 and the attempt to improve upon the model was unsuccessful. This is because there might be additional unobserved factors that are not considered in the survey. Lastly, upon applying simulation to the final model, the percentage of correctly predicted preferences is estimated to be 53.40%, which tends to be moderate in performance.

Regarding sensitivity, Figure 17 reveals high sensitivity to access time of mode.

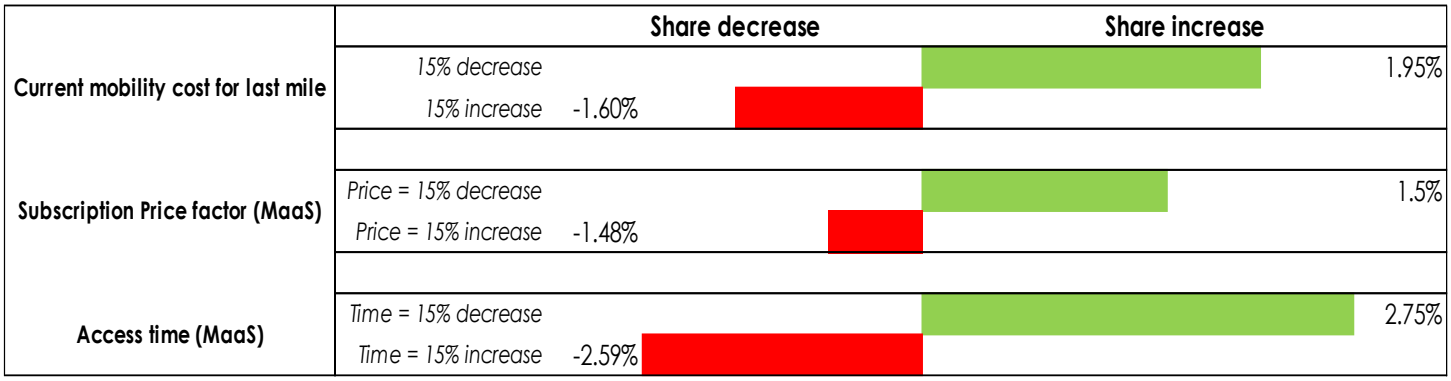



*Figure 17 Sensitivity analysis in Last mile in another city experiment*

Unlike sensitivity results of other experiments, the subscription price factor (i.e. 15% increase or decrease of subscription price for fixed distance levels) has less sensitivity to time factor. It is further logical because for the last mile (like while going office after using a metro to another city), people tend to be eager to reach the destination.

Also, it is observed of people being sensitive to current mobility costs. The estimated results tend to suggest that Dutch people are willing to make a shift to other alternatives upon increase in their mobility expenses.

## 5.5 Interpretation of results from Latent class (LC) model

The LC model is only used to identify the probable share of MaaS class and gain insight into the probable discrete preference profiles, if they exist (for answering the research sub-question).

First attempts were made to identify the "optimal" number of classes. The attributes added to do for class analysis are age of the consumer, number of family members residing with, education, income per year, and trip frequency per month. The attempts were exploratory and made with 2,3,4 and 5 classes by using latent gold package. The model with a lower number of BIC value suggests a better-fit model.

*Table 22 Optimal number of classes with data set of car experiment*

| Model classes | | BIC value |
|---|---|---|
| Model1 | 1-Cluster | 5,678 |
| Model2 | 2-Cluster | 4,783 |
| Model3 | 3-Cluster | 4,210 |
| Model4 | 4-Cluster | 4,189 |
| Model5 | 5-Cluster | 4,208 |

*Table 23 Optimal number of classes with data set of bike experiment*

| Model classes | | BIC value |
|---|---|---|
| Model1 | 1-Cluster | 5,110 |
| Model2 | 2-Cluster | 3,839 |
| Model3 | 3-Cluster | 3,271 |
| Model4 | 4-Cluster | 3,208 |
| Model5 | 5-Cluster | 3,219 |

*Table 24 Optimal number of classes with data set of 'Last mile in another city' experiment*

| Model classes | | BIC value |
|---|---|---|
| Model1 | 1-Cluster | 4,357 |
| Model2 | 2-Cluster | 3,391 |
| Model3 | 3-Cluster | 3,175 |
| Model4 | 4-Cluster | 3,160 |
| Model5 | 5-Cluster | 3,169 |

Each of the three types of datasets is observed to have 4 optimal classes. Also, the bivariate residual (BVR) values for 4 classes are observed to be in order (as the rule of thumb suggests that values above 90$^{th}$ percentile tends to be a misfit).

After establishing the so-called measurement part of the model, the estimated parameters and probable share of each class member were extracted only for the model with optimal number of classes. As a note, all the values estimated in the latent class model are parameterized by the application of multinomial logit model from equations 6 to 16. Further, a single latent class model is estimated at the initial to cross-check precision and similarity with an earlier estimated MNL model. Upon, accuracy in both the model estimated parameters, the author proceeded with a 2, 3, 4, 5 or 6 class model run. The estimated parameters of the final model are tabulated in the following sections.

### *5.5.1 Results of Latent class (LC) model: Car choice experiment*

Table 25 shows estimated parameters for data set of car choice experiment and table 26 reveals the distributions of covariates.

*Table 25 Latent class estimated parameters for car experiment*

| ***Description*** | ***Parameters*** | ***Class 1 35.50%*** | ***Z-val*** | ***Class 2 27.57%*** | ***Z-val*** | ***Class 3 22.13%*** | ***Z-val*** | ***Class 4 14.80%*** | ***Z-val*** |
|---|---|---|---|---|---|---|---|---|---|
| ***Main parameters*** | | | | | | | | | |
| **Shared_vehicle** | ASC_share | 4.95 | 3.44 | 4.49 | 2.51 | 23.65 | 0.79 | -0.98 | -0.79 |
| | ASC_taxi | 8.30 | 0.85 | 4.54 | 2.73 | 10.22 | 0.54 | -1.23 | -1.06 |
| | beta_sh_sub_price sharedcar | 0.003 | 0.24 | -0.04 | -2.27 | -0.09 | -0.47 | -0.03 | -3.37 |
| | beta_shtime | -0.28 | -2.12 | -0.19 | -1.48 | -3.58 | -0.77 | 0.17 | 2.09 |
| | beta_sh_sub_pricetaxi1 | -0.17 | -0.63 | -0.04 | -2.93 | 0.14 | 0.61 | -0.02 | -2.61 |
| | beta_dist | -0.01 | -1.66 | 0.0027 | 0.49 | -0.04 | -0.59 | 0.01 | 3.36 |
| **MaaS** | ASC_MaaS_sh1 | 5.83 | 2.83 | 10.63 | 3.07 | -0.99 | -0.24 | 3.90 | 1.44 |
| | ASC_MaaS_taxi | 2.32 | 1.30 | 10.06 | 3.10 | 0.32 | 0.09 | 4.15 | 1.60 |
| | beta_maas_sub_price share | -0.12 | -4.01 | -0.12 | -2.16 | 0.02 | 0.37 | -0.08 | -1.95 |
| | beta_maas_sub_price taxi | -0.08 | -2.86 | -0.14 | -2.51 | 0.01 | 0.17 | -0.09 | -1.99 |
| | beta_maastime_for car | -0.20 | -0.55 | -1.58 | -2.23 | 0.08 | 0.10 | -1.03 | -1.87 |
| | beta_maastime_for bike | -0.18 | -0.59 | -1.29 | -2.46 | -0.19 | -0.31 | -0.73 | -1.59 |
| | beta_maasdist_for_Ebike | 0.02 | 2.21 | 0.03 | 1.77 | 0.01 | 0.78 | 0.02 | 1.78 |
| | beta_extra | -0.94 | -3.18 | -0.49 | -0.96 | -0.13 | -0.22 | -0.12 | -0.27 |
| | beta_maasdist | 0.01 | 2.68 | 0.0031 | 0.31 | -0.02 | -2.22 | 0.01 | 1.65 |
| **Private_vehicle** | ASC_private | 2.06 | 2.08 | 6.78 | 4.55 | 0.17 | 0.13 | -2.73 | -1.84 |
| | beta_parkcost3 | -0.03 | -2.69 | -0.02 | -1.32 | 0.01 | 0.55 | 0.01 | 0.58 |
| | beta_parktime3 | -0.08 | -1.58 | -0.06 | -1.13 | 0.02 | 0.20 | 0.18 | 2.56 |

| Description | Parameters | Class 1 35.50% | Z-val | Class 2 27.57% | Z-val | Class 3 22.13% | Z-val | Class 4 14.80% | Z-val |
|---|---|---|---|---|---|---|---|---|---|
| | beta_dist3 | 0.0029 | 1.01 | -0.01 | -1.68 | -0.01 | -3.58 | 0.01 | 1.69 |
| **CLASS PARAMETERS** | | | | | | | | | |
| ***Socio-demo*** | | | | | | | | | |
| ***parameters*** | beta_veh_ownership | 0.98 | 1.20 | -4.91 | -2.10 | 2.52 | 3.10 | 1.41 | 1.67 |
| | beta_freq | 0.10 | 0.96 | -0.07 | -0.60 | 0.003 | 0.03 | -0.03 | -0.23 |
| | beta_age | 0.57 | 2.84 | -0.02 | -0.08 | -0.38 | -1.58 | -0.18 | -0.64 |
| | beta_inc | 0.45 | 1.92 | -0.35 | -1.41 | 0.19 | 0.78 | -0.29 | -1.03 |
| | beta_edu | -0.24 | -1.97 | -0.08 | -0.60 | -0.07 | -0.49 | 0.39 | 2.28 |
| | beta_fam | 0.06 | 0.24 | -0.57 | -1.89 | 0.22 | 0.70 | 0.28 | 0.66 |
| **Model** | | | | | | | | | |
| ***Performance*** | Final LL | | | | | | | -1735.71 | |
| | Adjusted rho square | | | | | | | 0.42 | |

*Table 26 Distribution of covariates*

| Attributes | | Class 1 35.50% | Class 2 27.57% | Class 3 22.13% | Class 4 14.80% |
|---|---|---|---|---|---|
| **Family** | >2 member | 36% | 38% | 15% | 11% |
| | 0 or 1 member | 35% | 25% | 24% | 16% |
| **Education** | WO | 44% | 26% | 21% | 9% |
| | HBO | 35% | 28% | 23% | 14% |
| | <HBO | 26% | 29% | 22% | 24% |
| **Income level** | Low | 25% | 25% | 28% | 22% |
| | High and mid | 40% | 29% | 20% | 12% |
| **Age (>20 to 60 and >60)** | Old | 28% | 32% | 23% | 17% |
| | Young and mid | 43% | 23% | 21% | 13% |
| **Trip frequency by car per month** | | | | | |
| | <5 trips per month | 21% | 24% | 39% | 16% |
| | 5-20 trips per month | 35% | 30% | 17% | 17% |
| | 20-35 trips per month | 42% | 29% | 17% | 12% |
| | >35 trips per month | 39% | 18% | 32% | 11% |
| **Car Ownership** | | | | | |
| | Possess car | 37% | 36% | 14% | 13% |
| | Don't possess car | 32% | 0% | 48% | 20% |

*Table 26A Distribution of alternatives*

| Class | Ind. Shared alt | MaaS | Priv vehicle | Others |
|---|---|---|---|---|
| **Class 1** | 13.97% | 40.14% | 34.00% | 11.89% |
| **Class 2** | 14.20% | 3.15% | 74.27% | 8.38% |
| **Class 3** | 0.38% | 0.57% | 5.38% | 93.67% |
| **Class 4** | 32.53% | 5.38% | 53.47% | 8.62% |

Based on the estimated parameters from choice model (i.e. table 25) by applying simulation, the share of each alternative was further estimated and it was observed that class 1 appears to be a group of people having a higher probability of becoming MaaS subscribers with highest inclination to MaaS alternative (like young and mid-level in age, high trip frequency with car, highly income and highly educated).

All main parameter signs (of class 1) are intuitive except subscription price for car sharing. Nevertheless, it is insignificant and similar problems are already reported in Nilsson (2005) and Liljenstolpe (2011). One of the possible reasons could be fewer data. Remaining parameters signs of subscription price and time are negative (with time coefficient more negative) suggesting a high impact of waiting / access time. The alternative specific constants in the model are positive and high in the MaaS alternative indicating the decision to subscribe is positive. Added, there

remains many unobserved factors which are yet to be included in the model. This reveals the LC model's capability of uncovering discrete preference profiles when they exist.

Further, the Class-1 cluster constitutes more than one-third of the respondents (i.e. 35.50%). Their car trip frequency per month (refer table 26) is high indicating a willingness to make some of their trips through MaaS. However, this in contrast with findings of Ho et al. (2018) and Alonso et al. (2020) which identified very frequent car users as less likely to adopt MaaS.

The influence of socio-demographic characteristics pertaining to the MaaS class are in line with findings from literature (Alonso et al. (2020), Caiati et al. (2020), and Shaheen et al. (2018)) indicating that young and mid-aged people, earning high or mid-level income (per year), residing alone or with less than two family members, and having higher educational background (like WO or HBO), are inclined towards subscribing to MaaS package. Lastly, people who own vehicles tend to be willing for using MaaS subscription package more than 'non-owners'. It was expected because high frequency of private car usage for short distance trips are expensive.

The characteristics of respondents in Class 2, appears to be 'probable private car lovers / users' because all have cars and primarily they are old with less frequency of trips per month. In this reference, Böcker et al. (2017) have reported that older people have a higher preference for using a personalized car with reduced interest towards shared mobility. The terminology coined for class 3 and class 4 clusters are 'Other mode users' (constituting high non-car owners and unlikely to use car for short trip)) and 'Likely private vehicle users' based upon estimated share from table 26A. In this reference, figure 18 shows a graphical representation of all the classes. Table 27 further summarizes latent characteristics of each class for ease in comprehending.

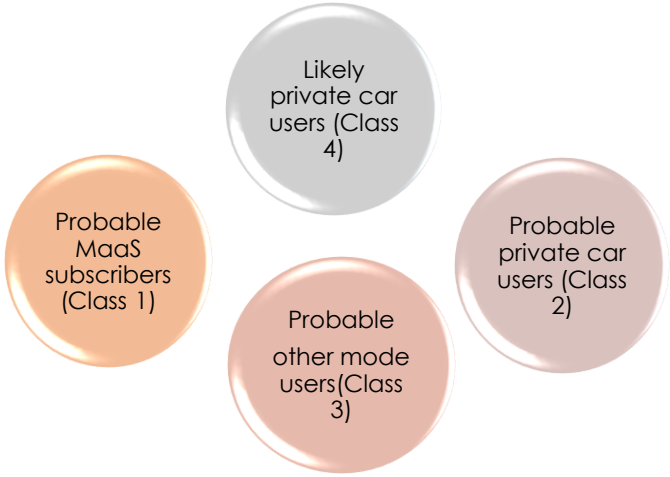



*Figure 18 Underlying latent classes in data (car experiment)*

*Table 27 Characteristics of respondents in different classes (car)*

| **Probable MaaS subscribers (Class 1)** | **Probable private vehicle users (Class 2)** | **Likely private vehicle users (Class 4)** | **Other mode users (Class 3)** |
|---|---|---|---|
| Less family members | More family members | Less family members | Less family members |
| Highly educated | Highly educated | Less educated | Highly educated |
| High or mid-level income | High or mid-level income | Low income | High income |

| Probable MaaS subscribers (Class 1) | Probable private vehicle users (Class 2) | Likely private vehicle users (Class 4) | Other mode users (Class 3) |
|---|---|---|---|
| High car trip frequency per month | Low or midlevel car trip frequency per month | Low or midlevel car trip frequency per month | High car trip frequency per month |
| Young and mid age level | Old age people | Old age people | Old age people |
| Mostly private car owners | Only private car owners | Mostly non-owners of private car | Mostly non-owners of private car |

A detailed discussion regarding the LC model parameters and all the type of classes are not done as the purpose was only to gain insight into the type of users. The estimated results indicate that no conclusion about class membership but, simultaneously, it gives insight for the source of heterogeneity and further suggests on type of socio-demographics profiles that could fit in the so-called MaaS class. Lastly, it is anticipated that the classification and the gained insights could have been more explanatory if the sample size would have been larger.

### *5.5.2 Results of Latent class (LC) model: Bike choice experiment*

The estimated results are shown in table 28 and 29

*Table 28 Latent class estimated parameters for bike experiment*

| Description | Parameters | Class 1 53.50% | Z-val | Class 2 27.92% | Z-val | Class 3 11.42% | Z-val | Class 4 7.16% | Z-val |
|---|---|---|---|---|---|---|---|---|---|
| **Main parameters** | | | | | | | | | |
| **Shared vehicle** | ASC_Share | -0.544 | -0.333 | 5.913 | 4.689 | -0.815 | -0.639 | -0.719 | -0.111 |
| | beta_sh_sub_price | -0.034 | -0.416 | -0.132 | -4.560 | -0.136 | -1.464 | -0.231 | -2.817 |
| | beta_shtime | 0.152 | 0.738 | -0.223 | -3.106 | -0.112 | -0.541 | 0.217 | 1.132 |
| | beta_dist | -0.002 | -0.166 | 0.002 | 0.410 | 0.002 | 0.135 | 0.060 | 0.961 |
| **MaaS** | ASC_MaaS | 5.232 | 2.351 | 5.095 | 3.776 | 11.430 | 0.772 | -9.561 | -0.816 |
| | beta_maas_sub_price | -0.765 | -2.233 | -0.230 | -2.331 | -1.994 | -1.052 | 0.788 | 0.496 |
| | beta_maastime_for car | -0.750 | -1.942 | -0.044 | -0.480 | -1.733 | -0.918 | 0.419 | 0.355 |
| | beta_maastime_for bike | -0.612 | -1.714 | -0.018 | -0.167 | -2.056 | -1.067 | 0.542 | 0.324 |
| | beta_maasdist | 0.040 | 1.146 | 0.012 | 1.129 | 0.233 | 0.915 | 0.025 | 0.185 |
| | beta_maasdist_for_bike | -0.001 | -0.031 | -0.003 | -0.312 | -0.288 | -0.818 | -0.033 | -0.549 |
| | beta_extra | -0.885 | -1.294 | -0.242 | -1.335 | -0.207 | -0.145 | -6.953 | -1.049 |
| **Private vehicle** | ASC_private | 5.187 | 3.548 | 4.227 | 2.634 | -6.305 | -2.731 | -0.988 | -0.143 |
| | beta_totalexpenses | -0.007 | -0.115 | -0.062 | -1.333 | 0.205 | 2.036 | -0.057 | -0.488 |
| | beta_dist | -0.005 | -1.572 | -0.001 | -0.124 | -0.002 | -0.668 | 0.040 | 0.650 |
| **Class parameters** | | | | | | | | | |
| ***Socio-demo parameters and*** | beta_age | 0.323 | 1.550 | 0.587 | 2.612 | -0.405 | -1.241 | -0.505 | -1.344 |
| ***Attitudinal factors*** | beta_edu | -0.371 | -2.867 | 0.004 | 0.032 | 0.376 | 1.881 | -0.010 | -0.044 |
| | beta_fam | 0.058 | 0.213 | -0.055 | -0.189 | -0.071 | -0.165 | 0.068 | 0.130 |
| | beta_inc | -0.365 | -1.314 | -0.415 | -1.436 | -0.626 | -1.800 | 1.405 | 2.214 |
| | beta_freq | -0.143 | -1.219 | -0.228 | -1.687 | 0.176 | 0.960 | 0.195 | 0.981 |
| | Beta_veh_ownership | 5.052 | 1.680 | -0.889 | -0.851 | -2.761 | -2.639 | -1.401 | -1.274 |
| ***Model performance*** | Final LL | | | | | | | -1407.59 | |
| | Adjusted Rho square | | | | | | | 0.55 | |

*Table 29 Distribution of covariates (bike)*

| Attributes | ***Class 1 53.50%*** | ***Class 2 27.92%*** | ***Class 3 11.42%*** | ***Class 4 7.16%*** |
|---|---|---|---|---|
| **Family** | | | | |
| >2 member | 54% | 33% | 9% | 4% |
| 0 or 1 member | 53% | 27% | 12% | 8% |
| **Education** | | | | |
| WO | 64% | 24% | 6% | 6% |
| HBO | 53% | 27% | 10% | 10% |
| <HBO | 39% | 35% | 20% | 5% |
| **Income level** | | | | |
| Low | 50% | 32% | 16% | 2% |
| High and mid | 55% | 27% | 9% | 9% |
| **Age (>20 to 60 and >60)** | | | | |
| Old | 51% | 23% | 16% | 10% |
| Young and mid | 56% | 33% | 7% | 4% |
| **Trip frequency by bike per month** | | | | |
| <20 trips per month | 51% | 29% | 13% | 6% |
| 20-35 trips per month | 56% | 33% | 5% | 6% |
| >35 trips per month | 56% | 19% | 15% | 10% |
| **Bike ownership** | | | | |
| Non-owners | 0% | 34% | 54% | 11% |
| Owners | 59% | 27% | 7% | 7% |

*Table 29A Distribution of alternatives (bike)*

| **Class** | **Ind. Shared alt** | **MaaS** | **Priv bike** | **Others** |
|---|---|---|---|---|
| **Class 1** | 0.47% | 0.01% | 98.90% | 0.72% |
| **Class 2** | 12.62% | 43.24% | 5.92% | 38.22% |
| **Class 3** | 6.99% | 3.17% | 20.36% | 69.48% |
| **Class 4** | 76.63% | 5.07% | 18% | 0.30% |

Similar to the earlier section, the estimated parameters from the choice model (i.e. table 29A by applying simulation), indicates that class 2 appears to be a group of people having a higher probability of becoming MaaS subscribers (with the highest inclination to MaaS alternative from remaining). All main parameter signs (of class 2) are intuitive, nonetheless, some of the parameters are insignificant. One of the possible reasons could be fewer data (Louviere et al. (2000)). The alternative specific constant for MaaS alternative is positive and high indicating the decision to subscribe is positive.

This cluster includes roughly one-fourth of the respondents (i.e. 27.92%). Their trip frequency per month with the bike (refer table 29) is low indicating less usage. Thus, there is a higher probability that appealing MaaS packages could make them give up bicycle ownership. The cluster constitutes a higher share of young and mid-aged Dutch people (who are always early adopters), earning low-level income (per year), and having a higher educational background (like WO or HBO, with being more aware of mobility issues). Majority of the respondents belonging to this class are also not in possession of bikes.

Class 1 cluster constitutes more than half of the respondents (i.e. 53.50%) with all the respondents owning a bike. These are mostly young people who have higher trip frequency by bike (and from the literature, it is known that old people prefer less biking) and highly educated. Class 3 appears

to be a group of people who prefer 'other' modes like walking, maybe using public transport or any other mode apart from the given. They are less educated with the majority of them as non-owners of a bike. Lastly, Class 4 appears to be a cluster for people who might be already be using 'single mode shared mobility' app for a bike like Mobike and wish to continue using that. People have a mid-level or higher trip frequency per month (on an average), non-owners of bike and have fewer family members.

To summarize, figure 19 shows a graphical representation of all the classes. Further, table 30 summarizes the characteristics of all the classes discussed herewith.

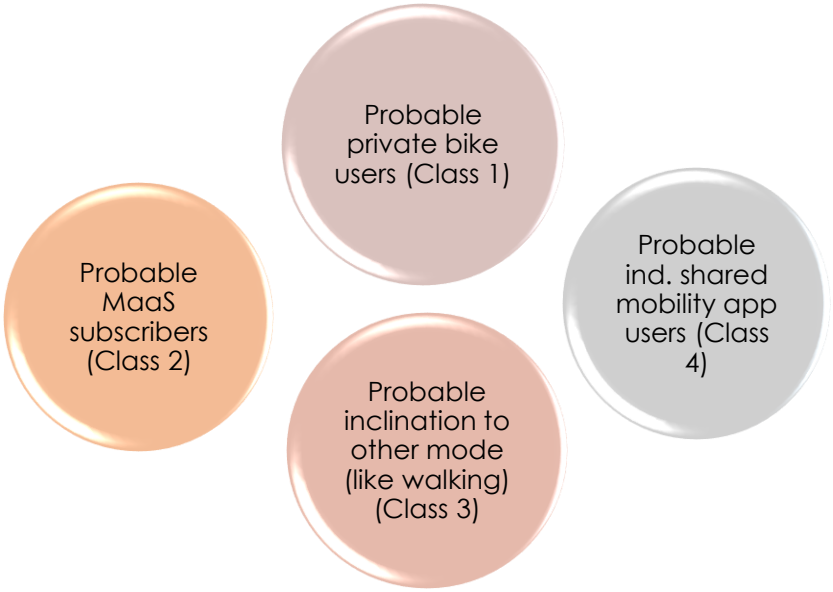



*Figure 19 Underlying latent classes in data (bike experiment)*

*Table 30 Characteristics of respondents in different classes (bike)*

| **Probable MaaS subscribers (Class 2)** | **Probable users of private bike (Class 1)** | **Probable inclination to other mode (like walking) (Class 3)** | **Probable ind. shared mobility app users (Class 4)** |
|---|---|---|---|
| More family members | More family members | Less family members | Less family members |
| Highly educated | Highly educated | Less educated | Highly educated |
| Low income | High or midlevel income | Low income | High or midlevel income |
| Low bike trip frequency per month | High bike trip frequency per month | High bike trip frequency per month | High bike trip frequency per month |
| Majority don't own bike | All own a bike | Majority don't own bike | Majority don't own bike |
| Young and mid age level | Young and mid age level | Old age people | Old age people |

From currently estimated parameters, no specific conclusion about the MaaS class could be drawn but, insights for the source of heterogeneity and further identification of socio-demographics profiles that could fit in so-called MaaS class, are noted.

### *5.5.3 Results of Latent class (LC) model: 'Last mile in another city' choice experiment*

The estimated results are shown in table 31 and 32.

*Table 31 Latent class estimated parameters for 'Last mile in another city' experiment*

| Description | Parameters | Class 1 40% | Z-val | Class 2 22% | Z-val | Class 3 22% | Z-val | Class 4 16% | Z-val |
|---|---|---|---|---|---|---|---|---|---|
| ***Main parameters*** | | | | | | | | | |
| **Shared vehicle** | beta_sh_sub_price perdist1 | 0.26 | 0.71 | -0.13 | -4.50 | -0.03 | -2.08 | -0.79 | -2.09 |
| | beta_shtime | 1.28 | 0.69 | -0.19 | -1.53 | -0.16 | -2.09 | -0.96 | -1.70 |
| **MaaS** | ASC_MaaS | 14.77 | 0.74 | 1.70 | 1.72 | -1.06 | -1.17 | -8.30 | -1.30 |
| | beta_maas_sub_price perdist | 0.03 | 0.58 | -0.13 | -4.77 | -0.02 | -0.89 | -0.10 | -4.33 |
| | beta_maasEbike_accessibili tytime | -0.31 | -0.99 | -0.38 | -3.37 | -0.25 | -1.95 | -0.29 | -2.83 |
| | beta_maasnonEbike_acces sibilitytime | -0.20 | -0.61 | -0.22 | -2.20 | -0.33 | -2.39 | -0.36 | -3.37 |
| | beta_extra | -0.03 | -0.03 | -0.04 | -0.14 | -0.34 | -0.91 | -1.06 | -3.66 |
| **Maintaining status quo** | ASC | 19.34 | 0.97 | -1.88 | -1.86 | -2.04 | -3.75 | -10.7 | -1.70 |
| | beta_totcostperdist | -0.03 | -2.21 | -0.12 | -3.11 | -0.02 | -2.12 | -0.04 | -4.63 |
| **Class parameters** | | | | | | | | | |
| ***Socio-demo parameters and*** | beta_education | 0.12 | 1.02 | -0.07 | -0.47 | -0.07 | -0.47 | 0.02 | 0.13 |
| ***Attitudinal factors*** | beta_inc | -0.29 | -1.43 | -0.54 | -2.10 | 0.36 | 1.37 | 0.46 | 1.45 |
| | beta_age | -0.70 | -3.94 | 0.004 | -0.02 | -0.12 | -0.54 | 0.83 | 2.93 |
| | beta_trip frequency | 0.16 | 0.87 | -0.11 | -0.48 | 0.10 | 0.44 | -0.14 | -0.52 |
| ***Model performance*** | Final LL | | | | | | -1429.76 | | |
| | Adjusted Rho square | | | | | | 0.40 | | |

*Table 32 Distribution of covariates (Last mile)*

| Attributes | Class 1 40% | Class 2 22% | Class 3 22% | Class 4 16% |
|---|---|---|---|---|
| **Education** | | | | |
| WO | 36% | 24% | 23% | 17% |
| HBO | 37% | 19% | 24% | 20% |
| <HBO | 49% | 23% | 16% | 12% |
| **Income level** | | | | |
| Low | 45% | 29% | 15% | 11% |
| High and mid | 38% | 19% | 25% | 18% |
| **Age (>20 to 60 and >60)** | | | | |
| Old | 50% | 19% | 22% | 9% |
| Young and mid | 29% | 25% | 22% | 24% |
| **Trip frequency per month** | | | | |
| High frequency | 35% | 24% | 22% | 19% |
| Low or mid-level frequency | 43% | 21% | 22% | 14% |

*Table 32A Distribution of alternatives (Last mile)*

| Class | Ind. Shared alt | MaaS | Status-quo |
|---|---|---|---|
| **Class 1** | 0.002% | 0.284% | 99.714% |
| **Class 2** | 26.330% | 64.24% | 9.426% |
| **Class 3** | 70.05% | 9.37% | 20.578% |
| **Class 4** | 96.25% | 1.91% | 1.836% |

Similar to bike results, table 32A (by applying simulation) indicates that class 2 constitutes group of people having a higher probability of becoming MaaS subscribers. This cluster includes roughly one-fourth of the respondents (i.e. 22%) with higher trip frequency per month (refer table 32). They

are young with lower income levels have more inclination towards cheaper and appealing offers like the MaaS package. Class 1 appears to be a cluster for respondents preferring 'to maintain status-quo, constituting of approximately 40% of the class respondents. These people tend to have lower trip frequency per month which tends to make them more inclined to continue with their usual mobility habit. The terminology coined for class 4 and class 3 clusters is 'Likely single mode shared mobility app users' because of high alternative share and similar features. In this reference, figure 20 shows a graphical representation of all the classes. Table 33 further summarizes the latent characteristics of each class for ease in comprehending.

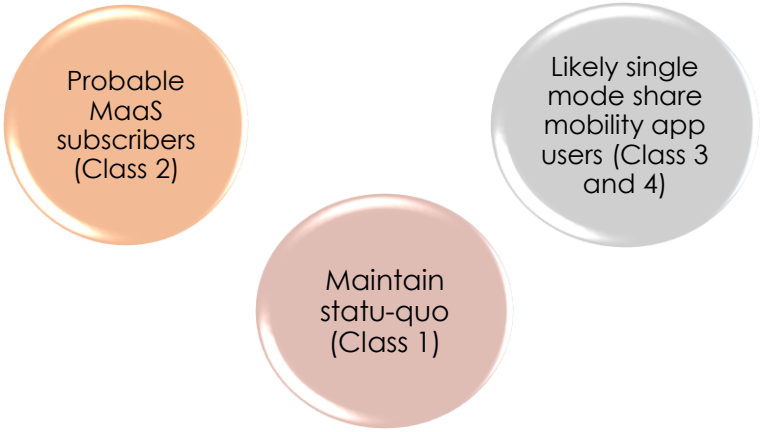



*Figure 20 Underlying latent classes in data (Last mile in another city experiment)*

*Table 33 Characteristics of respondents in different classes (Last mile in another city)*

| **Probable MaaS subscribers (Class 2)** | **Probably maintain status-quo users (Class 1)** | **Likely single mode shared mobility app users (Class 3 and 4)** |
|---|---|---|
| Highly educated | Low education level | Highly educated |
| Low level income | low level income | High and mid-level income |
| High trip frequency per month | Low or midlevel trip frequency per month | High trip frequency per month |
| Young and mid age level | Old age people | Young and mid age level |

The model tends to uncover the heterogeneity in profiles and indicates expectations with the MaaS service. Nevertheless, no specific conclusions could be drawn.

# 6 Conclusion, discussion, recommendations, and limitations

The study aimed to explore the preferences of people in the Netherlands given the hypothetical background that MaaS mobility packages are available as an alternative to status-quo mobility options. MaaS mobility packages are non-existent, thus, an SP experiment was conducted. In the previous chapter, the results of latent class and discrete choice models were described and discussed in detail. This chapter further discusses the conclusions from the overall study and lastly formulates recommendations. Added, the sub-research questions and the research question are answered simultaneously (and highlighted) with the conclusion part of this report.

At the end, the chapter constitutes author's reflection for the study.

## 6.1 Conclusion

MaaS has become a widely discussed topic in the field of transportation and planning study and its effects are unknown. Thus, this study is an initial contribution to know about the preference of Dutch people (in context of short-distance trips) upon having a MaaS subscription plan as an alternative to status quo mobility options. The study started with an initial note of concerns and uncertainty around MaaS (reported in some studies including Harms et al. (2018), KiM. (2019b), and Waterstaat. (2019)). In the literature review, it is also discussed about organizations which are in the process of making MaaS service wide-scale operational like project Hely and MaaSifest project (in the Netherlands)

Nevertheless, with organizations gearing up to roll out MaaS services, it is necessary to know whether MaaS could contribute better for short-distance mobility as all trips within the residing city or short trips upon traveling to another city (of living). Given the unexplored decision, the research question was formulated as

***"What is the preference of Dutch people, regarding MaaS mobility package as a transportation alternative (to status-quo mobility pattern), for carrying out short-distance trips?"***

As a note, the geographical scope of research is only limited to the Netherlands and the findings should not be applied abroad without further studies. The remaining part of the section shall continue discussing the main findings from the study which is divided into two parts, i.e. Qualitative and Quantitative part.

### *6.1.1 Qualitative conclusion (based on experience during study)*

People expect a high level of service (like less delay) and convenience at a lower price (Giesecke et al. (2016)). Thus, to gather information about expectations, discussions were done with Dutch colleagues, friends followed by informal coffee interviews.

There is unanimously high expectation towards lower subscription price (than the status-quo). Along with the price, there are strong expectations for high service quality in terms of less waiting or access time. Nevertheless, the MaaS service shall not be a permanent mobility option for

regular use because there is neither sufficient infrastructure nor there is sufficient familiarity. For short-distance trips, Dutch people tend to have more trust over their private transportation and the study reveals it is a popular choice. People love their bikes ("bike fans") and are successfully able to take it everywhere. Similarly, some people love their car more ("car fans") because they already made a high investment in buying a car.

It is also comprehended by Dutch people who know about MaaS, believe that it might not work for everyone because the density of people living in the countryside, rural and sub-urban areas are low and might not ever have the availability of the infrastructure. Similar discussions are presented by the transport research institute of the Netherlands, i.e. KiM. (2019b) and further investigation was done from considerable feedbacks of survey which are discussed in section 6.1.2 of this chapter.

MaaS is labeled as 'service with appealing / tempting offers' and that factor tends to be more attractive for people. However, people are habituated with their status-quo mobility patterns. They wish not to change their habit. Lastly, owing to its projected scale of operation, there is a lack of trust looming around sustainability in service quality for the long term. Nevertheless, younger people though open-minded and enthusiastic, wish to try the new technology and new modes (like shared e-bike) at least once.

Lastly, it could be concluded that for sustaining the interest and participation of consumers, MaaS must provide better benefits than status-quo (Buttle et al. (2002)). Some of the insights regarding pessimism towards mobility package could also be inferred from the feedbacks received in survey and the same is discussed in following section.

### *6.1.2 Reasons for pessimism towards mobility package*

At the end of each choice, experiment feedback was collected towards people's comprehension regarding the MaaS mobility package for short trips. It is known that Dutch people like to do biking and it comes as no surprise that some of the repeated comments for package cynicism were

- *"I would not use it quickly, have my means of transport and do not give up"*
- *"Own bike first!"*

Many respondents being unaware of the potential of MaaS, declined for making any reference to the shared mobility service (in any choice tasks) owing to the level of service. The respondents apprehended MaaS service to be effective only in big cities and because they currently live in the countryside or suburbs, were skeptical to make any preference for it.

- *"I live in a small village"*
- *"As mentioned earlier, mobility packages only work when you live in a city. That is much more difficult in the countryside. If I have to go to a pick-up point in the morning for my work, for example on the outskirts of the village and that takes me fifteen minutes, it doesn't work."*

It is observed the respondents were tempted towards the MaaS service package, but pricing sometimes was a big disutility. There is potential that they could be drawn into the service by adjusting the price. Like providing discounts for riding in off-peak hours (FitzRoy, F., & Smith, I. (1999)) could increase the travel demand (might not be useful for those who are not tied to peak hours). Some of the feedback statements in this regard were

- *"Afford between <150 per month. Wish to be as low as 25 euros"*
- *"A combined mobility package would work well in the city (taxi / shared car). I would max. Want to pay EUR 350 per month".*
- *"I have a free public transport card. That is why I am willing to pay only 30 euros per month for this"*

For short trips, many of the respondents didn't see the need of buying any mobility package as they already have their private transportation (like car and bike). People prefer biking everywhere or use a private car when needed. Though they have already made a high investment on the car, so prefer to continue using it. Those who already have a lease car from the current company, prefer to continue to use that as-well. The feedbacks in this reference were

- *"Prefer own stuff"*
- *"No mobility package, I drive everything with my car".*
- *"I mainly want to use my bicycle and car"*
- *"Not much, I have a bicycle, like to walk and have free travel on public transport".*
- *"I am not willing to do that; I already lease a car"*

Nonetheless, people using lease cars from the company could be a potential customer and upon initiatives from the company like replacing the lease car with MaaS bundled packages (Ratilainen (2017)) could increase the demand for the MaaS market. Besides the 'detractors', many respondents supported using MaaS bundled package and appreciated the option of E-bike though they haven't used it before. Fascinated with new mobility modes like electric cars, some respondents also suggested for inclusion of E-cars in the package for making it more attractive.

Summarizing, there shall always be people who shall remain skeptical about the effectiveness of the new product before using (Wockatz et al. (2015)). Some shall also find no reason for using it, stated by some respondents.

- *"I don't want a package. I want to travel independently".*
- *"It does not apply to me and I don't think I need this for short trips."*

However, except for the "intransigent" attitude of people who hardly change, preferences could change over time by realizing the positive effect of the product (Bishai (2004)) or by demonstrating sufficient awareness towards the product (Simon et al. (1987)). Lastly, besides attitude subscription price is perceived to be the key element (based on the fact that it was mentioned in several feedbacks) in making a decision and MaaS could be seen as a 'Price worthy alternative' in comparison to others. An appropriate pricing strategy could further yield satisfactory results.

### *6.1.3 Quantitative conclusion*

Based upon information gained through literature review, quality of existing services (online), and further discussions with Dutch colleagues and friends, the attributes of the SP survey were finalized. The choice sets were generated by applying D-efficient design. Owing to fundamental differences between car and bike as a mode, it was decided to carry out different experiments, i.e. 2 choice experiments for trips within the city and 1 when trips are made further upon traveling to a different city. The survey was web-based for speedy collection of data and it was then analyzed by descriptive statistics and discrete choice model.

A considerate share of respondents was non-traders (or fixed preference). In the car experiment, the share of non-traders was approximately 41%, in bike experiment 64% and 50% for 3rd

experiment amongst which many were attributed to private transportation. Noteworthy, the share choices for the MaaS alternative is higher than the single mode shared mobility alternative, indicating higher relative potential and familiarity for MaaS. Nevertheless, the choices are primarily dependent upon the attributes in the choice task.

In a discrete choice experiment, all the main attributes were loaded onto the model with final data as an input for respondents, devoting more than 15 minutes in answering. First, the MNL as a base model was estimated. Thereupon, to show the nesting effect between MaaS and single mode shared mobility alternatives, the NL model is estimated. For taking into account the correlations across the choices ML model was estimated. Lastly, socio-demographics and attitudinal factors (applying factor extraction using Principal Axis Factoring with Varimax rotation) were added to the ML model.

The results on the attributes' influence on the choice were mostly consistent and of the expected sign. In all the three models, the subscription pricing, as well as time parameters (i.e. access/waiting time), have a negative coefficient indicating dislike towards higher mobility expenses or access/waiting time in the process of carrying out a short trip. It is also to be noted that for 2 added features in MaaS bundle (i.e rolling over of unused rides to next month and converting the rides), respondents have shown a higher preference towards rolling over feature though they don't have to rush towards using all the rides in the same month.

Appealing MaaS subscription package tend to attract Dutch people but people tend to not prefer some of the included rides like shared e-bike rides in car experiments and shared normal bikes in bike experiment. This does not mean that people dislike the MaaS package. It tends to be an unexpected result and could be due to habit (Matyas et al. (2019a)) as travel behavior is driven by pure repetition and habit rather than conscious deliberation.

Table 35 describes the distribution of socio-demographics on different MaaS packages after application of latent class model. For all the packages, it is observed that younger and mid-age people have a significant inclination towards using the MaaS mobility package. Similarly, findings have been reported by Ambrosino et al. (2016) because young people are the keenest on using mobility packages. Alternatively, the older people have shown a higher preference towards using private transportation to carry out short-distance trips. Nonetheless, it doesn't mean that old people don't have any preference towards it.

*Table 34 Probable conclusions for different MaaS packages*

| **Types of MaaS packages for trips within the city** | | **For Last mile trips in another city** |
|---|---|---|
| *Package type* | | |
| ***Ride-hailing (pooled) / Car sharing + Shared Ebike service*** | ***Shared Ebike + Shared normal bike*** | ***Shared Ebike + Shared normal bike*** |
| ***Features*** | | |
| Highly educated people (WO/HBO) | Highly educated people (WO/HBO) | Highly educated people (WO/HBO) |
| High or mid-level income (>20k per year) | Low-level income (< 20k per year) | Low-level income (<20k per year) |
| Higher trip frequency per month (>35 trips) | Lower trip frequency per month (<20 trips/month) | Higher trip frequency per month (>35 trips) |
| Young and mid age level | Young and mid age level | Young and mid age level |
| Open-minded, highly energetic, travel and tech- | Open-minded, highly energetic, travel and tech- | Open-minded, frugal, highly energetic, travel and tech- |

| Types of MaaS packages for trips within the city | | For Last mile trips in another city |
|---|---|---|
| *Package type* | | |
| ***Ride-hailing (pooled) / Car sharing + Shared Ebike service*** | ***Shared Ebike + Shared normal bike*** | ***Shared Ebike + Shared normal bike*** |
| loving people like to prefer MaaS mobility package | loving people like to prefer MaaS mobility package | loving people like to prefer MaaS mobility package |
| People living alone or with one / two member | People living with more than 2 members | - |
| Mostly private car owners (who are interested to do some of their trips with MaaS package) | Mostly don't own private bike | - |

Highly educated people are more inclined to use the MaaS package though being aware of the environment and traffic-related problems. However, there is a shift in preference (more towards private bike) when the MaaS package only constitutes shared bikes as the mode offered. The possible cause could be non-association of any major drawbacks (like bike do not harm the environment) for owning a bike and added personal bikes are easier to access and gives a sense of security.

People having a higher trip frequency with cars are more inclined to subscribe MaaS package and hence, replace some of their monthly private car trips. Similarly, in bike experiment, people with high trip frequency per month tend to find it convenient to use a private bike. However, for the fewer number of trips with bike (like less than 20 trips per month), it tends to be convenient using the MaaS subscription package.

Higher-income groups with car ownership tend to have an inclination towards MaaS package whereas lower-income groups are inclined towards the package with shared bike. Such discrepancies are reported in other studies including Ratilainen (2017). Similar discrepancies were observed with family as an attribute, thus no definite conclusion could be drawn. Furthermore, regarding the attitudinal factors, people who are open-minded, tech-loving, always compare products, enthusiastic, and love traveling have a positive contribution to the choice for MaaS mobility package. **This concludes the answer to the first and second research sub-question.**

Also, the estimated parameters are used to estimate the willingness to pay by people and analyze sensitivity. The study also, reveals that people are highly sensitive towards the subscription price and tend to have a higher willingness to pay towards reducing waiting or access time of shared vehicles in MaaS package. However, it needs to be pointed out that higher WTP does not necessarily support/indicate that the prices of MaaS subscription could be higher as it is a perceived value. **This concludes the answer to the third research sub-question.**

There is noticeable preference heterogeneity regarding the MaaS subscription package. The same is identified with the application of the LC model and 4 optimal classes with a different set of parameters are estimated. From the final data set, the LC model estimates a low share of the MaaS class, i.e. 35.50% for the car experiment data, 27.92% for bike experiment data and 22% for the Last mile experiment data. It further allows us to gain insight into the probable discrete preference profiles and people who are young and mid-aged people (<60 years), earning mid-level income (between 20,000 to 60,000 euros per year), residing with one or two family members and have high educational background (WO or HBO) have a high likelihood to be a MaaS subscriber. **This concludes answer to the fourth research sub-question**

From the study it could be determined that the share of MaaS for a larger population still remains low than other alternatives with people being highly sensitive to price and apparently higher willingness to pay. Thus, for MaaS to be popular, it shall take further time and familiarity to build upon the trust of people and bring about change in individual mobility preferences. The study concludes that there is a need for greater subsidy to MaaS initiatives (at the initial stage) to gain popularity. Overall, the study in the present scenario highlights that the share of the private transportation /maintaining status-quo in the context of short-distance trips is higher. **This concludes the answer to the main research question.**

## 6.2 Discussion

The study results have shed some light on the Dutch people's preference towards mobility packages for carrying out short-distance trips. It is observed that the overall respondents are not yet inclined in large numbers subscribing to monthly subscription because they are highly sensitive to price. Based on feedback, people are not ready to pay extra for the novelty of packages. Therefore, the package pricing should be cheaper in comparison to existing modes.

Moreover, Dutch people tend to be not much liberal in spending (Snijders, D., & van der Duin, P. (2017)) and the survey missed the factor of including discounts for the MaaS subscription package. Therefore, the possibility of discounts during peak or off-peak hours might make the MaaS service more appealing.

The study results could be interpreted in terms of habit and familiarity. Correspondingly, social influence plays an important role and Caiati et al. (2020) have suggested more willingness towards subscription upon hearing positive reviews from family and friends. The research tends to establish that young and mid-aged people are more interested in subscribing MaaS service. Therefore, the first Dutch target group could be the young and mid-aged working class and students, who could act as passive agents for spreading the word.

The study was carried out with limited scope to variability in the subscription package (refer figure 6). People residing alone or less than 2 family members are more interested in subscribing to the MaaS package. Therefore, package design for household (like one subscription being shared with other family members) could be implemented (as many a time the decision is household based).

Concerning to integrated package, Dutch people who expressed preference towards MaaS service viewed the usage of one mode as primary with less preference towards second mode (like in the car experiment there is less preference towards a higher proportion of shared Ebike). Moreover, the study suggests heterogeneity in an individual's preference, hence, the service provider should allow the subscriber to customize the share of each mode integration during the purchase (for a long-term positive experience). Additionally, there should be availability of offer to bigger and smaller packages (Esztergár-Kiss, D., & Kerényi, T. (2019)) to carry out short-distance trips to fulfill all user requirements.

There is a significant inclination towards MaaS package usage for a long-term basis. Thus, the package design should allow people rolling-over the balance of unused rides / amount to the subsequent month. Also, more research is required by including different modes like public transport usage for short-distance trips.

To sum, there is a higher preference of Dutch people towards MaaS service against a single-mode shared mobility package. Nonetheless, the aggregate preference remains high for the private

mode of transportation (for both primary/secondary choice). Dutch people have stated a feeling of 'cautious optimism' towards the future of MaaS mobility service. It might be valid or a misunderstanding (based on available data) as the available range of current packages are limited. In the survey, people might have stated their preference for a new mobility service but in reality that may not be. There is also little knowledge about designing a realistic package (Kamargianni, M., & Matyas, M. (2017)).

There are still gaps in the study of MaaS services and countries around the world (including The Netherlands) are largely in the pilot stage, exploring the impact of MaaS. There is a lack of data and there is a clear need for more envisioning due to increasing technical complexity and heterogeneity in character. In this reference, Sochor et al. (2018) have called for the implementation of operational, and tactical activities. The operational activities like sharing of MaaS data collected for all the cities to study behavior, new experiments, doing more campaign and making people familiar with the advantages of MaaS, and lastly the cost-benefit analysis towards improvement in roadway traffic. The tactical activities constitute informing the public regarding how efforts by MaaS practitioners are collectively contributing to the sustainable development of the transport system.

## 6.3 Limitations

Unlike any-other, this study has limitations which are discussed in pointwise manner

- The amount of literature available in the context of MaaS application as an alternative for short-distance trips is scarce, thus, a direct comparison amid the findings through the model and existing literature is hard to make.

- A study by (Bachand-Marleau et al. (2012)) concluded that time factors to be a vital factor in the making of the choice process. Nonetheless, the levels assigned for time factors were less than 10 minutes and the study didn't investigate the impact of further delay in getting access. This limits the applicability of the study.

- The choice model in the study predicts a lower share of MaaS alternative which is consistent in the conclusions of other MaaS studies. Nevertheless, the study doesn't include walking and using PT as a mode in the final survey, which could affect behavioral realism and even the accuracy of the model. Moreover, there is limited availability of data, which makes it impossible to check if this is an SP bias or the real market share and reflect the real preference.

- The study assumes a stable preference in the prediction of market share, but it is reasonable to expect a dynamic shift in the public's preference with the advent of technology development.

- The current study is limited to the Netherlands and the sample data was specifically collected from Dutch people. Thus, the conclusions drawn are only based upon the collected sample data.

- The attitudinal factors identified in this study were directly included in the final model as an extra variable. However, it is an old-fashioned technique and provides an indicative manner for studying the effect of the attitude. A sophisticated way (Vij, A., & Walker, J. L. (2016)) would be to construct an integrated choice and latent variable (ICLV) model.

Nonetheless, due to limitations in relevant knowledge and complex programming skills, ICLV technique was not applied.

- MaaS is a novel concept and it is wise to assume that majority of the population in the Netherlands could have less familiarity with it. However, the author through the help of an introductory video and descriptor texts in the final web-survey have put the effort into increasing the respondents' familiarity. Nevertheless, the extent of familiarity is unknown leading to chances of SP paradox.

## 6.4 Recommendations

First, the model parameters estimated could contribute to the existing gaps in the MaaS study and further provide meaningful information for MaaS providers and transport analysts. The findings from the research could be helpful to public agencies and policymakers for implementing effective policies for fostering acceptance towards MaaS mobility packages.

Discounts in mobility make it more appealing and tend to increase demand (FitzRoy, F., & Smith, I. (1999)). Nonetheless, the current study didn't include discounts which could further be done in the future as it could attract a larger variety of consumers.

It is revealed in studies like Alonso-González et al. (2020) that the largest potential to use the MaaS bundle package is young travelers with disposable income. However, the current study constitutes a higher proportion of respondent groups as old. This makes the data non-representative necessitating efficiency in data collection. Further, the data was not collected proportionately from all the provinces thus the study couldn't draw robust conclusions on the effect of geographical locations on the choice behavior.

The model parameters tend to reveal higher values of ASC, indicating several additional attributes that are missing from the model that could have improved the explanatory power. Thus, investigating those unobserved attributes are required to be done in the future.

The study included the idea of fixed subscription packages only for the survey. However, it is also recommended to carry out studies for looking into the extent of preference, sensitivity, and WTP for different bundling designs like Pay-as-you-go or design your package (flexible packages). Lastly, similar experiments are required to be collected around the globe to draw more insights and more data needs to be collected to make the data more representative.

## 6.5 Reflection for the study

The real challenge was that the survey was lengthy due to the inclusion of three types of choice experiments. The underlying intention was to collect more data and offer an added contribution to the research gap. This affected the survey layout and appearance (like background color) which might have further contributed negatively to the respondents' interest during filling the survey.

Due to lack of Dutch writing proficiency, much effort was devoted to translating the survey to Dutch language, but some grammatical mistakes remained (around 5 numbers) which caught the attention of some respondents. Lack of access to the statistical software package 'Latent Gold' added to the delay in the study. Initially, much of time was devoted towards developing complex programs for estimating latent class parameters but later it was decided to use latent

gold. However, the quality of results improved with the capability of generating 4 number of optimal classes than 2 and discounting on day-long simulation to some minutes.

The final ML model applied a parsimonious approach for accounting heterogeneity. Due to high simulation time, a shared error component was added to the model (following a normal distribution) rather than randomly varying each parameter. Lastly, different attributes levels of waiting time and access time to mode were not much different to each other in choice experiment.

The aforementioned issues might have an impact on the outcome of the analysis and thus in the estimated share of consumer preference. Therefore, the study needs adjustment in the application.

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# 8 Appendix

The appendix shows the snapshot of final survey presented to the respondents. The context and the choice tasks were randomly presented to the respondents but shown as a group in appendix.

TU Delft
Delft University of Technology

Movares
adviseurs & ingenieurs

**Bedankt dat u meewerkt aan dit onderzoek naar de mogelijke effecten van nieuwe vervoersdiensten voor korte afstanden in Nederland**

| | |
|---|---|
| **Doel van de enquête** | : Een reisonderzoek naar verplaatsingen binnen de stad en buiten de stad |
| **Beschrijving** | : Ongeveer een derde van alle gemaakte ritten zijn korte ritten (<10 km). Deze reizen hebben verschillende doeleinde, zoals: werk, studie , sport, enz. |
| **Tijdsduur** | : Ongeveer 8 minuten |
| **Apparaat** | : Maak gebruik van een laptop, PC of tablet (op een mobiele telefoon werkt het helaas niet). |
| **Enquêtesecties** | : De enquête heeft 2 verplichte secties en 1 optionele sectie<br>a. Verplicht autoscenario<br>b. Verplicht fietsscenario<br>c.Optioneel fietsscenario |

Let op!: Beantwoord elke vraag zorgvuldig, want sommige vragen hebben geen optie om terug te gaan naar de vorige vraag

**Introductie video**(https://youtu.be/WXzT2Wd8IcA)


Bekijk eerst de inleidende video voordat u begint. Als de video niet werkt, kunt u de volgende YouTube-link kopiëren en in aparte browser openen



Verplicht secties in enquête : Reizen in de stad waar u woont


Optioneel: Uitstapjes buiten de stad

## Op welke manier reist u binnen de stad? (u kunt meerdere opties selecteren)

| | Privé / lease auto | Deelauto | Taxi | Privé/lease fiets | Deelfiets | Scooter (privé en gedeeld) | Openbaar vervoer | Lopen | Anders of N/A |
|---|---|---|---|---|---|---|---|---|---|
| Werk / onderwijs (in de stad waar u woont) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Vrijetijdsbesteding (uit eten, film kijken) (in dezelfde stad als waar u woont) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Boodschappen doen (in de stad waar u woont) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Thuis -> ov-station (in de stad waar u woont) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wanneer u naar een andere stad in Nederland gaat (voor werk/onderwijs) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Als u naar een andere stad in Nederland gaat (voor de vrije tijd) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Als u naar een andere stad in Nederland gaat met het openbaar vervoer, op welke wijze legt u de laatste kilometer naar uw eindbestemming af. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

## Wat vindt u van het volgende? (geef per stelling uw mening)

| | |
|---|---|
| Ik ben bereid om nieuwe manieren van reizen uit te proberen (zoals elektrische fiets, autodelen, enz.) | |
| Ik wil graag meerdere vervoersmogelijkheden hebben voor een enkele reis | |
| Ik maak veel korte trips per dag en voel me niet moe | |
| Ik gebruik liever mijn eigen vervoersmiddel (auto of bike) dan dat ik een deel-vervoersmiddel gebruik | |
| Ik vind het interessant om nieuwe technologie uit te proberen nadat ik informatie heb gekregen van familie/vrienden, youtube, nieuws of andere media. | |
| Ik vergelijk altijd een product (op specificatie en prijs) met een alternatief product voordat ik een product of dienst koop (bijvoorbeeld: aankoop van een telefoon) | |
| Ik bespaar liever geld door middel van kortingen en aanbiedingen al kost het mij meer reistijd | |
| Ik maak gebruik van een app om mijn reis te plannen en/of reisinformatie te krijgen. | |
| Ik ben bereid om meer te betalen voor het verkrijgen van informatie over mijn reis. | |
| Ik steun initiatieven met betrekking tot nieuwe technologie voor het vinden van innovatieve oplossingen voor bereikbaarheidsproblemen(file) | |
| Ik rijd niet met mijn voertuig (fiets of auto) als ik moe ben, maar geef de voorkeur aan andere opties voor het maken van een reis. | |
| Ik wil graag meer bijdragen aan het verminderen van de congestie (files) in de stad waar ik woon. | |

In car experiment, all the contexts shown is grouped below

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 300km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen |  |
|---|---|---|---|---|---|---|
| Kosten per maand | 300 km | €51 | €50 | €101 | 10minuten | |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 200km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen |  |
|---|---|---|---|---|---|---|
| Kosten per maand | 200 km | €34 | €30 | €64 | 5minuten | |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

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| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen |  |
|---|---|---|---|---|---|---|
| Kosten per maand | 200 km | €34 | €50 | €84 | 10minuten | |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

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Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 200km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen |  |
|---|---|---|---|---|---|---|
| Kosten per maand | 200 km | €34 | €30 | €64 | 5minuten | |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 400km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen |  |
|---|---|---|---|---|---|---|
| Kosten per maand | 400 km | €68 | €30 | €98 | 5minuten | |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 300km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen |  |
|---|---|---|---|---|---|---|
| Kosten per maand | 300 km | €51 | €30 | €81 | 5minuten | |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 300km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen |  |
|---|---|---|---|---|---|---|
| Kosten per maand | 300 km | €51 | €50 | €101 | 5minuten | |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 300km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen |  |
|---|---|---|---|---|---|---|
| Kosten per maand | 300 km | €51 | €30 | €81 | 10minuten | |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
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| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen | |
|---|---|---|---|---|---|---|
| Kosten per maand | 300 km | €51 | €30 | €81 | 5minuten |  |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

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|---|---|---|---|---|---|---|
| Kosten per maand | 300 km | €51 | €50 | €101 | 5minuten |  |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 300km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen | |
|---|---|---|---|---|---|---|
| Kosten per maand | 300 km | €51 | €50 | €101 | 10minuten |  |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 400km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen | |
|---|---|---|---|---|---|---|
| Kosten per maand | 400 km | €68 | €30 | €98 | 5minuten |  |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 300km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen | |
|---|---|---|---|---|---|---|
| Kosten per maand | 300 km | €51 | €30 | €81 | 10minuten |  |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 400km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen | |
|---|---|---|---|---|---|---|
| Kosten per maand | 400 km | €68 | €50 | €118 | 5minuten |  |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 400km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen |  |
|---|---|---|---|---|---|---|
| Kosten per maand | 400 km | €68 | €30 | €98 | 10minuten | |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 400km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen |  |
|---|---|---|---|---|---|---|
| Kosten per maand | 400 km | €68 | €50 | €118 | 10minuten | |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 400km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen |  |
|---|---|---|---|---|---|---|
| Kosten per maand | 400 km | €68 | €50 | €118 | 10minuten | |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 400km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen |  |
|---|---|---|---|---|---|---|
| Kosten per maand | 400 km | €68 | €30 | €98 | 10minuten | |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

Denk aan uw ritten met uw eigen auto binnen de stad. Stelt u zich het volgende scenario voor:
(ook als u geen auto heeft, geef toch uw voorkeur)

Het rijden binnen de stad met uw eigen auto voor 400km kost u ongeveer (heeft u geen auto geef dan ook uw voorkeur aan)

| Beschrijving | Afstand (binnen de stad) | Brandstof | Parkeerkosten | Totale kosten | In de drukke stad tijd om te parkeren en naar u bestemming te lopen |  |
|---|---|---|---|---|---|---|
| Kosten per maand | 400 km | €68 | €50 | €118 | 5minuten | |

Stel nu dat u de volgende alternatieve opties krijgt voor het uitvoeren van de hierboven benoemde autoritten (binnen de stad), welke kiest u dan? (beschikbaarheid van het voertuig is gegarandeerd)

All the choice tasks for car experiment are shown below

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 65 | € 50 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 200 km | 120 km (60%) | 80 km (40%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 6 minuten | 3 minuten | 1 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand | |

Wat is uw eerste voorkeur?

- O Deelauto
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 40 | € 60 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 200 km | 140 km (70%) | 60 km (30%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 4 minuten | 3 minuten | 2 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Deelauto
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

Kies een reispakket

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 40 | € 60 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 200 km | 160 km (80%) | 40 km (20%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 8 minuten | 2 minuten | 3 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom) | |

Wat is uw eerste voorkeur?

- ○ Deelauto
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

Kies één reispakket

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 90 | € 50 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 200 km | 140 km (70%) | 60 km (30%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 4 minuten | 4 minuten | 2 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand | |

Wat is uw eerste voorkeur?

- ○ Deelauto
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 65 | € 40 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 200 km | 120 km (60%) | 80 km (40%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 8 minuten | 3 minuten | 2 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom) | |

Wat is uw eerste voorkeur?

- ○ DeelAuto
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 90 | € 40 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 200 km | 160 km (80%) | 40 km (20%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 6 minuten | 4 minuten | 2 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom) | |

Wat is uw eerste voorkeur?

- ○ Deelauto
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 35 | € 45 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 200 km | 140 km (70%) | 60 km (30%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 8 minuten | 4 minuten | 1 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand | |

Wat is uw eerste voorkeur?

- O Taxi
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 85 | € 55 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 200 km | 160 km (80%) | 40 km (20%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 6 minuten | 2 minuten | 3 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand | |

Wat is uw eerste voorkeur?

- O Taxi
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies een reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 60 | € 35 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 200 km | 140 km (70%) | 60 km (30%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 8 minuten | 3 minuten | 3 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Taxi
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 85 | € 55 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 200 km | 120 km (60%) | 80 km (40%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 6 minuten | 2 minuten | 1 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Taxi
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 35 | € 35 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 200 km | 120 km (60%) | 80 km (40%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 4 minuten | 2 minuten | 3 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Taxi
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 60 | € 45 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 200 km | 160 km (80%) | 40 km (20%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 4 minuten | 4 minuten | 1 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Taxi
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 95 | € 75 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 300 km | 180 km (60%) | 120 km (40%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 6 minuten | 3 minuten | 1 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand | |

Wat is uw eerste voorkeur?

- ○ Deelauto
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 70 | € 85 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 300 km | 210 km (70%) | 90 km (30%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 4 minuten | 3 minuten | 2 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand | |

Wat is uw eerste voorkeur?

- ○ Deelauto
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 120 | € 85 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 400 km | 280 km (70%) | 120 km (30%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 8 minuten | 3 minuten | 3 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- O Taxi
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 145 | € 105 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 400 km | 240 km (60%) | 160 km (40%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 6 minuten | 2 minuten | 1 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Taxi
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 95 | € 95 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 400 km | 280 km (70%) | 120 km (30%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 8 minuten | 4 minuten | 1 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- O Taxi
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 145 | € 105 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 400 km | 320 km (80%) | 80 km (20%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 6 minuten | 2 minuten | 3 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- O Taxi
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 95 | € 85 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 400 km | 240 km (60%) | 160 km (40%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 4 minuten | 2 minuten | 3 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Taxi
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 120 | € 95 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 400 km | 320 km (80%) | 80 km (20%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 4 minuten | 4 minuten | 1 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Taxi
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 70 | € 85 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 300 km | 240 km (80%) | 60 km (20%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 8 minuten | 2 minuten | 3 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom) | |

Wat is uw eerste voorkeur?

- ○ Deelauto
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 120 | € 75 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 300 km | 210 km (70%) | 90 km (30%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 4 minuten | 4 minuten | 2 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand | |

Wat is uw eerste voorkeur?

- ○ Deelauto
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 95 | € 65 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 300 km | 180 km (60%) | 120 km (40%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 8 minuten | 3 minuten | 2 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom) | |

Wat is uw eerste voorkeur?

- ○ Deelauto
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 120 | € 65 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 300 km | 240 km (80%) | 60 km (20%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 6 minuten | 2 minuten | 1 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom) | |

Wat is uw eerste voorkeur?

- ○ Deelauto
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 65 | € 70 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 300 km | 210 km (70%) | 90 km (30%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 8 minuten | 4 minuten | 1 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- O Taxi
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 115 | € 80 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 300 km | 240 km (80%) | 60 km (20%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 6 minuten | 2 minuten | 3 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- O Taxi
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 90 | € 60 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 300 km | 210 km (70%) | 90 km (30%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 8 minuten | 3 minuten | 3 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand | |

Wat is uw eerste voorkeur?

- ○ Taxi
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 115 | € 80 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 300 km | 180 km (60%) | 120 km (40%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 6 minuten | 2 minuten | 1 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Taxi
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 65 | € 60 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 300 km | 180 km (60%) | 120 km (40%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 4 minuten | 2 minuten | 3 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Taxi
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | TAXI (VIA EEN APP) | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 90 | € 70 (totaal incl. taxi en e-bike) | |
| VERVOERSMIDDEL | Taxi (app) | Taxi (app) | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 300 km | 240 km (80%) | 60 km (20%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 4 minuten | 1 minuten | 1 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Taxi
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 125 | € 100 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 400 km | 240 km (60%) | 160 km (40%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 6 minuten | 3 minuten | 1 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand | |

Wat is uw eerste voorkeur?

- ○ Deelauto
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 100 | € 110 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 400 km | 280 km (70%) | 120 km (30%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 4 minuten | 3 minuten | 2 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand | |

Wat is uw eerste voorkeur?

- ○ Deelauto
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 100 | € 110 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 400 km | 320 km (80%) | 60 km (20%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 8 minuten | 2 minuten | 3 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Deelauto
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 150 | € 100 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 400 km | 280 km (70%) | 120 km (30%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 4 minuten | 4 minuten | 2 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand | |

Wat is uw eerste voorkeur?

- O DeelAuto
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen auto
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 125 | € 90 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 400 km | 240 km (60%) | 160 km (40%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 8 minuten | 3 minuten | 2 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Deelauto
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | DEELAUTO | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 150 | € 90 (totaal incl. delen auto en e-bike) | |
| VERVOERSMIDDEL | Deelauto | Deelauto | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | 400 km | 320 km (80%) | 80 km (20%) *(20km = 1u)* |
| WACHT-/ TOEGANGSTIJD | 6 minuten | 4 minuten | 2 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Deelauto
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen auto
- ○ Geen van allen

Wat is uw tweede voorkeur?

| Deelauto | Combi-mobiliteitspakket | Ga door met het gebruik van uw eigen auto | Geen van allen |
|---|---|---|---|
| ○ | ○ | ○ | ○ |

Deze vraag heeft betrekking tot alle bovenstaande scenarios. Als de ritten (voertuigkilometers) in het pakket op zijn en u er meer nodig heeft, zou u meer ritten kopen?

| Ja, ik zal het bijvullen | Nee, ik zal het niet bijvullen | Niet van toepassing |
|---|---|---|
| ○ | ○ | ○ |

Wat vind u van de scenario's?

In bike experiment, all the contexts shown is grouped below

Denk aan uw (eigen) niet-elektrische fiets, waarmee u korte afstanden aflegt in de stad waar u woont en stelt u zich het mogelijke scenario voor.:
(ook als u geen (niet-elektrische) fiets heeft, geef toch uw voorkeur)

Voor het rijden van 200km / maand (of 20 uur (1u = 10km)), met uw eigen fiets om de ritten te maken binnen de stad waar u woont (elke enkele reis is minder dan 10km), besteedt u ongeveer

| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
|---|---|---|---|---|---|
| Kosten per maand | 200 km of 20uur | €300 | €60 per jaar | €18 |  |

Stel u krijgt de optie om al uw fietsritten te vervangen met een ander vervoersmiddel dan uw eigen fiets.

Wat kiest u dan? (beschikbaarheid van de fiets is gegarandeerd)

Denk aan uw (eigen) niet-elektrische fiets, waarmee u korte afstanden aflegt in de stad waar u woont en stelt u zich het mogelijke scenario voor.:
(ook als u geen (niet-elektrische) fiets heeft, geef toch uw voorkeur)

Voor het rijden van 100km / maand (of 10 uur (1u = 10km)), met uw eigen fiets om de ritten te maken binnen de stad waar u woont (elke enkele reis is minder dan 10km), besteedt u ongeveer

| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
|---|---|---|---|---|---|
| Kosten per maand | 100 km of 10uur | €400 | €60 per jaar | €22 |  |

Stel u krijgt de optie om al uw fietsritten te vervangen met een ander vervoersmiddel dan uw eigen fiets.

Wat kiest u dan? (beschikbaarheid van de fiets is gegarandeerd)

Denk aan uw (eigen) niet-elektrische fiets, waarmee u korte afstanden aflegt in de stad waar u woont en stelt u zich het mogelijke scenario voor.:
(ook als u geen (niet-elektrische) fiets heeft, geef toch uw voorkeur)

Voor het rijden van 100km / maand (of 10 uur (1u = 10km)), met uw eigen fiets om de ritten te maken binnen de stad waar u woont (elke enkele reis is minder dan 10km), besteedt u ongeveer

| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
|---|---|---|---|---|---|
| Kosten per maand | 100 km of 10uur | €400 | €100 per jaar | €25 |  |

Stel u krijgt de optie om al uw fietsritten te vervangen met een ander vervoersmiddel dan uw eigen fiets.

Wat kiest u dan? (beschikbaarheid van de fiets is gegarandeerd)

Denk aan uw (eigen) niet-elektrische fiets, waarmee u korte afstanden aflegt in de stad waar u woont en stelt u zich het mogelijke scenario voor.:
(ook als u geen (niet-elektrische) fiets heeft, geef toch uw voorkeur)

Voor het rijden van 100km / maand (of 10 uur (1u = 10km)), met uw eigen fiets om de ritten te maken binnen de stad waar u woont (elke enkele reis is minder dan 10km), besteedt u ongeveer

| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
|---|---|---|---|---|---|
| Kosten per maand | 100 km of 10uur | €300 | €100 per jaar | €21 |  |

Stel u krijgt de optie om al uw fietsritten te vervangen met een ander vervoersmiddel dan uw eigen fiets.

Wat kiest u dan? (beschikbaarheid van de fiets is gegarandeerd)

Denk aan uw (eigen) niet-elektrische fiets, waarmee u korte afstanden aflegt in de stad waar u woont en stelt u zich het mogelijke scenario voor.:
(ook als u geen (niet-elektrische) fiets heeft, geef toch uw voorkeur)

Voor het rijden van 100km / maand (of 10 uur (1u = 10km)), met uw eigen fiets om de ritten te maken binnen de stad waar u woont (elke enkele reis is minder dan 10km), besteedt u ongeveer

| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
|---|---|---|---|---|---|
| Kosten per maand | 100 km of 10uur | €300 | €100 per jaar | €21 |  |

Stel u krijgt de optie om al uw fietsritten te vervangen met een ander vervoersmiddel dan uw eigen fiets.

Wat kiest u dan? (beschikbaarheid van de fiets is gegarandeerd)

Denk aan uw (eigen) niet-elektrische fiets, waarmee u korte afstanden aflegt in de stad waar u woont en stelt u zich het mogelijke scenario voor.:
(ook als u geen (niet-elektrische) fiets heeft, geef toch uw voorkeur)

Voor het rijden van 100km / maand (of 10 uur (1u = 10km)), met uw eigen fiets om de ritten te maken binnen de stad waar u woont (elke enkele reis is minder dan 10km), besteedt u ongeveer

| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
|---|---|---|---|---|---|
| Kosten per maand | 100 km of 10uur | €400 | €100 per jaar | €25 |  |

Stel u krijgt de optie om al uw fietsritten te vervangen met een ander vervoersmiddel dan uw eigen fiets.

Wat kiest u dan? (beschikbaarheid van de fiets is gegarandeerd)

Denk aan uw (eigen) niet-elektrische fiets, waarmee u korte afstanden aflegt in de stad waar u woont en stelt u zich het mogelijke scenario voor.:
(ook als u geen (niet-elektrische) fiets heeft, geef toch uw voorkeur)

Voor het rijden van 100km / maand (of 10 uur (1u = 10km)), met uw eigen fiets om de ritten te maken binnen de stad waar u woont (elke enkele reis is minder dan 10km), besteedt u ongeveer

| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
|---|---|---|---|---|---|
| Kosten per maand | 100 km of 10uur | €300 | €100 per jaar | €21 |  |

Stel u krijgt de optie om al uw fietsritten te vervangen met een ander vervoersmiddel dan uw eigen fiets.

Wat kiest u dan? (beschikbaarheid van de fiets is gegarandeerd)

Denk aan uw (eigen) niet-elektrische fiets, waarmee u korte afstanden aflegt in de stad waar u woont en stelt u zich het mogelijke scenario voor.:
(ook als u geen (niet-elektrische) fiets heeft, geef toch uw voorkeur)

Voor het rijden van 100km / maand (of 10 uur (1u = 10km)), met uw eigen fiets om de ritten te maken binnen de stad waar u woont (elke enkele reis is minder dan 10km), besteedt u ongeveer

| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
|---|---|---|---|---|---|
| Kosten per maand | 100 km of 10uur | €400 | €60 per jaar | €21 |  |

Stel u krijgt de optie om al uw fietsritten te vervangen met een ander vervoersmiddel dan uw eigen fiets.

Wat kiest u dan? (beschikbaarheid van de fiets is gegarandeerd)

Denk aan uw (eigen) niet-elektrische fiets, waarmee u korte afstanden aflegt in de stad waar u woont en stelt u zich het mogelijke scenario voor.:
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Voor het rijden van 100km / maand (of 10 uur (1u = 10km)), met uw eigen fiets om de ritten te maken binnen de stad waar u woont (elke enkele reis is minder dan 10km), besteedt u ongeveer

| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
|---|---|---|---|---|---|
| Kosten per maand | 100 km of 10uur | €300 | €60 per jaar | €18 |  |

Stel u krijgt de optie om al uw fietsritten te vervangen met een ander vervoersmiddel dan uw eigen fiets.

Wat kiest u dan? (beschikbaarheid van de fiets is gegarandeerd)

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(ook als u geen (niet-elektrische) fiets heeft, geef toch uw voorkeur)

Voor het rijden van 300km / maand (of 30 uur (1u = 10km)), met uw eigen fiets om de ritten te maken binnen de stad waar u woont (elke enkele reis is minder dan 10km), besteedt u ongeveer

| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
|---|---|---|---|---|---|
| Kosten per maand | 300 km of 30uur | €400 | €60 per jaar | €22 |  |

Stel u krijgt de optie om al uw fietsritten te vervangen met een ander vervoersmiddel dan uw eigen fiets.

Wat kiest u dan? (beschikbaarheid van de fiets is gegarandeerd)

Denk aan uw (eigen) niet-elektrische fiets, waarmee u korte afstanden aflegt in de stad waar u woont en stelt u zich het mogelijke scenario voor.:
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Voor het rijden van 300km / maand (of 30 uur (1u = 10km)), met uw eigen fiets om de ritten te maken binnen de stad waar u woont (elke enkele reis is minder dan 10km), besteedt u ongeveer

| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
|---|---|---|---|---|---|
| Kosten per maand | 300 km of 30uur | €400 | €100 per jaar | €25 |  |

Stel u krijgt de optie om al uw fietsritten te vervangen met een ander vervoersmiddel dan uw eigen fiets.

Wat kiest u dan? (beschikbaarheid van de fiets is gegarandeerd)

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| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
|---|---|---|---|---|---|
| Kosten per maand | 300 km of 30uur | €300 | €60 per jaar | €18 |  |

Stel u krijgt de optie om al uw fietsritten te vervangen met een ander vervoersmiddel dan uw eigen fiets.

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| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
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| Kosten per maand | 300 km of 30uur | €300 | €100 per jaar | €21 |  |

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| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
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Voor het rijden van 200km / maand (of 20 uur (1u = 10km)), met uw eigen fiets om de ritten te maken binnen de stad waar u woont (elke enkele reis is minder dan 10km), besteedt u ongeveer

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| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
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| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
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| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
|---|---|---|---|---|---|
| Kosten per maand | 200 km of 20uur | €400 | €100 per jaar | €25 |  |

Stel u krijgt de optie om al uw fietsritten te vervangen met een ander vervoersmiddel dan uw eigen fiets.

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| Beschrijving | Afstand (binnen de stad) | Kosten van een niet-elektrische fiets (Nieuw fiets) | Accessoires, onderhoud en reparatie | Gemiddelde kosten/maand | |
|---|---|---|---|---|---|
| Kosten per maand | 200 km of 20uur | €400 | €60 per jaar | €22 |  |

Stel u krijgt de optie om al uw fietsritten te vervangen met een ander vervoersmiddel dan uw eigen fiets.

Wat kiest u dan? (beschikbaarheid van de fiets is gegarandeerd)

All the choice tasks for bike experiment are shown below

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 5 | € 8 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 5 uur (100 km) *(20km = 1u)* | 6 uur (60km) (60%) *(10km = 1u)* | 2 uur (40km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 5 minuten | 1 minuten | 1 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 10 | € 4 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 5 uur (100 km) *(20km = 1u)* | 6 uur (60km) (60%) *(10km = 1u)* | 2 uur (40km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 7 minuten | 5 minuten | 1 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 15 | € 8(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 5 uur (100 km) *(20km = 1u)* | 6 uur (60km) (60%) *(10km = 1u)* | 2 uur (40km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 5 minuten | 3 minuten | 1 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 5 | € 4(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 5 uur (100 km) *(20km = 1u)* | 5 uur (50km) (50%) *(10km = 1u)* | 2.5 uur (50km) (50%) *(20km = 1u)* |
| TOEGANGSTIJD | 7 minuten | 3 minuten | 5 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 10 | € 4 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 5 uur (100 km) *(20km = 1u)* | 6 uur (60km) (60%) *(10km = 1u)* | 2 uur (40km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 3 minuten | 5 minuten | 5 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 10 | € 6 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 5 uur (100 km) *(20km = 1u)* | 5 uur (50km) (50%) *(10km = 1u)* | 2.5 uur (50km) (50%) *(20km = 1u)* |
| TOEGANGSTIJD | 3 minuten | 1 minuten | 5 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 5 | € 6 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 5 uur (100 km) *(20km = 1u)* | 4 uur (40km) (40%) *(10km = 1u)* | 3 uur (60km) (60%) *(20km = 1u)* |
| TOEGANGSTIJD | 7 minuten | 5 minuten | 3 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 15 | € 8 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 5 uur (100 km) *(20km = 1u)* | 5 uur (50km) (50%) *(10km = 1u)* | 2.5 uur (50km) (50%) *(20km = 1u)* |
| TOEGANGSTIJD | 7 minuten | 1 minuten | 3 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 10 | € 6 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 5 uur (100 km) *(20km = 1u)* | 4 uur (40km) (40%) *(10km = 1u)* | 3 uur (60km) (60%) *(20km = 1u)* |
| TOEGANGSTIJD | 3 minuten | 3 minuten | 5 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Gedeelde E-bike
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen fiets
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 15 | € 4(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 10 uur (100 km) *(20km = 1u)* | 6 uur (60km) (60%) *(10km = 1u)* | 2 uur (40km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 5 minuten | 1 minuten | 5 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Gedeelde E-bike
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen fiets
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 15 | € 6 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 5 uur (100 km) *(20km = 1u)* | 4 uur (40km) (40%) *(10km = 1u)* | 3 uur (60km) (60%) *(20km = 1u)* |
| TOEGANGSTIJD | 5 minuten | 5 minuten | 3 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Gedeelde E-bike
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen fiets
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 5 | € 8(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 5 uur (100 km) *(20km = 1u)* | 4 uur (40km) (40%) *(10km = 1u)* | 3 uur (60km) (60%) *(20km = 1u)* |
| TOEGANGSTIJD | 3 minuten | 3 minuten | 3 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Gedeelde E-bike
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen fiets
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 15 | € 14 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 5 uur (200 km) *(20km = 1u)* | 12 uur (120km) (60%) *(10km = 1u)* | 4 uur (80km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 5 minuten | 1 minuten | 1 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 20 | € 10(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 10 uur (200 km) *(20km = 1u)* | 12 uur (120km) (60%) *(10km = 1u)* | 4 uur (80km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 7 minuten | 5 minuten | 1 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 20 | € 12(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 10 uur (200 km) *(20km = 1u)* | 8 uur (80km) (40%) *(10km = 1u)* | 6 uur (120km) (60%) *(20km = 1u)* |
| TOEGANGSTIJD | 3 minuten | 3 minuten | 5 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 25 | € 10(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 10 uur (200 km) *(20km = 1u)* | 12 uur (120km) (60%) *(10km = 1u)* | 4 uur (80km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 5 minuten | 1 minuten | 5 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 25 | € 12(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 10 uur (200 km) *(20km = 1u)* | 8 uur (80km) (40%) *(10km = 1u)* | 6 uur (120km) (60%) *(20km = 1u)* |
| TOEGANGSTIJD | 5 minuten | 5 minuten | 3 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

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**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 15 | € 14(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 10 uur (200 km) *(20km = 1u)* | 8 uur (80km) (40%) *(10km = 1u)* | 6 uur (120km) (60%) *(20km = 1u)* |
| TOEGANGSTIJD | 3 minuten | 3 minuten | 3 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 15 | € 12 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 10 uur (200 km) *(20km = 1u)* | 8 uur (80km) (40%) *(10km = 1u)* | 6 uur (120km) (60%) *(20km = 1u)* |
| TOEGANGSTIJD | 7 minuten | 5 minuten | 3 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 25 | € 14 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 10 uur (200 km) *(20km = 1u)* | 10 uur (100km) (40%) *(10km = 1u)* | 5 uur (100km) (60%) *(20km = 1u)* |
| TOEGANGSTIJD | 7 minuten | 1 minuten | 3 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 20 | € 10 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 10 uur (200 km) *(20km = 1u)* | 12 uur (120km) (60%) *(10km = 1u)* | 4 uur (80km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 3 minuten | 5 minuten | 1 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- O Gedeelde E-bike
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen fiets
- O Geen van allen

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**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 20 | € 12 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 10 uur (200 km) *(20km = 1u)* | 10 uur (100km) (50%) *(10km = 1u)* | 5 uur (100km) (50%) *(20km = 1u)* |
| TOEGANGSTIJD | 3 minuten | 1 minuten | 5 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- O Gedeelde E-bike
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen fiets
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 25 | € 14(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 10 uur (200 km) *(20km = 1u)* | 12 uur (120km) (60%) *(10km = 1u)* | 4 uur (80km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 5 minuten | 3 minuten | 1 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 15 | € 10(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 10 uur (200 km) *(20km = 1u)* | 10 uur (100km) (50%) *(10km = 1u)* | 5 uur (100km) (50%) *(20km = 1u)* |
| TOEGANGSTIJD | 7 minuten | 3 minuten | 5 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 35 | € 18(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 15 uur (300 km) *(20km = 1u)* | 12 uur (120km) (40%) *(10km = 1u)* | 9 uur (180km) (60%) *(20km = 1u)* |
| TOEGANGSTIJD | 5 minuten | 5 minuten | 3 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Gedeelde E-bike
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen fiets
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 25 | € 20(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 15 uur (300 km) *(20km = 1u)* | 12 uur (120km) (40%) *(10km = 1u)* | 9 uur (180km) (60%) *(20km = 1u)* |
| TOEGANGSTIJD | 3 minuten | 3 minuten | 3 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Gedeelde E-bike
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen fiets
- O Geen van allen

**Kies een reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 25 | € 20 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 15 uur (300 km) *(20km = 1u)* | 18 uur (180km) (60%) *(10km = 1u)* | 6 uur (120km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 5 minuten | 1 minuten | 1 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 30 | € 16 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 15 uur (300 km) *(20km = 1u)* | 18 uur (180km) (60%) *(10km = 1u)* | 6 uur (120km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 7 minuten | 5 minuten | 1 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 30 | € 18 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 15 uur (300 km) *(20km = 1u)* | 12 uur (120km) (40%) *(10km = 1u)* | 9 uur (180km) (60%) *(20km = 1u)* |
| TOEGANGSTIJD | 3 minuten | 3 minuten | 5 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 35 | € 16(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 15 uur (300 km) *(20km = 1u)* | 18 uur (180km) (60%) *(10km = 1u)* | 6 uur (120km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 5 minuten | 1 minuten | 5 minuten |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 35 | € 20(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 15 uur (300 km) *(20km = 1u)* | 18 uur (180km) (60%) *(10km = 1u)* | 6 uur (120km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 5 minuten | 3 minuten | 1 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 25 | € 16(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 15 uur (300 km) *(20km = 1u)* | 15 uur (150km) (50%) *(10km = 1u)* | 7.5 uur (150km) (50%) *(20km = 1u)* |
| TOEGANGSTIJD | 7 minuten | 3 minuten | 5 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 30 | € 16 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 15 uur (300 km) *(20km = 1u)* | 18 uur (180km) (60%) *(10km = 1u)* | 6 uur (120km) (40%) *(20km = 1u)* |
| TOEGANGSTIJD | 3 minuten | 5 minuten | 1 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- O Gedeelde E-bike
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen fiets
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 30 | € 18(gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 15 uur (300 km) *(20km = 1u)* | 15 uur (150km) (50%) *(10km = 1u)* | 7.5 uur (150km) (50%) *(20km = 1u)* |
| TOEGANGSTIJD | 3 minuten | 1 minuten | 5 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- O Gedeelde E-bike
- O Combi-mobiliteitspakket
- O Ga door met het gebruik van uw eigen fiets
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 25 | € 18 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 15 uur (300 km) *(20km = 1u)* | 12 uur (120km) (40%) *(10km = 1u)* | 9 uur (180km) (60%) *(20km = 1u)* |
| TOEGANGSTIJD | 7 minuten | 5 minuten | 3 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | € 35 | € 20 (gedeelde niet-elektrische bike en e-bike) | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde e-bike |
| MAANDELIJKSE RITTEN IN PAKKET | 15 uur (300 km) *(20km = 1u)* | 15 uur (150km) (50%) *(10km = 1u)* | 7.5 uur (150km) (50%) *(20km = 1u)* |
| TOEGANGSTIJD | 7 minuten | 1 minuten | 3 minuten |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde E-bike
- ○ Combi-mobiliteitspakket
- ○ Ga door met het gebruik van uw eigen fiets
- ○ Geen van allen

## Vragen met betrekking tot uw sociaal-demografische kenmerken (Selecteer het juiste antwoord)

Uw geslacht

Mannelijk ○ Vrouwelijk ○ Anders ○

Hoeveel personen (familieleden) blijven bij u?

1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ >6 ○ Blijf alleen ○

Uw hoogst genoten opleiding

WO ○ HBO ○ MBO ○ VMBO / LBO ○ HAVO / VWO ○ Anders ○

Hoeveel werk u?

Voltijd ○ Deeltijd ○ Ik werkt niet ○ Student ○

Netto-inkomsten per jaar (opmerking: 50k betekent 50 duizend)

Hoog inkomen (>60k euro / jaar) ○ | Medium (20k-60k euro/jaar) ○ | Laag (<20k euro / jaar) ○ | hier wil ik geen antwoord op geven ○

Wat zijn uw frequente reisdoelen (zoals werk, sport, onderwijs, winkelen, vrienden ontmoeten, film, diner etc.)? (Vermeld in het betreffende vakje)

Welk voertuig heeft u op dit moment? (meerdere antwoorden mogelijk)

Auto ☐ | Niet-elektrische fiets ☐ | Elektrische fiets ☐ | ik huur (soms / regelmatig) een voertuigen ☐ | Anders ☐

Totaal aantal reizen (zoals werk, winkelen, diner, etc.) **die u de afgelopen maand heeft gemaakt**

minder dan 5 ritten / maand ○ | 5-30 ritten / maand ○ | 30-55 ritten / maand ○ | >55 ritten / maand ○

Indien u in het bezit bent van een auto, dan is het totaal aantal ritten dat u **(vorige maand) binnen de stad heeft gemaakt**

minder dan 5 ritten / maand ○ | 5-20 ritten / maand ○ | 20-35 ritten / maand ○ | >35 ritten / maand ○ | ik reis niet met de auto ○

Indien u in het bezit bent van een fiets, dan is het totaal aantal ritten dat u **(vorige maand) in de stad heeft gemaakt**

ik reis niet met de fiets ○ | minder dan 5 ritten / maand ○ | 5-20 ritten / maand ○ | 20-35 ritten / maand ○ | >35 ritten / maand ○

Wat is uw tweede voorkeur?

Gedeelde E-bike ○ | Combi-mobiliteitspakket ○ | Ga door met het gebruik van uw eigen fiets ○ | Geen van allen ○

Deze vraag heeft betrekking tot alle bovenstaande scenarios. Als de ritten (voertuigkilometers) in het pakket op zijn en u er meer nodig heeft, zou u meer ritten kopen?

Ja, ik zal het bijvullen ○ | Nee, ik zal het niet bijvullen. ○ | weet ik niet ○

Wat vind u van de scenario's?

Geef ten slotte aan hoe uw ideale geïntegreerde mobiliteitspakket eruit zou zijn (wat verwacht u, welke diensten wilt u, wat zou u hiervoor bereid zijn te betalen in abonnementskosten per maand)

Heeft u nog opmerkingen of suggesties over de enquête? Vermeld het dan hieronder (uw opmerkingen zijn waardevol en dienen als input voor verdere verbetering).

Indien u in het bezit bent van een fiets, dan is het totaal aantal ritten dat u **(vorige maand) in de stad heeft gemaakt**

| ik reis niet met de fiets | minder dan 5 ritten / maand | 5-20 ritten / maand | 20-35 ritten / maand | >35 ritten / maand |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

In last mile experiment, all the contexts shown is grouped below (optional experiment)

Denk aan uw ritten van de afgelopen maand die u naar een andere stad (dan u woont) heeft gemaakt.
Stelt u zich het volgende scenario bij voor:

Het volgende scenario heeft te maken met de 'last mile' (laatste kilometer). U heeft geen toegang tot uw eigen vervoersmiddelen. Stel dat u naar een andere stad gaat om te werken of om iets anders te doen. U neemt het openbaar vervoer en komt aan op een treinstation of groot busstation in de buurt van de plek waar u werkt of naartoe gaat.

Op dit moment wordt vaak (door u) een deelfiets (niet elektrisch) of het lokale openbaar vervoer gebruikt om op de bestemming te komen.
Stel u moet 50 km reizen (per maand, heen en terugreis ), voor welk scenario kiest u?

| Beschrijving | Kosten | |
|---|---|---|
| Kosten / maand voor uw reizen in een andere stad | €10 |  |

Denk aan uw ritten van de afgelopen maand die u naar een andere stad (dan u woont) heeft gemaakt.
Stelt u zich het volgende scenario bij voor:

Het volgende scenario heeft te maken met de 'last mile' (laatste kilometer). U heeft geen toegang tot uw eigen vervoersmiddelen. Stel dat u naar een andere stad gaat om te werken of om iets anders te doen. U neemt het openbaar vervoer en komt aan op een treinstation of groot busstation in de buurt van de plek waar u werkt of naartoe gaat.

Op dit moment wordt vaak (door u) een deelfiets (niet elektrisch) of het lokale openbaar vervoer gebruikt om op de bestemming te komen.
Stel u moet 100 km reizen (per maand, heen en terugreis ), voor welk scenario kiest u?

| Beschrijving | Kosten | |
|---|---|---|
| Kosten / maand voor uw reizen in een andere stad | €40 |  |

Denk aan uw ritten van de afgelopen maand die u naar een andere stad (dan u woont) heeft gemaakt.
Stelt u zich het volgende scenario bij voor:

Het volgende scenario heeft te maken met de 'last mile' (laatste kilometer). U heeft geen toegang tot uw eigen vervoersmiddelen. Stel dat u naar een andere stad gaat om te werken of om iets anders te doen. U neemt het openbaar vervoer en komt aan op een treinstation of groot busstation in de buurt van de plek waar u werkt of naartoe gaat.

Op dit moment wordt vaak (door u) een deelfiets (niet elektrisch) of het lokale openbaar vervoer gebruikt om op de bestemming te komen.
Stel u moet 100 km reizen (per maand, heen en terugreis ), voor welk scenario kiest u?

| Beschrijving | Kosten | |
|---|---|---|
| Kosten / maand voor uw reizen in een andere stad | €25 |  |

Denk aan uw ritten van de afgelopen maand die u naar een andere stad (dan u woont) heeft gemaakt.
Stelt u zich het volgende scenario bij voor:

Het volgende scenario heeft te maken met de 'last mile' (laatste kilometer). U heeft geen toegang tot uw eigen vervoersmiddelen. Stel dat u naar een andere stad gaat om te werken of om iets anders te doen. U neemt het openbaar vervoer en komt aan op een treinstation of groot busstation in de buurt van de plek waar u werkt of naartoe gaat.

Op dit moment wordt vaak (door u) een deelfiets (niet elektrisch) of het lokale openbaar vervoer gebruikt om op de bestemming te komen.
Stel u moet 100 km reizen (per maand, heen en terugreis ), voor welk scenario kiest u?

| Beschrijving | Kosten | |
|---|---|---|
| Kosten / maand voor uw reizen in een andere stad | €10 |  |

Denk aan uw ritten van de afgelopen maand die u naar een andere stad (dan u woont) heeft gemaakt.
Stelt u zich het volgende scenario bij voor:

Het volgende scenario heeft te maken met de 'last mile' (laatste kilometer). U heeft geen toegang tot uw eigen vervoersmiddelen. Stel dat u naar een andere stad gaat om te werken of om iets anders te doen. U neemt het openbaar vervoer en komt aan op een treinstation of groot busstation in de buurt van de plek waar u werkt of naartoe gaat.

Op dit moment wordt vaak (door u) een deelfiets (niet elektrisch) of het lokale openbaar vervoer gebruikt om op de bestemming te komen.
Stel u moet 50 km reizen (per maand, heen en terugreis ), voor welk scenario kiest u?

| Beschrijving | Kosten | |
|---|---|---|
| Kosten / maand voor uw reizen in een andere stad | €10 |  |

Denk aan uw ritten van de afgelopen maand die u naar een andere stad (dan u woont) heeft gemaakt.
Stelt u zich het volgende scenario bij voor:

Het volgende scenario heeft te maken met de 'last mile' (laatste kilometer). U heeft geen toegang tot uw eigen vervoersmiddelen. Stel dat u naar een andere stad gaat om te werken of om iets anders te doen. U neemt het openbaar vervoer en komt aan op een treinstation of groot busstation in de buurt van de plek waar u werkt of naartoe gaat.

Op dit moment wordt vaak (door u) een deelfiets (niet elektrisch) of het lokale openbaar vervoer gebruikt om op de bestemming te komen.
Stel u moet 50 km reizen (per maand, heen en terugreis ), voor welk scenario kiest u?

| Beschrijving | Kosten | |
|---|---|---|
| Kosten / maand voor uw reizen in een andere stad | €40 |  |

Denk aan uw ritten van de afgelopen maand die u naar een andere stad (dan u woont) heeft gemaakt.
Stelt u zich het volgende scenario bij voor:

Het volgende scenario heeft te maken met de 'last mile' (laatste kilometer). U heeft geen toegang tot uw eigen vervoersmiddelen. Stel dat u naar een andere stad gaat om te werken of om iets anders te doen. U neemt het openbaar vervoer en komt aan op een treinstation of groot busstation in de buurt van de plek waar u werkt of naartoe gaat.

Op dit moment wordt vaak (door u) een deelfiets (niet elektrisch) of het lokale openbaar vervoer gebruikt om op de bestemming te komen.
Stel u moet 50 km reizen (per maand, heen en terugreis ), voor welk scenario kiest u?

| Beschrijving | Kosten | |
|---|---|---|
| Kosten / maand voor uw reizen in een andere stad | €25 |  |

Denk aan uw ritten van de afgelopen maand die u naar een andere stad (dan u woont) heeft gemaakt.
Stelt u zich het volgende scenario bij voor:

Het volgende scenario heeft te maken met de 'last mile' (laatste kilometer). U heeft geen toegang tot uw eigen vervoersmiddelen. Stel dat u naar een andere stad gaat om te werken of om iets anders te doen. U neemt het openbaar vervoer en komt aan op een treinstation of groot busstation in de buurt van de plek waar u werkt of naartoe gaat.

Op dit moment wordt vaak (door u) een deelfiets (niet elektrisch) of het lokale openbaar vervoer gebruikt om op de bestemming te komen.
Stel u moet 50 km reizen (per maand, heen en terugreis ), voor welk scenario kiest u?

| Beschrijving | Kosten | |
|---|---|---|
| Kosten / maand voor uw reizen in een andere stad | €40 |  |

Denk aan uw ritten van de afgelopen maand die u naar een andere stad (dan u woont) heeft gemaakt.
Stelt u zich het volgende scenario bij voor:

Het volgende scenario heeft te maken met de 'last mile' (laatste kilometer). U heeft geen toegang tot uw eigen vervoersmiddelen. Stel dat u naar een andere stad gaat om te werken of om iets anders te doen. U neemt het openbaar vervoer en komt aan op een treinstation of groot busstation in de buurt van de plek waar u werkt of naartoe gaat.

Op dit moment wordt vaak (door u) een deelfiets (niet elektrisch) of het lokale openbaar vervoer gebruikt om op de bestemming te komen.
Stel u moet 50 km reizen (per maand, heen en terugreis ), voor welk scenario kiest u?

| Beschrijving | Kosten | |
|---|---|---|
| Kosten / maand voor uw reizen in een andere stad | €25 |  |

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | **€ 20** | **€ 15 (gedeelde niet-elektrische bike en e-bike)** | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | Alle bovengenoemde reizen | (60% bovengenoemde reizen) *(10km = 1u)* | (40% bovengenoemde reizen) *(20km = 1u)* |
| TOEGANGSTIJD | 3 min | 3 min | 3 min |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde Ebike
- ○ Combi-mobiliteitspakket
- ○ Ik wil geen verandering en wil graag doorgaan met mijn bestaande mobiliteitspatroon
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | **€ 20** | **€ 10 (gedeelde niet-elektrische bike en e-bike)** | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | Alle bovengenoemde reizen | (60% bovengenoemde reizen) *(10km = 1u)* | (40% bovengenoemde reizen) *(20km = 1u)* |
| TOEGANGSTIJD | 3 min | 3 min | 5 min |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde Ebike
- ○ Combi-mobiliteitspakket
- ○ Ik wil geen verandering en wil graag doorgaan met mijn bestaande mobiliteitspatroon
- ○ Geen van allen

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | **€ 10** | **€ 5 (gedeelde niet-elektrische bike en e-bike)** | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | Alle bovengenoemde reizen | (60% bovengenoemde reizen) *(10km = 1u)* | (40% bovengenoemde reizen) *(20km = 1u)* |
| TOEGANGSTIJD | 7 min | 5 min | 1 min |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde Ebike
- ○ Combi-mobiliteitspakket
- ○ Ik wil geen verandering en wil graag doorgaan met mijn bestaande mobiliteitspatroon
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | **€ 15** | **€ 15 (gedeelde niet-elektrische bike en e-bike)** | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | Alle bovengenoemde reizen | (60% bovengenoemde reizen) *(10km = 1u)* | (40% bovengenoemde reizen) *(20km = 1u)* |
| TOEGANGSTIJD | 5 min | 1 min | 1 min |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde Ebike
- ○ Combi-mobiliteitspakket
- ○ Ik wil geen verandering en wil graag doorgaan met mijn bestaande mobiliteitspatroon
- ○ Geen van allen

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | **€ 20** | **€ 15 (gedeelde niet-elektrische bike en e-bike)** | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | Alle bovengenoemde reizen | (60% bovengenoemde reizen) *(10km = 1u)* | (40% bovengenoemde reizen) *(20km = 1u)* |
| TOEGANGSTIJD | 3 min | 3 min | 1 min |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde Ebike
- ○ Combi-mobiliteitspakket
- ○ Ik wil geen verandering en wil graag doorgaan met mijn bestaande mobiliteitspatroon
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | **€ 10** | **€ 10 (gedeelde niet-elektrische bike en e-bike)** | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | Alle bovengenoemde reizen | (60% bovengenoemde reizen) *(10km = 1u)* | (40% bovengenoemde reizen) *(20km = 1u)* |
| TOEGANGSTIJD | 7 min | 1 min | 5 min |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- ○ Gedeelde Ebike
- ○ Combi-mobiliteitspakket
- ○ Ik wil geen verandering en wil graag doorgaan met mijn bestaande mobiliteitspatroon
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
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| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | **€ 20** | **€ 5 (gedeelde niet-elektrische bike en e-bike)** | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | Alle bovengenoemde reizen | (60% bovengenoemde reizen) *(10km = 1u)* | (40% bovengenoemde reizen) *(20km = 1u)* |
| TOEGANGSTIJD | 3 min | 5 min | 3 min |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- ○ Gedeelde Ebike
- ○ Combi-mobiliteitspakket
- ○ Ik wil geen verandering en wil graag doorgaan met mijn bestaande mobiliteitspatroon
- ○ Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | **€ 15** | **€ 15 (gedeelde niet-elektrische bike en e-bike)** | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | Alle bovengenoemde reizen | (60% bovengenoemde reizen) *(10km = 1u)* | (40% bovengenoemde reizen) *(20km = 1u)* |
| TOEGANGSTIJD | 5 min | 3 min | 1 min |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

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- ○ Combi-mobiliteitspakket
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| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | **€ 15** | **€ 5(gedeelde niet-elektrische bike en e-bike)** | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | Alle bovengenoemde reizen | (60% bovengenoemde reizen) *(10km = 1u)* | (40% bovengenoemde reizen) *(20km = 1u)* |
| TOEGANGSTIJD | 5 min | 1 min | 5 min |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

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- O Ik wil geen verandering en wil graag doorgaan met mijn bestaande mobiliteitspatroon
- O Geen van allen

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(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | **€ 15** | **€ 10 (gedeelde niet-elektrische bike en e-bike)** | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | Alle bovengenoemde reizen | (60% bovengenoemde reizen) *(10km = 1u)* | (40% bovengenoemde reizen) *(20km = 1u)* |
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|---|---|---|---|
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| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | Alle bovengenoemde reizen | (60% bovengenoemde reizen) *(10km = 1u)* | (40% bovengenoemde reizen) *(20km = 1u)* |
| TOEGANGSTIJD | 7 min | 5 min | 3 min |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

- O Gedeelde Ebike
- O Combi-mobiliteitspakket
- O Ik wil geen verandering en wil graag doorgaan met mijn bestaande mobiliteitspatroon
- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | **€ 10** | **€ 10 (gedeelde niet-elektrische bike en e-bike)** | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | Alle bovengenoemde reizen | (60% bovengenoemde reizen) *(10km = 1u)* | (40% bovengenoemde reizen) *(20km = 1u)* |
| TOEGANGSTIJD | 7 min | 5 min | 3 min |
| EXTRA KENMERK | - | Meenemen van ongebruikte ritten naar de volgende maand. | |

Wat is uw eerste voorkeur?

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- O Geen van allen

**Kies een reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | **€ 15** | **€ 5 (gedeelde niet-elektrische bike en e-bike)** | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | Alle bovengenoemde reizen | (60% bovengenoemde reizen) *(10km = 1u)* | (40% bovengenoemde reizen) *(20km = 1u)* |
| TOEGANGSTIJD | 5 min | 1 min | 5 min |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Gedeelde Ebike
- O Combi-mobiliteitspakket
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- O Geen van allen

**Kies één reispakket**

Let op! De alternatieve reispakketten verschillen per scenario.
(Onder andere de kosten, wachttijden en vervoersmiddelen kunnen veranderen.)

| KENMERKEN | GEDEELDE E-BIKE | COMBI-MOBILITEITSPAKKET | |
|---|---|---|---|
| KOSTEN / MAAND | **€ 15** | **€10 (gedeelde niet-elektrische bike en e-bike)** | |
| VERVOERSMIDDEL | Gedeelde Ebike | Gedeelde niet-elektrische fiets | Gedeelde ebike |
| MAANDELIJKSE RITTEN IN PAKKET | Alle bovengenoemde reizen | (60% bovengenoemde reizen) *(10km = 1u)* | (40% bovengenoemde reizen) *(20km = 1u)* |
| TOEGANGSTIJD | 5 min | 1 min | 5 min |
| EXTRA KENMERK | - | Overgebleven ritten kunnen worden omgezet. 10km fietsritten = 5 km autoritten (en andersom). | |

Wat is uw eerste voorkeur?

- O Gedeelde Ebike
- O Combi-mobiliteitspakket
- O Ik wil geen verandering en wil graag doorgaan met mijn bestaande mobiliteitspatroon
- O Geen van allen

Wat is uw tweede voorkeur?

| Gedeelde E-bike | Combi-mobiliteitspakket | Ik wil geen verandering en wil graag doorgaan met mijn bestaande mobiliteitspatroon | Geen van allen |
|---|---|---|---|
| ○ | ○ | ○ | ○ |