MOBILITY IN KEHLEN

Travel survey results

INTRODUCTION

Reduce **environmental** impacts

Improving road **safety**

Guarantee **accessibility** to all road users

The MobiLab Transport Research Group at the University of Luxembourg joined forces with the Municipality of Kehlen and the Automobile Club Luxembourg to assist and support the creation of a comprehensive **Sustainable Urban Mobility Plan (SUMP)** for the municipality. As part of this process, citizens' engagement is key, and a fundamental first step is to have a clear picture of the current transport and mobility offers in the commune and collect the opinion from its main stakeholders, more importantly its residents.

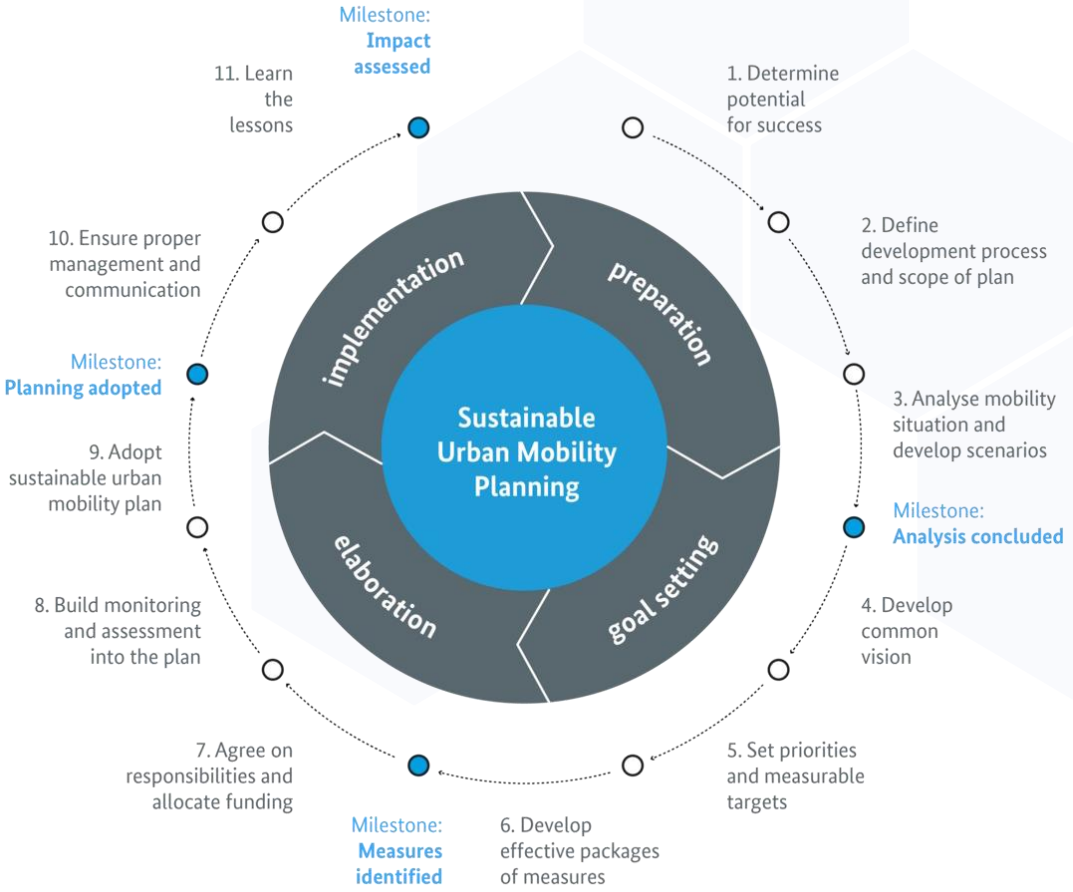
With this document we would like to present you with a collection of **fact sheets** summarizing the main findings and observations obtained by analyzing the data collected from the **travel survey** campaign organized and implemented in January 2023.

The main goal of the travel survey was to analyze household characteristics, travel behavior and mobility attitudes of the residents of the municipality of Kehlen, and their positioning in terms of **current and future new mobility services** and planning and management solutions.

We wanted to collect as many answers as possible in order to develop a **tailor-made analysis and diagnosis** for the municipality.

Next, we will develop **simulations** and scenarios to identify the most interesting solutions, taking into account the impact of future demographic or technological changes, and find concrete **solutions** to be put in place in Kehlen and improve the quality of life.

WHAT IS A SUMP?



The development of travel surveys, the creation and testing of mobility services via pilots and solution analyses are part of the **Sustainable Urban Mobility Plan** process, which is a new way of guiding infrastructure planning and management investments with the fundamental principle of keeping the stakeholders in the center of the process.

This is a **strategic plan** designed to satisfy the mobility needs of people and businesses in cities and their surroundings for a better **quality of life**. The key aims and potential gains of this plan are several and relate to different sustainability aspects:

- Improving safety and security
- Reducing air and noise pollution, greenhouse gas emissions, and energy consumption
- Improving the efficiency and cost-effectiveness of the transportation of persons and goods
- Contributing to enhancing the attractiveness and quality of the urban environment and urban design

Source: https://www.eltis.org/mobility-plans/sump-concept

Source: STATEC, 2023

THE CONTEXT

Kehlen municipality is situated in western Luxembourg, within a region in strong development and growth thanks to its proximity to the capital city and different municipalities offering attractive services (e.g. shopping centers, train stations, hospitals).

Towns within the commune are:

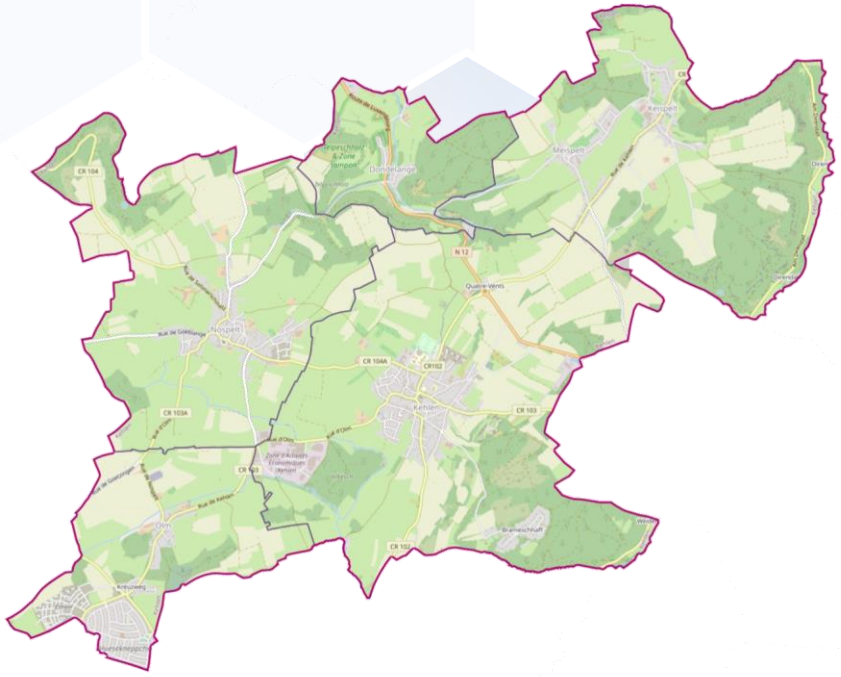
Kehlen, Dondelange, **Keispelt**, **Meispelt**, **Nospelt,** & **Olm**

The analysis concerns these towns, which are relatively **different** in terms of population and how they are connected to the road and public transport network. In addition, a new area to be constructed in **Elmen**, will soon increase the population, and has an objective to decrease the utilization of private cars by offering houses at affordable prices but with no opportunity to have private parking and with limited on-street parking.

The attraction generated by Kehlen is related to employment more than to the available services. In 2011, about **900 people were employed** in the commune, of which less than a third is residents. An important factor is the **activity zone** which attracts people from neighbouring areas and generates heavy truck traffic.

645 397 hab
250 hab/km²
2 590 km²
+ 1.29%

6 183 hab
219.4 hab/km²
28.18 km²
+ 1.9%



PRE-ANALYSIS

In April 2022, a first consultation with a participative **workshop** where selected voluntary citizens representing different stakeholder groups gave a first impression of the situations and issues, and the current transport offers and services were analyzed and presented.

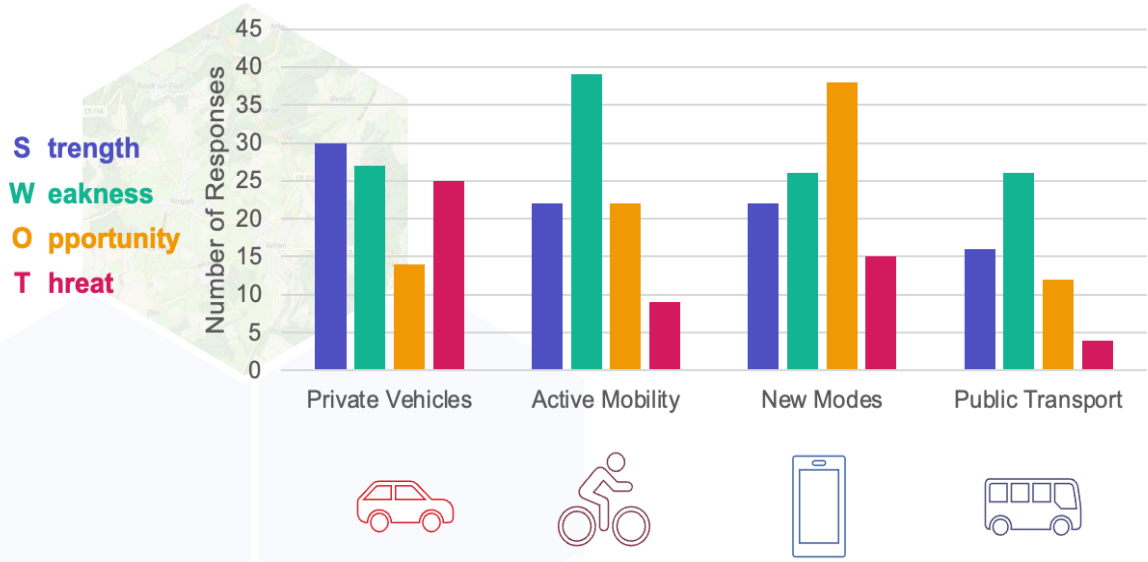
The purpose was to **guide** participants in an interactive discussion. Residents **actively** engaged, providing their thoughts, indicating characteristics and concerns towards each mode.

A SWOT (**Strength** **Weakness** **Opportunity** **Threat**) was discussed for individual modes:

- **Private vehicles**
- **Active Mobility**
- **New modes**
- **Public Transport**

Overall, the number of arguments of each category for the four modes reflects the attitude towards them.

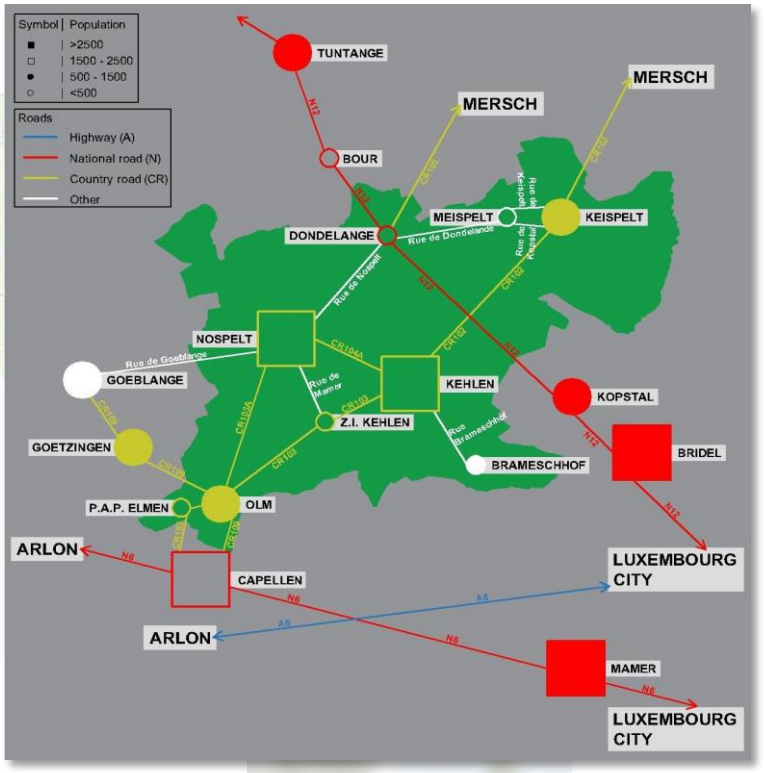
As result of this first step, a fact sheet has been shared with the citizens with an invitation to participate to the **travel survey**.



PRE-ANALYSIS: HIGHLIGHTS

Ensuring **safety** is of a main concern for the citizens that participated to the workshop. Narrow sidewalks, high-speed traffic, and the potential for electric bike theft are **significant risks** to both pedestrians and cyclists. Comfort for motorists was also considered important, and **lack of public transport connections** to major hubs exacerbates the perception of low accessibility and quality of the available transport services. While the city's mobility services such as the on-demand buses are appreciated, they are found underused, indicating a need for improved accessibility and promotion to these alternative solutions.

Shared mobility is seen as a potential solution for the municipality, with a desire for a localized service to promote sustainable transportation that meets the needs of the diverse community. Enhancements to the bus infrastructure, such as the **inclusion of comfortable** and **weather-protected stops**, could encourage greater public transport ridership. However, the transition to greener and more sustainable transportation must be approached with caution, as new modes need to be **thoroughly evaluated** and properly implemented to capitalize on the opportunities available.



Conclusions: Overall, the municipality must **prioritize safety** and **sustainability** while catering to the needs of both pedestrians and motorists. Private vehicles are convenient but pose significant **environmental challenges**, while public transport and soft modes face numerous obstacles that must be overcome to achieve a more sustainable future.

TRAVEL SURVEY

The **travel survey** has been designed by the Mobilab team of the University of Luxembourg in collaboration with Kehlen municipality and ACL and implemented using Google Survey.

The survey was launched and remained open from 15/1/2023 to 6/02/2023 and offered in 4 difference languages: Luxembourgish, French, German and English the most spoken in the territory. Despite the survey was run just after the Christmas holidays and for only three weeks, it successfully received **501 valid responses**, indicating a strong will from the citizen to share their opinions on such an important societal challenge.

The following analysis is divided in the following sections:

- Context
- Pre-analysis
- Statistical outline
- Mobility pattern
- Mobility attitudes
- New mobility systems
- Open questions: citizens' suggestions

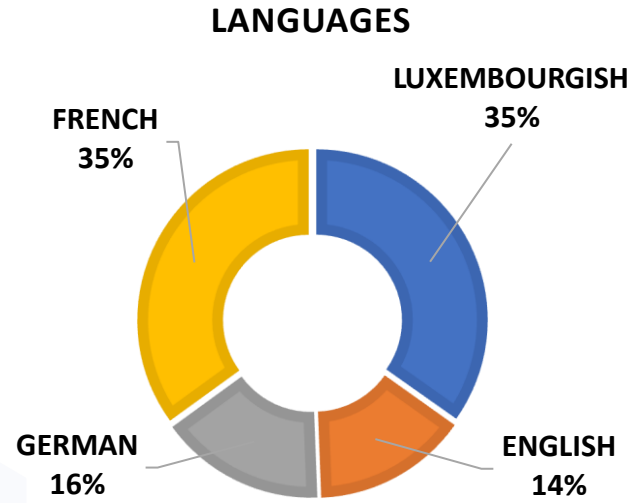
GENERAL STATISTICS

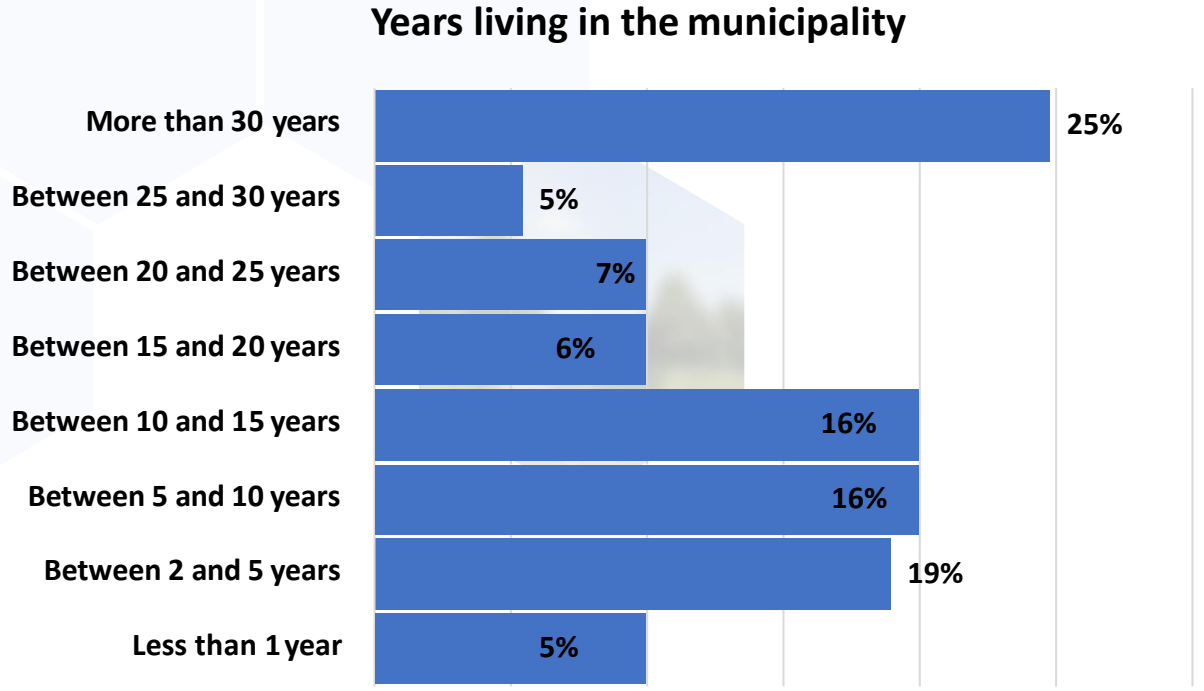
Nearly 70% of the respondents filled the survey in **French** and **Luxembourgish languages**, with an equal share The remaining 30% in German and English, also with an equal share.

The gender distribution is almost equal among interviewees and in line with the national statistics (45% female, 55% male)

25% of participants have been living in Kehlen for more than 30 years, and another 25% is a new generation living less than 10 years in Kehlen municipality, indicating the dynamism of this municipality.

In terms of **geographical distribution** 40% of interviewees are based in Kehlen. Around 14 to 20% in Olm, Keispelt, and Nospelt respectively with the remaining responses coming from Meispelt and Dondelange. Only 1% of interviewees are from outside of the municipality.





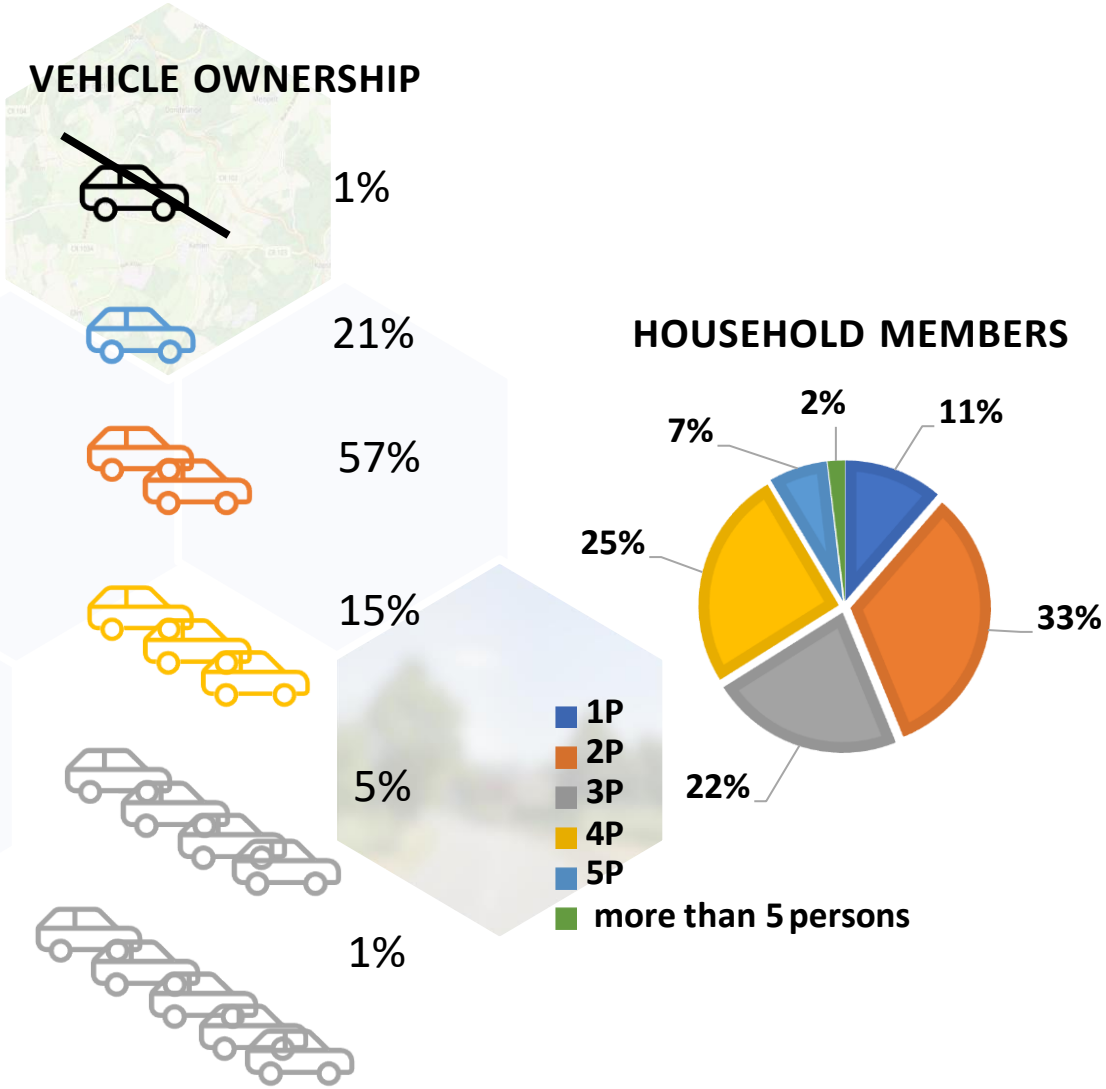
HOUSEHOLD STATISTICS

This section of the survey aims to present the **socio–economic characteristics** of respondent's household composition.

From the nearly 500 surveyed households in Kehlen 45% of households have less than 3 **household members**. With 32% being a 2-member household and the remaining 12% live alone.

More than half of families have two **vehicles** in their household. With 21% of households owning 3 vehicles or more and another 21% owning only a single vehicle.

Nearly 33% of the households have an **income** between 3501 and 8000 euros per month and an equal share declares more than 8001 euros per month, whereas only 5% claim having an income of less than 3500 euros per month.



HOUSEHOLD CHARACTERISTICS

11% of households

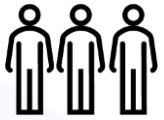
The split between female and male for 1 person households is close to 50%.

100% of people have a driving licence and more then 95% have access to a car at all times.

The average owns a single car with 18% owning 2 or more.

33% of households

Two-member families have an equal split between both genders. Nearly 90% of the time, both persons own a driving licence, which explains why more than 60% of households have at least two cars in their possession, with only 21% owning one car or less.



22% of households

Three member families have a slightly lower share of 46% of female members.

At least one member has a driving licence, with 80% of households having a second and 35% having a third driving licence.

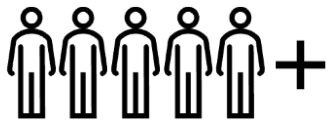
58% own two vehicles and 27% more than 2. The remaining 15% of households own a car.

25% of households

The gender ratio for 4 is with slightly more males, similar to the 3 member households.

On average 95% of households have at least 2 driving licences, only 15% of households have a 3rd or 4th person with a driving licence.

More than 70% have 3 or more vehicles, 20% having 2 and 10% have a single vehicle.



9% of households

5+ member households also have a slightly higher male to female ratio.

95% have at least two members of the household with a driving licence. The likelihood of one family member having a driving licence is below 25%.

More than 70% have 3 or more vehicles, with 30% of households having two or less.

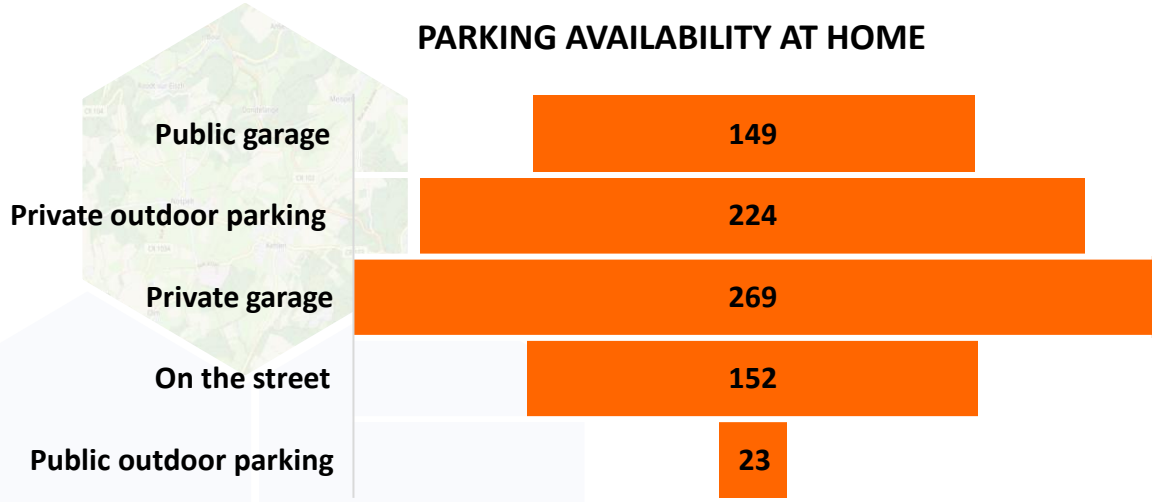
MOBILITY: PARKING

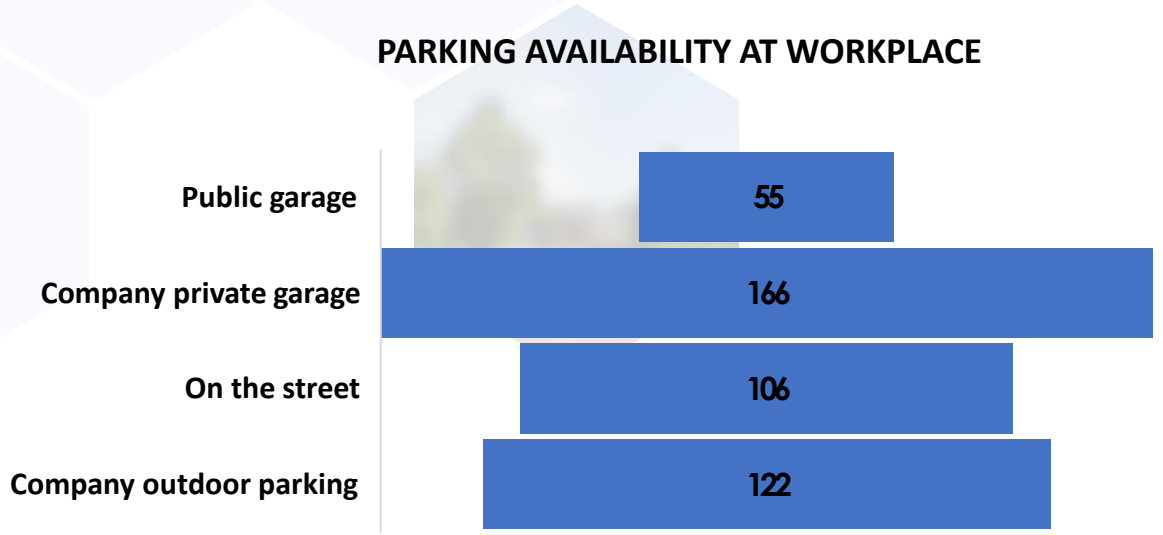
In the survey **parking availability** at home and work were further asked to the participants.

More than 50% of the respondents claimed to have both **private outdoor parking** and a **garage** at their home, while less than 20% has access to a public garage along with another 20% that states to be able to park on the street.

The parking availability at work among interviewees is covered for 37% of the respondents by the company with a private garage.

Parking on the street and company outdoor parking are options used more than 20% of the times by survey participants.





MOBILITY: TRIPS

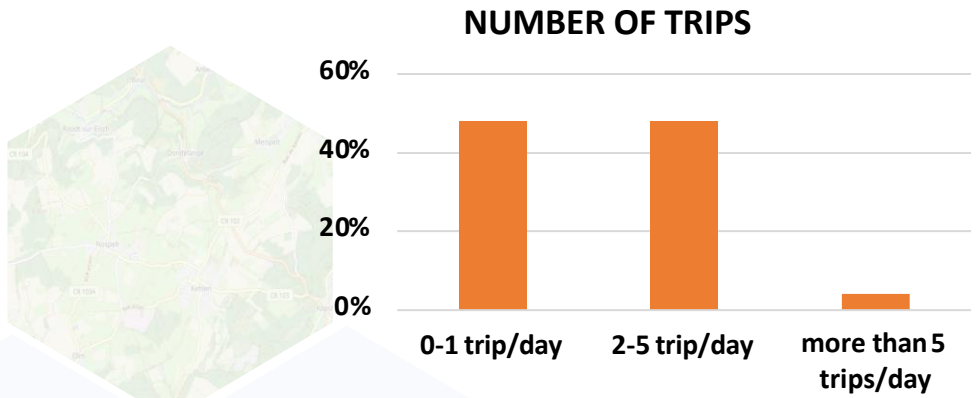
We collected information about about habitual daily trips, travelled distances and frequent destinations to get a general overview of the mobility pattern of Kehlen residents.

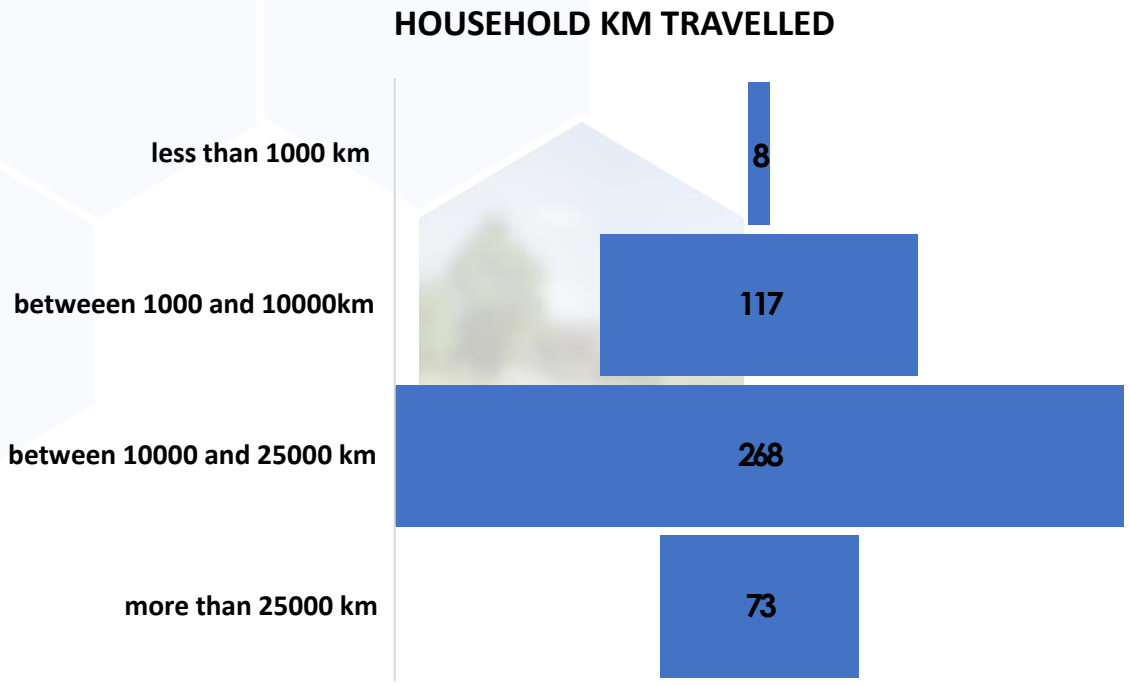
The number of **daily trips** within Kehlen lies on average between 0 and 5 with less than 5% making more than 5 trips per day.

The peak **departure time** of respondents for commuting ranges from 7h00 to 7h45 whereas the peak **arrival time at destination** lies between 7h45 and 8h45.

On average the respondents commute for around 40 minutes to reach their job locations.

The majority of households have yearly **travelling distances done by car** averaging between 1 000 and 10 000 km or 10 000 and 25 000 km per year with only very few having less than 1000 km travelled per year.



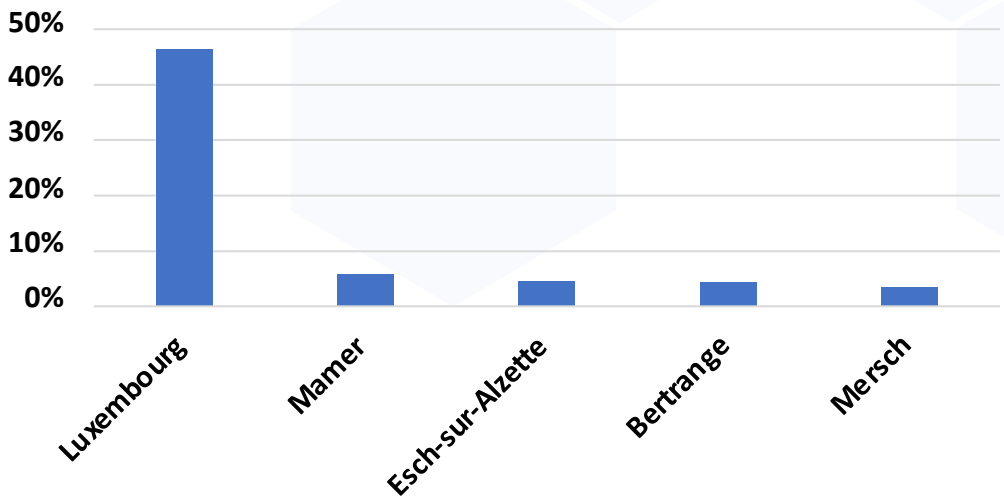


MOBILITY: COMMUTING

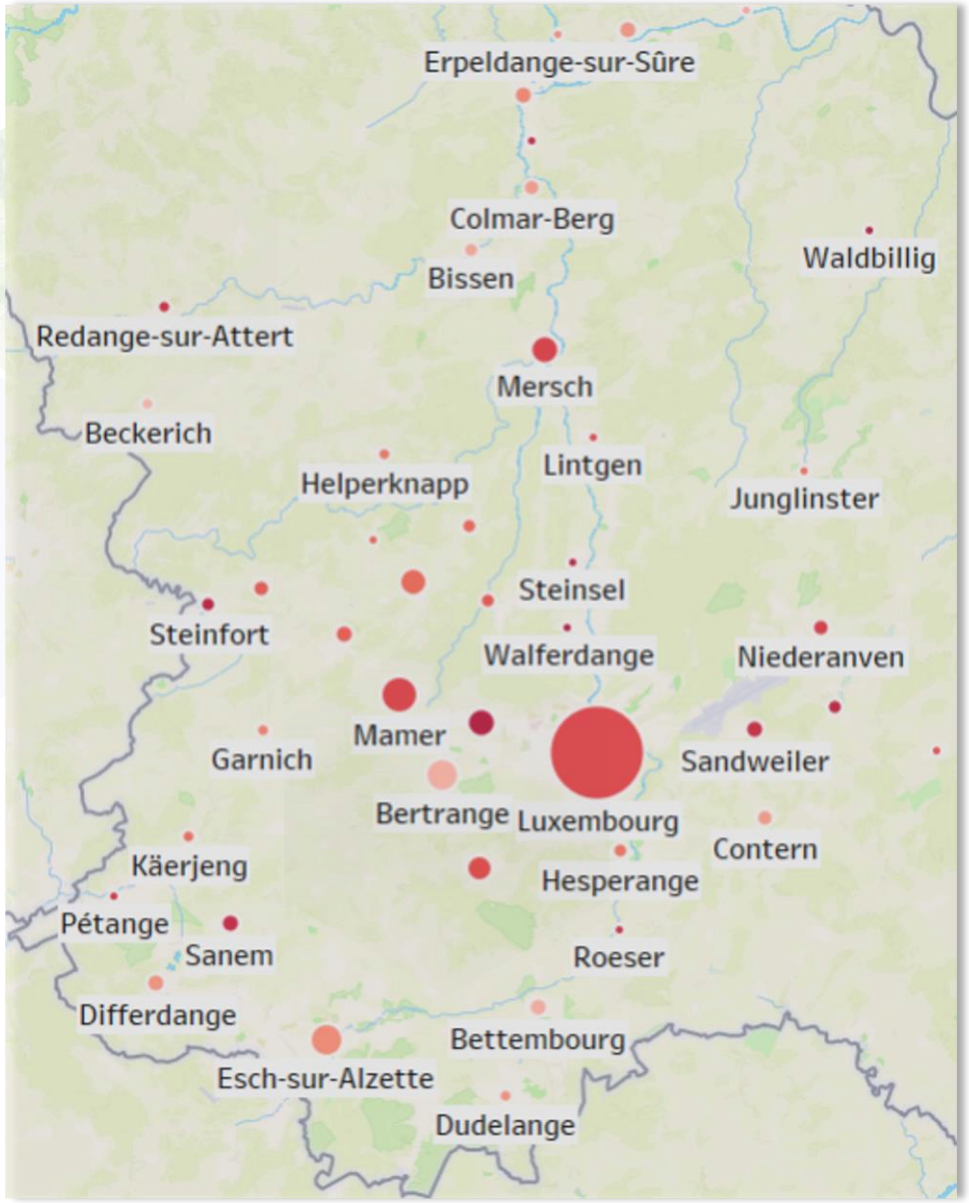
The **most frequent destination** for commuting of interviewees is **Luxembourg City** with over 45%.

Mamer, Esch-sur-Alzette, Bertrange and Mersch are the other most important destinations.

5 most frequent destinations for commuting (437 users)



COMMUTING DESTINATIONS



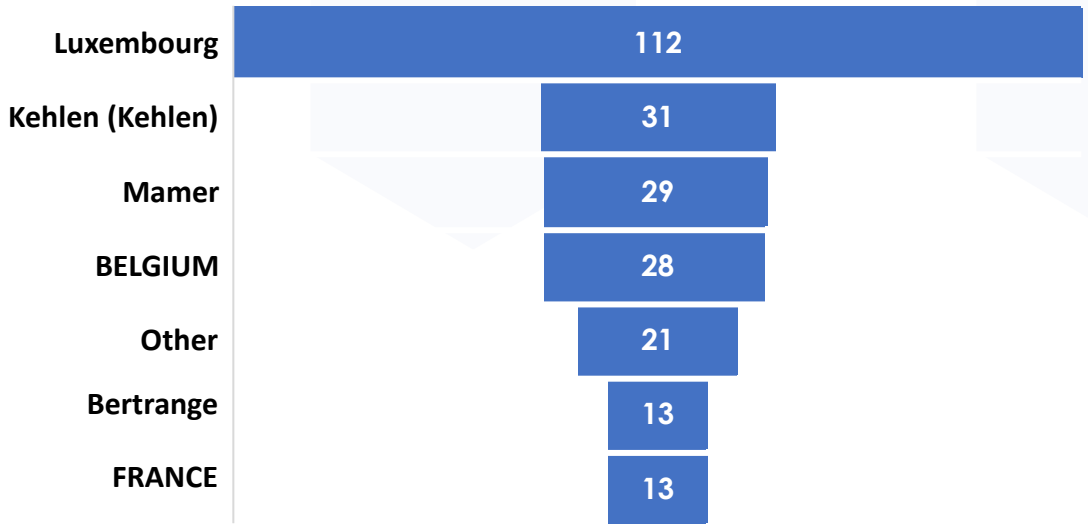
MOBILITY: OTHER ACTIVITES

The most frequent destinations for shopping and leisure activities were also asked to the participants.

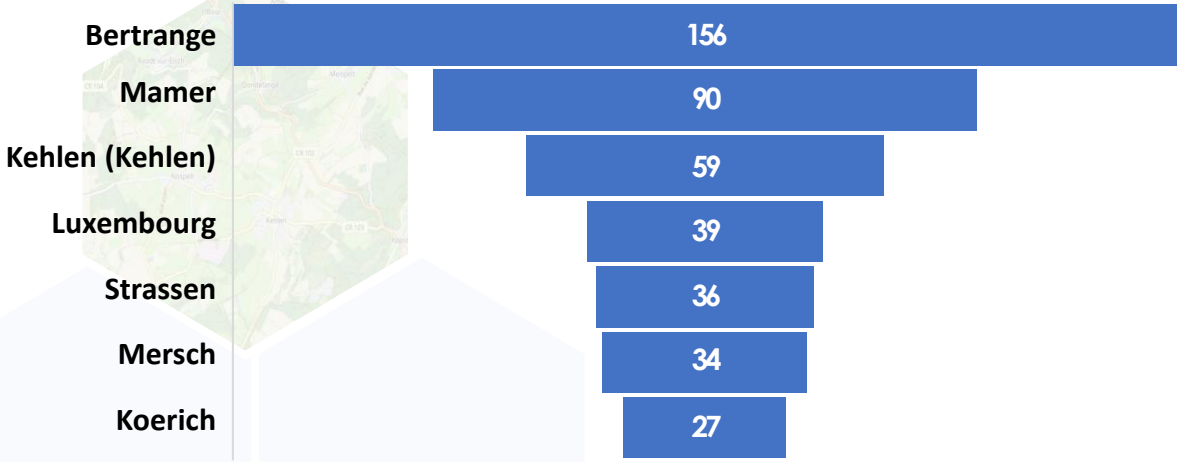
The most popular **shopping** destination is **Bertrange** followed by Mamer, Kehlen and Luxembourg City.

Luxembourg City is the first destination for **leisure** and other activities such as visiting friends and family. The second main destinations is Kehlen follows by Keispelt and Nosplelt.

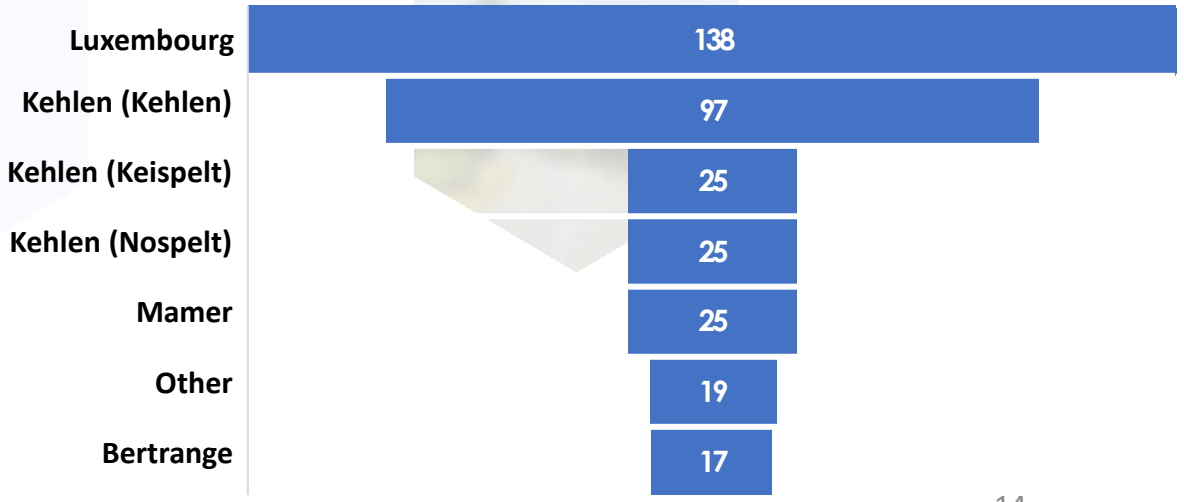
Most frequent destination for other activities (e.g. visiting friends/relatives)



MOST FREQUENT DESTINATIONS FOR SHOPPING



MOST FREQUENT DESTINATIONS FOR LEISURE



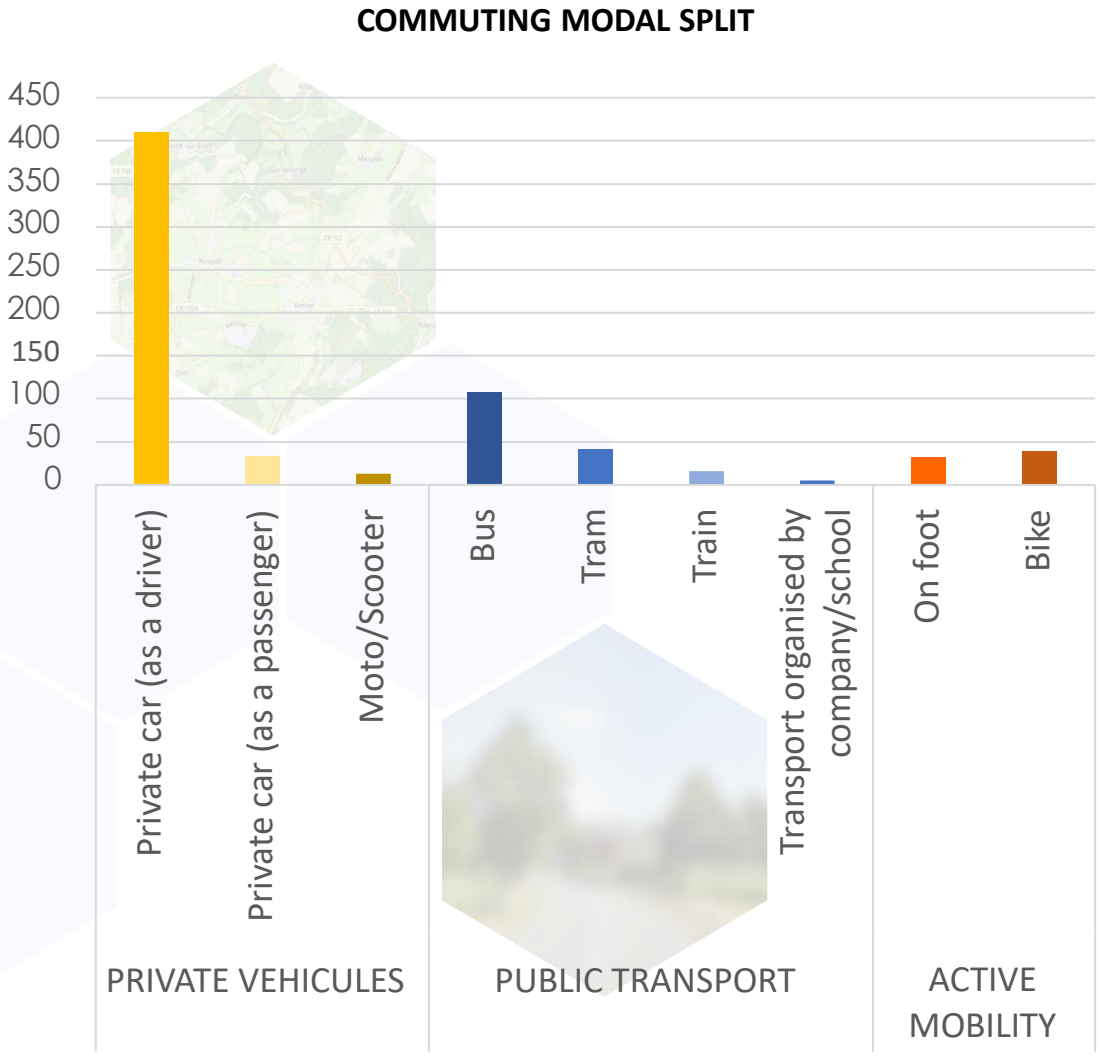
MODE CHOICES

To the interviewees it was asked about their typical commuting daily mode choice, the frequency of the mode usage as well as the reasoning for their choices.

Commuters mainly **prefer the car** to reach their destination (62%) as main mode (the one used to cover the longest part of the journey), whereas just 22% of commuters use the bus or the tram and no more than 6% of use for the remaining modes of transport.

Similar trends occur for the usage frequency regardless the main mode of transport with 80% of interviews driving their own car and 15% taking the bus being general the most **frequently used modes.**

Other modes such as bike, tram, train, motorbike and on foot are unfortunately struggling to reach the 5% share.



TRAVEL PREFERENCES

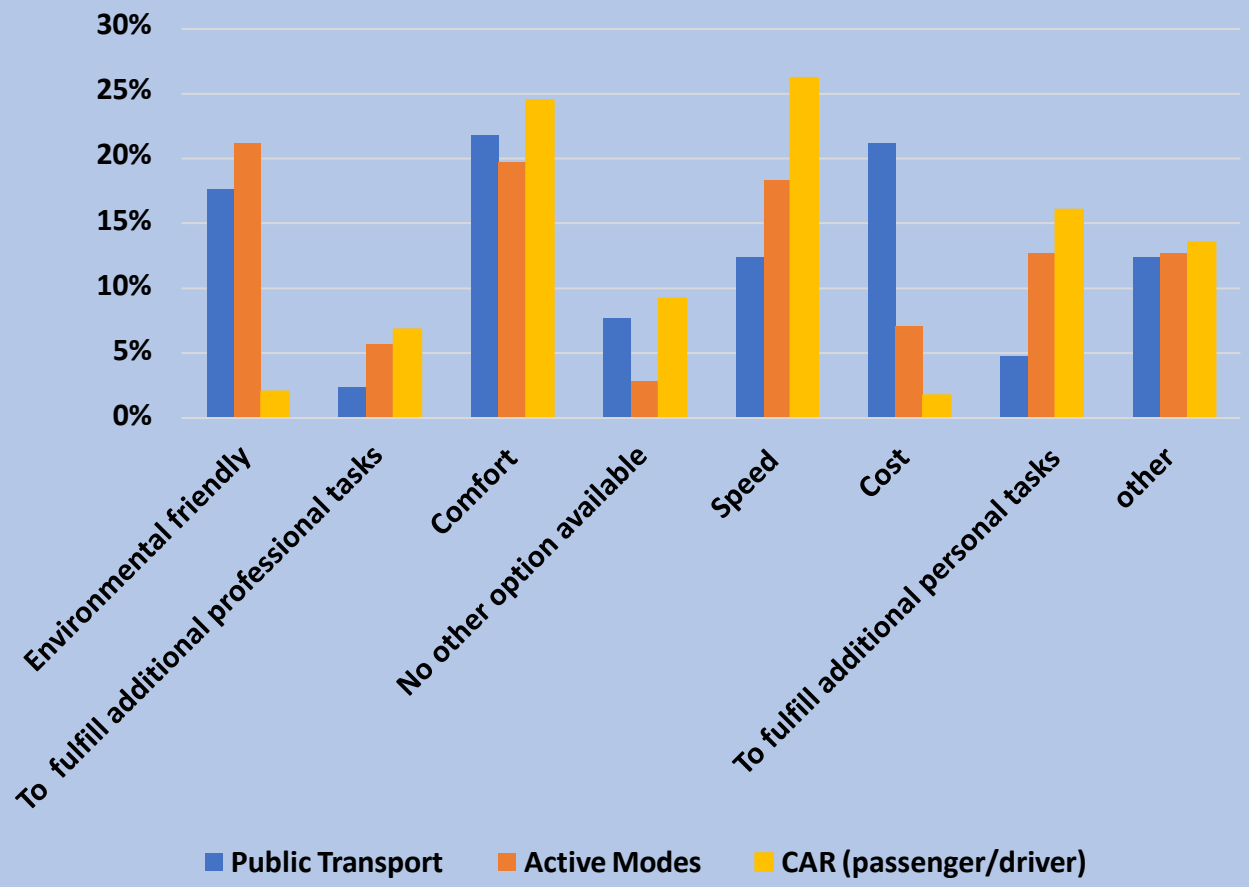
To gain a clearer understanding behind the use of the main mode of transport, the interviewees were asked about their reasoning for choosing their main mode of transport.

Reasons for the use of public transport were mostly **comfort**, **cost** and **environmental friendliness**. This is similar for active modes (walking ad cycling).

Besides environmental friendliness and comfort, speed was also among the main reasons.

The main reasons for the use of a privately owned car as the main mode of transport varied strongly from the others. In particular, **speed** and **comfort** were highlighted as main reasons of choice. The ability to complete additional personal task was also often mentioned.

It is important to highlight that **comfort** was the most determining factor for all three modes, public transport, active modes and car.



PRIVATE CAR:
PROS & CONS

To gain a clearer understanding behind the use of the main mode of transport, the interviewees were asked about the main assets and drawback of travelling by car.

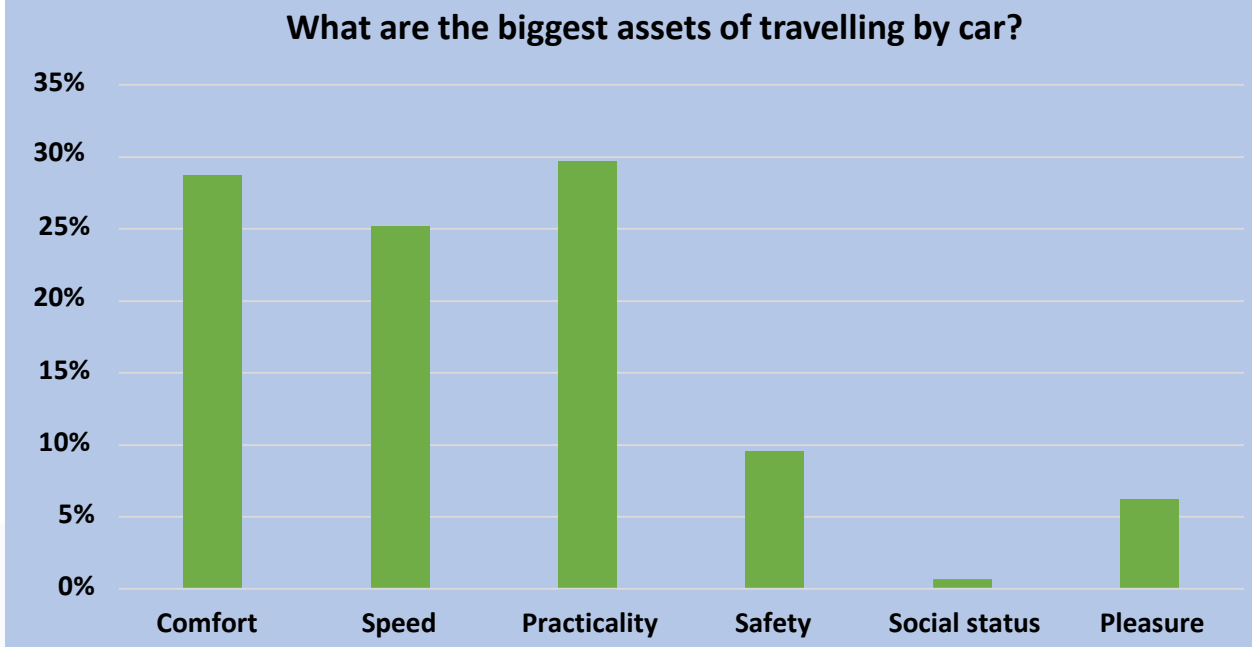
The biggest assets of travelling by car are **comfort**, **speed** and **practicality** with in total more than 80% of the answers.

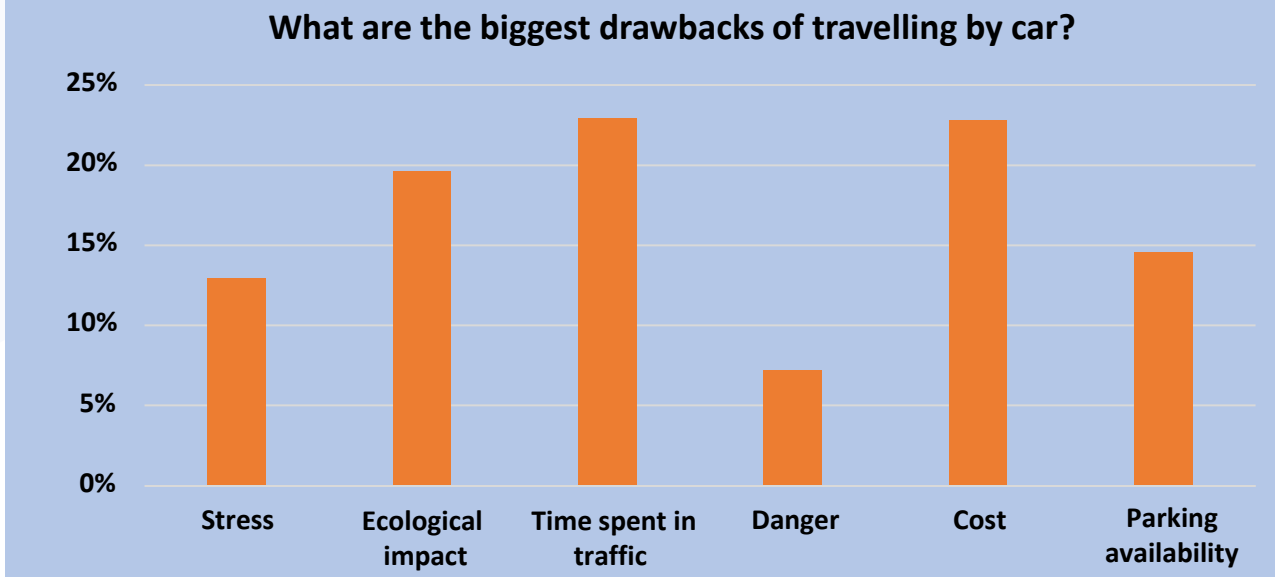
Safety covers less than 9% of the opinions, followed by 5% that claims traveling by car has pleasure as asset.

The 2 main drawbacks of travelling by car for the participants are **time spent in traffic** and **cost**, with 25% of selections.

Almost 20% considers also the ecological impact of travelling by car a drawback, followed by parking availability and stress.

Only 7% of the respondents perceived danger as drawback of travelling by car.





PUBLIC TRANSPORT: PROS & CONS

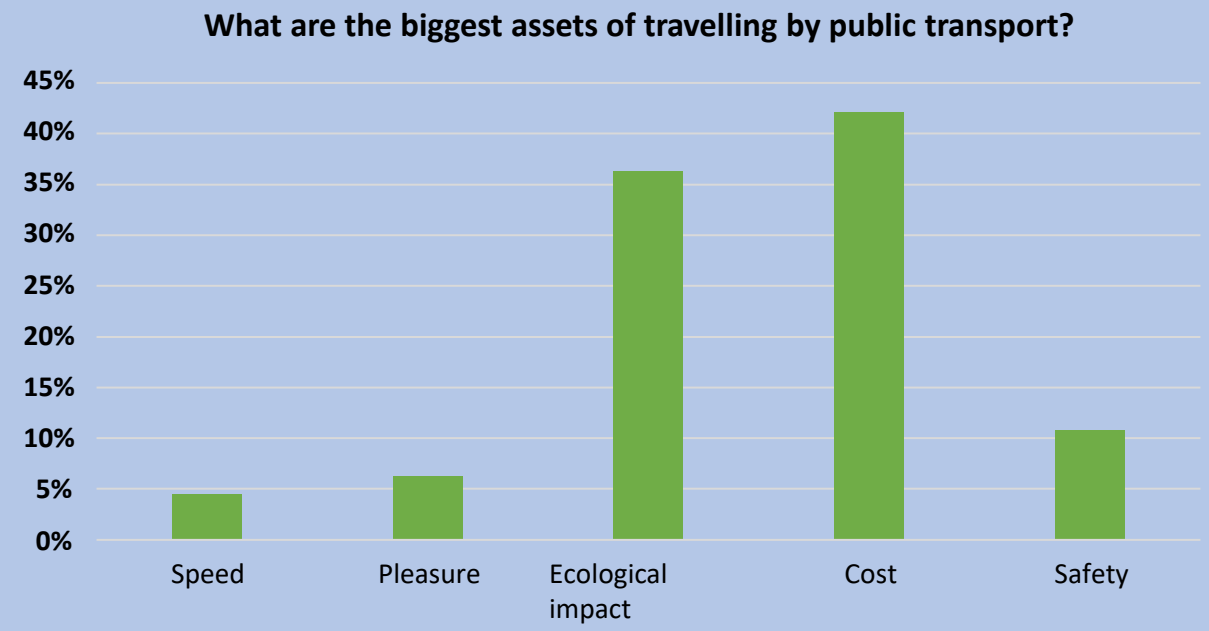
To gain a clearer understanding behind the use of the main mode of transport, the interviewees were asked about the main assets and drawback of travelling by public transport (PT).

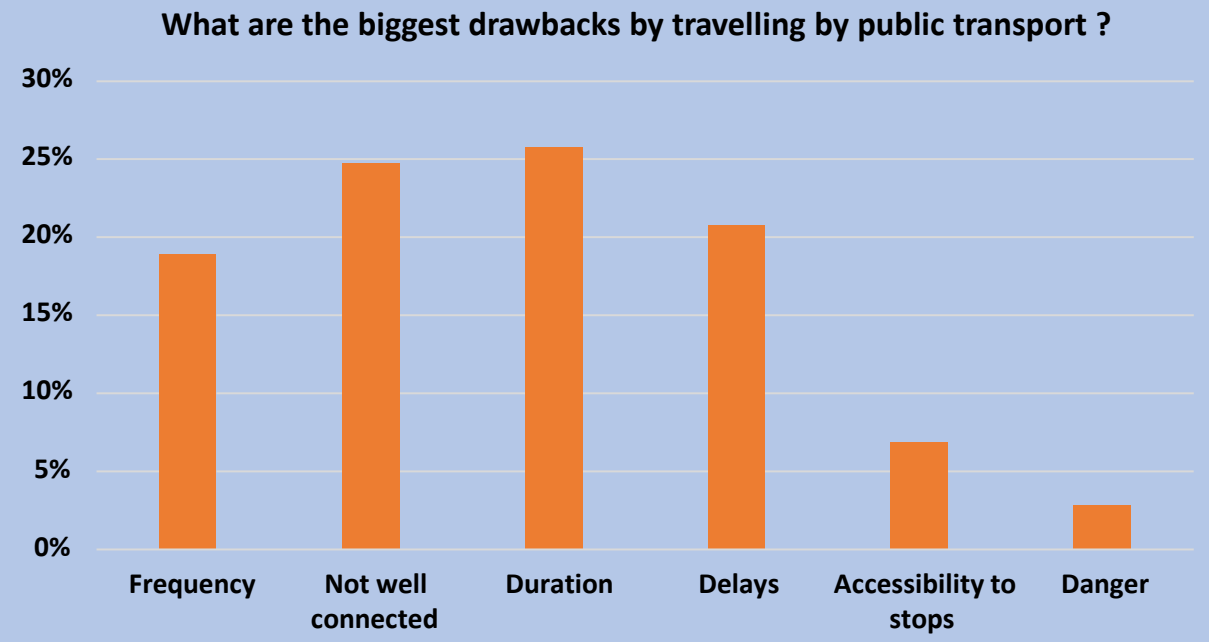
The biggest assets of travelling by PT are its **low costs** and **ecological impacts** with in total around 80% of the answers.

Safety covers less than 11% of the opinions, followed by around 5% that claims traveling by PT has pleasure and speed as assets.

The main drawbacks of travelling by PT for the participants are journey **duration**, poor **connections**, low **frequencies** and **delays**. Each of these aspects have been indicated by at least 20% of the respondents.

Only 7% of the respondents perceived accessibility to stops and 3% danger as drawbacks of travelling by PT.





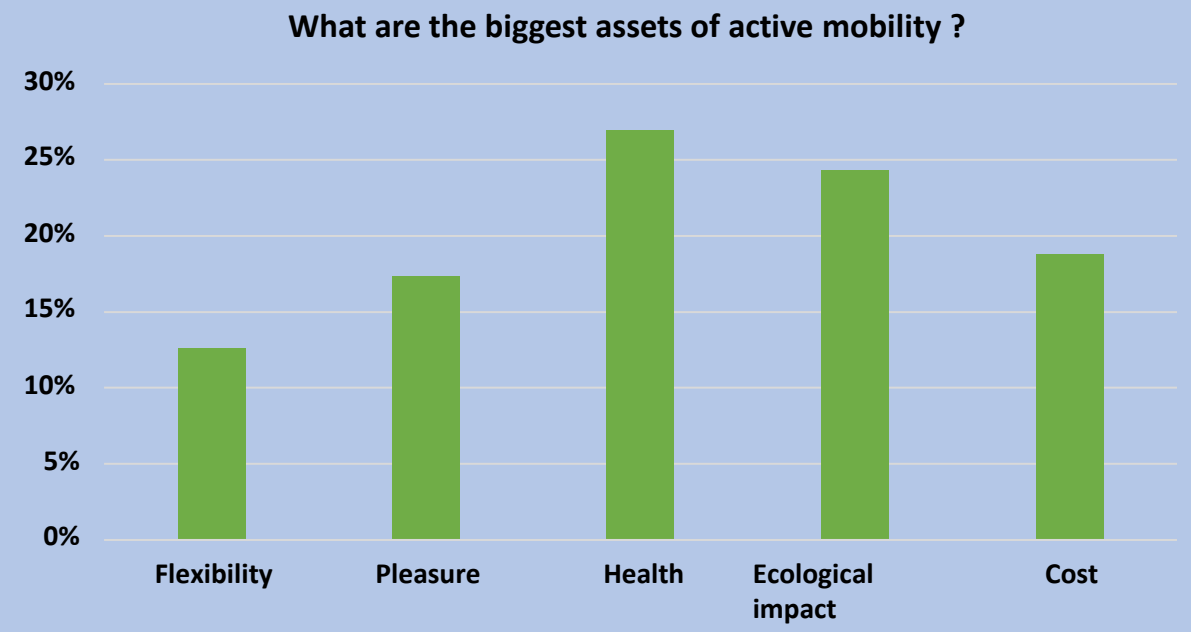
ACTIVE MODES: PROS & CONS

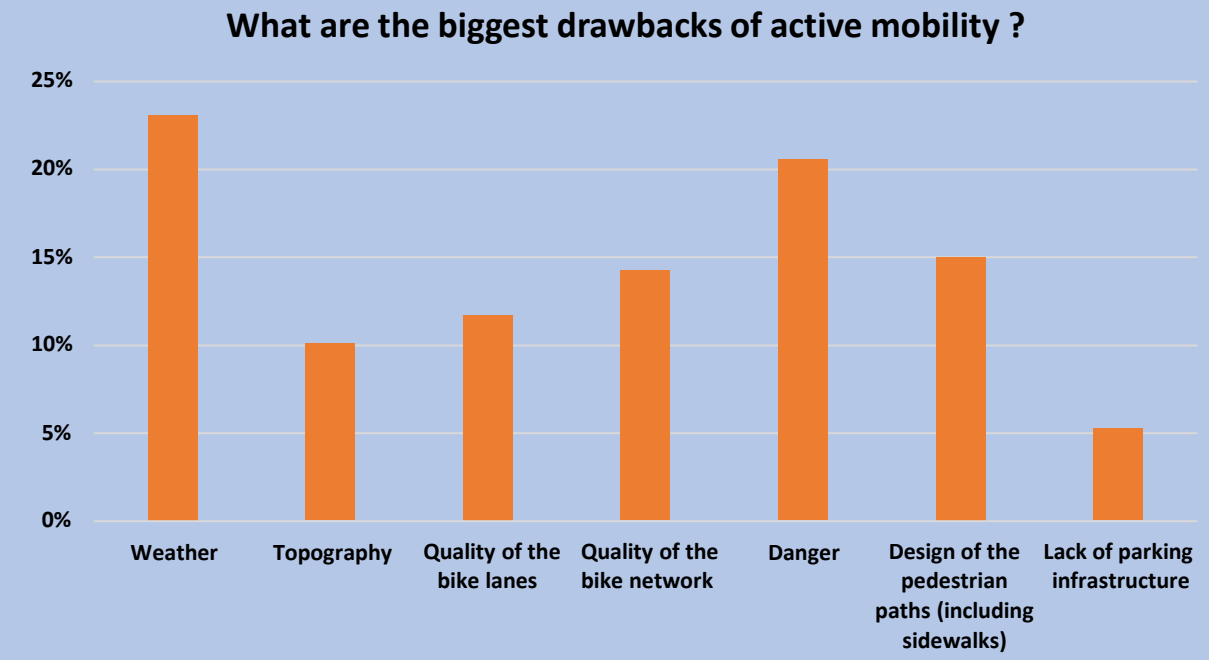
Further, the interviewees were asked about the main assets and drawback of travelling by active modes, mainly by bike and walk.

The biggest assets of travelling by active modes are their benefits for **health**, **ecological impact**, and **cost**, and in a comparable extent also the **pleasure** of walking and cycling and their **flexibility**. All these assets received in between 26% down to 13% of their preferences.

The main drawbacks of travelling by bike or by foot for the participants are the **weather** conditions and the **danger** for accidents, both with more than 20% of the preferences, followed by the design of the paths and the **quality of the network** and lanes, and the overall topography (e.g. slopes) with 10-15% of the preferences.

To a smaller extent (5%) the respondents were concerned about the lack of parking facilities.





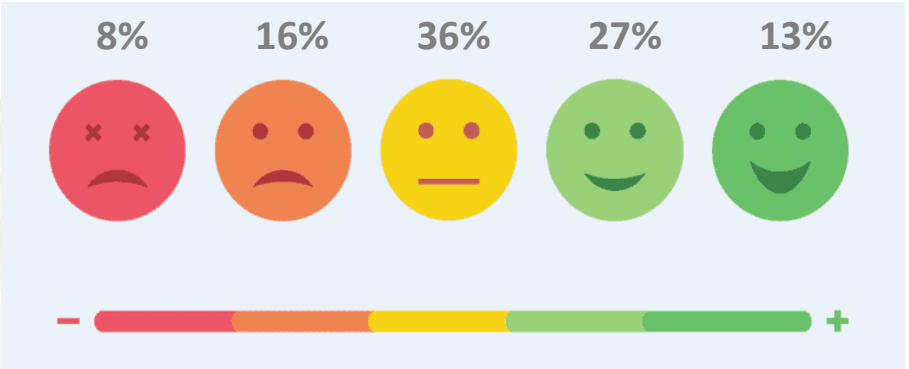
TRAVEL SATISFACTION

The interviewees were asked about their overall satisfaction regarding traffic, as well as their **level of satisfaction** with their typical commuting journey.

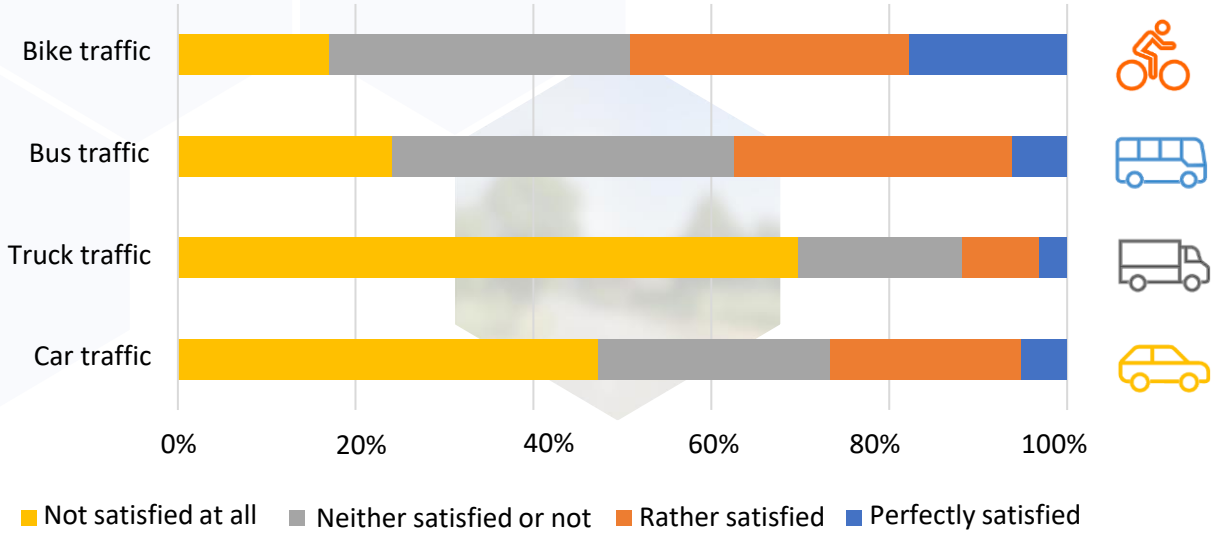
Interviewees are least satisfied with **truck traffic**, with over 70% indicating extreme dissatisfaction, followed by **car traffic** with over 45% expressing the same attitude. Participants were most satisfied with **bike traffic**, with around 50% indicating either satisfaction or extreme satisfaction.

However, opinions varied more widely when it came to respondents' **typical commuting journey**. Roughly 40% expressed positive satisfaction, 24% indicated that they are unsatisfied and the remaining 36% claimed to be neither satisfied nor unsatisfied.

Level of satisfaction for the commuting journey



How do you rate the overall traffic situation in the municipality?

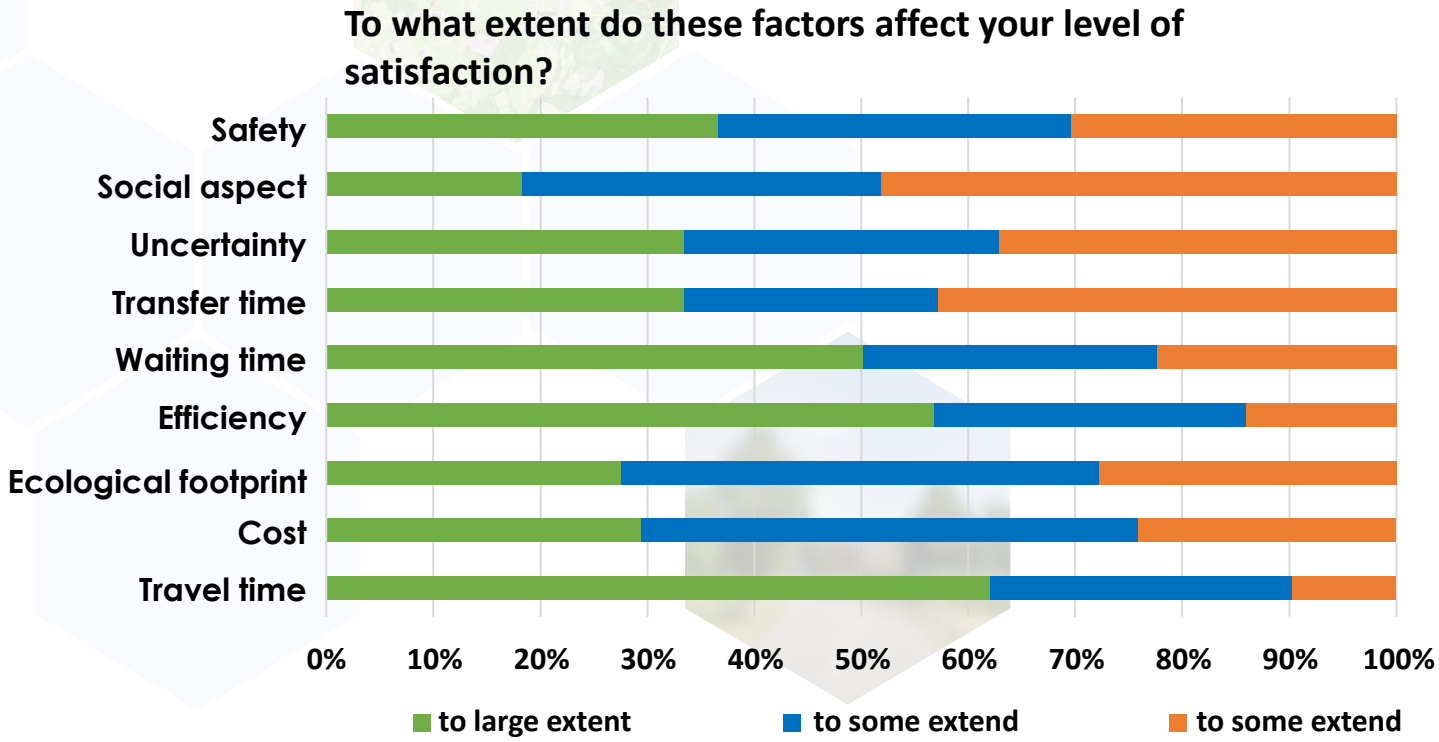


MOBILITY ATTITUDES

The survey not only assessed the participants' overall satisfaction level but also inquired about what were the fundamental reasons for their contentment.

The crucial factors leading to high satisfaction levels are **travel time**, **efficiency** and **waiting time**. Over 70% of respondents claimed that each of these factors affect their satisfaction to a great or large extent. Safety and cost are slightly less influential but still decisive.

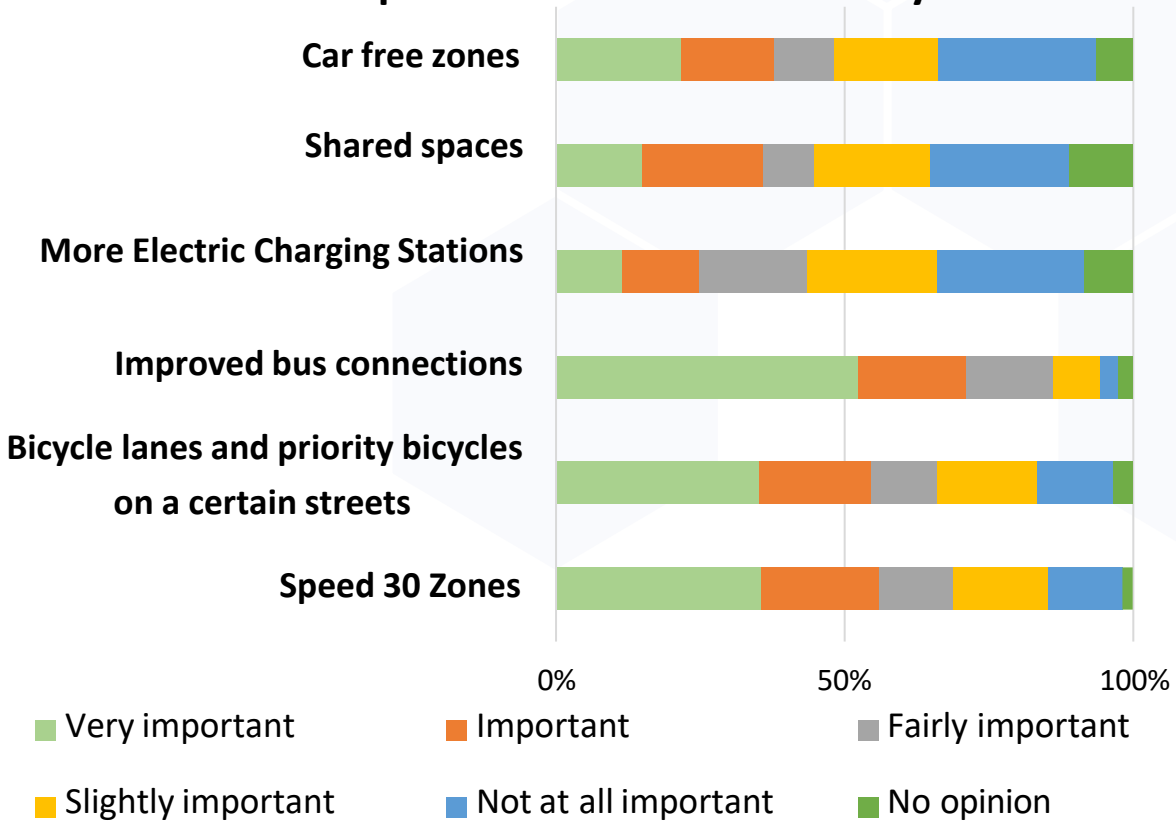
On the other hand, the **social aspect** and **ecological footprint** were indicated to be least influential, with over 75% of respondents regarding the social aspect as irrelevant or relevant to only some extent, and more than 60% indicating the same for the ecological footprint.



MOBILITY SOLUTIONS

Respondents were asked about mobility-specific policies. Along with the specific usage of the P&R at the football stadium to continue the journey by bus was questioned.

What is important in terms of mobility?



Speed 30 zones policy was indicated as important to very important by 55% of interviewees, with only 10% perceiving the topic as unimportant. While **priority bicycle** lanes reflects similar trend of interviewees' importance ranking.

Shared Space was deemed by 40% of respondents to be slightly important or not important at all. Nonetheless, over 20% regarded this measure as highly important while the rest considered it important or fairly important. The importance of **car-free zones** occurred to be rated in a very similar way.

Opinions about more **electric charging stations** vary. Around 50% of respondents range their importance between slightly to not important at all, whereas only 12% perceive the measure as very important.

Improved bus lane connections were indicated to be very important by more than 50%, having the most importance among all subjects. Only 5% of people perceived the topic as not important at all.

Over 80% of the respondents indicated that they never use the **P&R** located at the Football stadium, whilst only 2% seems to use it regularly to continue their journey by bus.

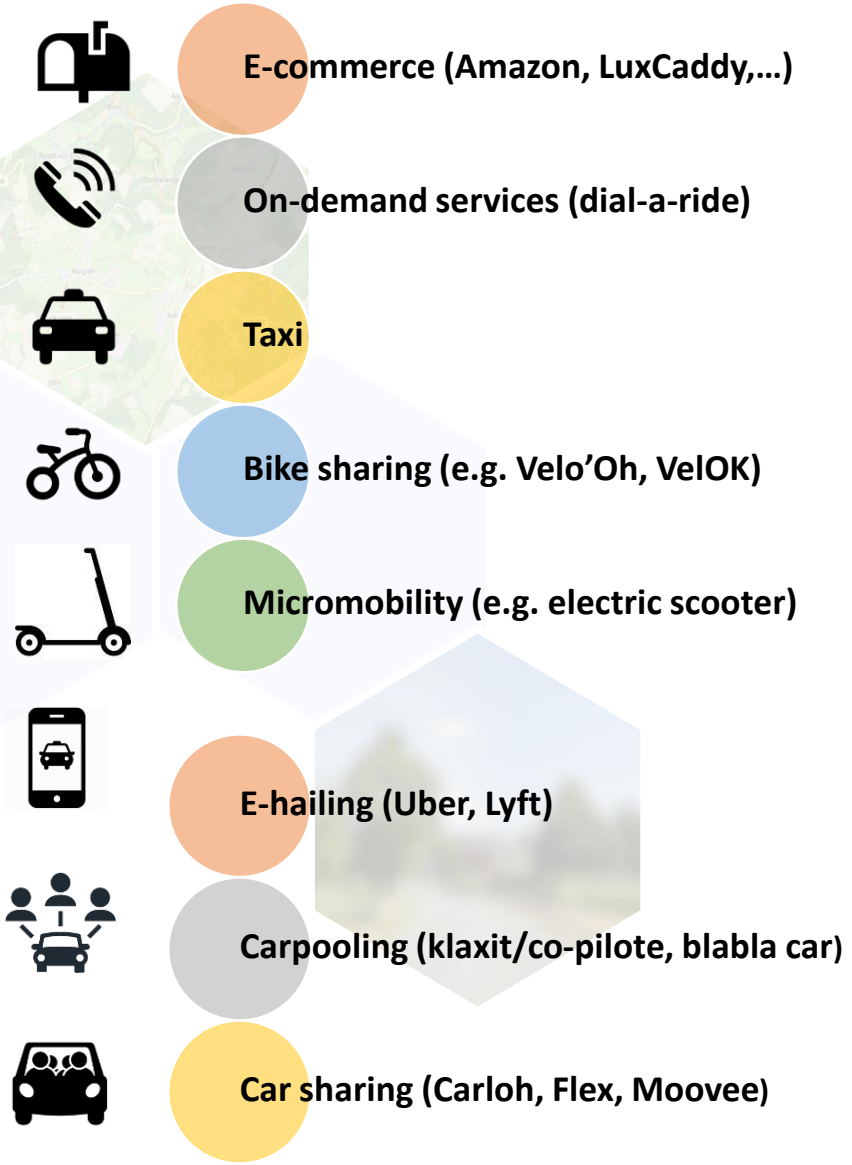
NEW MOBILITY SERVICES

Participants were asked about their **familiarity with new mobility services** and their preferences for which services they would like to see implemented in their municipality.

Firstly, respondents stated about their usage of new mobility services. Among several options, mostly **e-commerce** and **taxi** were indicated to be used by more than 30% of respondents. Additionally, **bike sharing** and **on-demand services** were identified as slightly less commonly-used options, with usage surpassing the 10% threshold.

However, it is worth emphasising that more than 35% of respondents expressed an eagerness to use any of these 4 new mobility services as well as **micromobility** for everyday transportation if they became available in their area.

The overall usage and willingness to use **E-hailing**, **carpooling**, and **carsharing** are considerably low. According to the results, only about 5% of respondents have prior experience with any of these three new mobility services. It was indicated that even when made more available for daily usage, only around 20% of people would consider utilizing them on a regular basis



NEW MOBILITY SERVICES

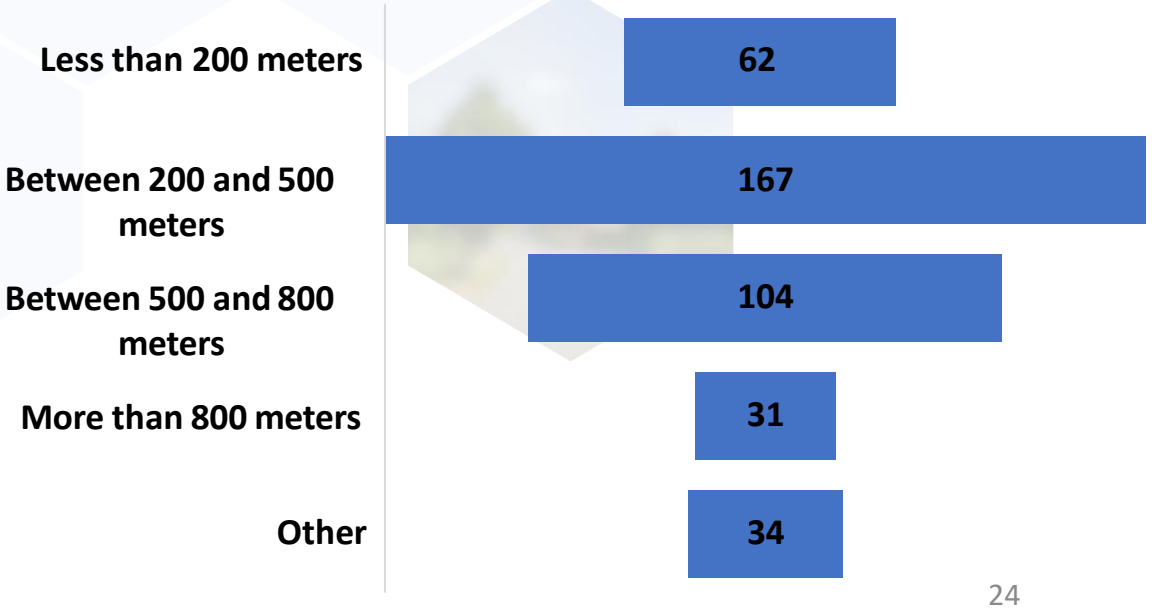
FOCUS ON CAR-SHARING

Among several criteria that would favour the use of **carsharing** among household members, respondents were asked to rank the most relevant features for car sharing between 1 to 10, with 1 being the most important and 10 being the least important.

Around 50% of interviewees ranked the criteria of **availability**, the **ease of booking and payment**, **location of the stations** as well as the **possibility to use it outside of the commune** and a **competitive price** with a score of 1 or 2, highlighting their perceived importance. Considered slightly less important are having special features on the cars and parking availability for bike or scooter near the station, with only up to 35% of people ranking their importance above 3.

When asked about their **desired distance to car sharing stations**, approximately 70% of respondents indicated a distance of 200 to 800m, while 15% preferred less than 200m and the remaining choosing a distance of 800m or more to be ideal.

What distance between your home and car-sharing station would be acceptable?



MOBILITY ATTITUDES

In this section of the survey, participants were asked to rank their level of agreement of the following statements.

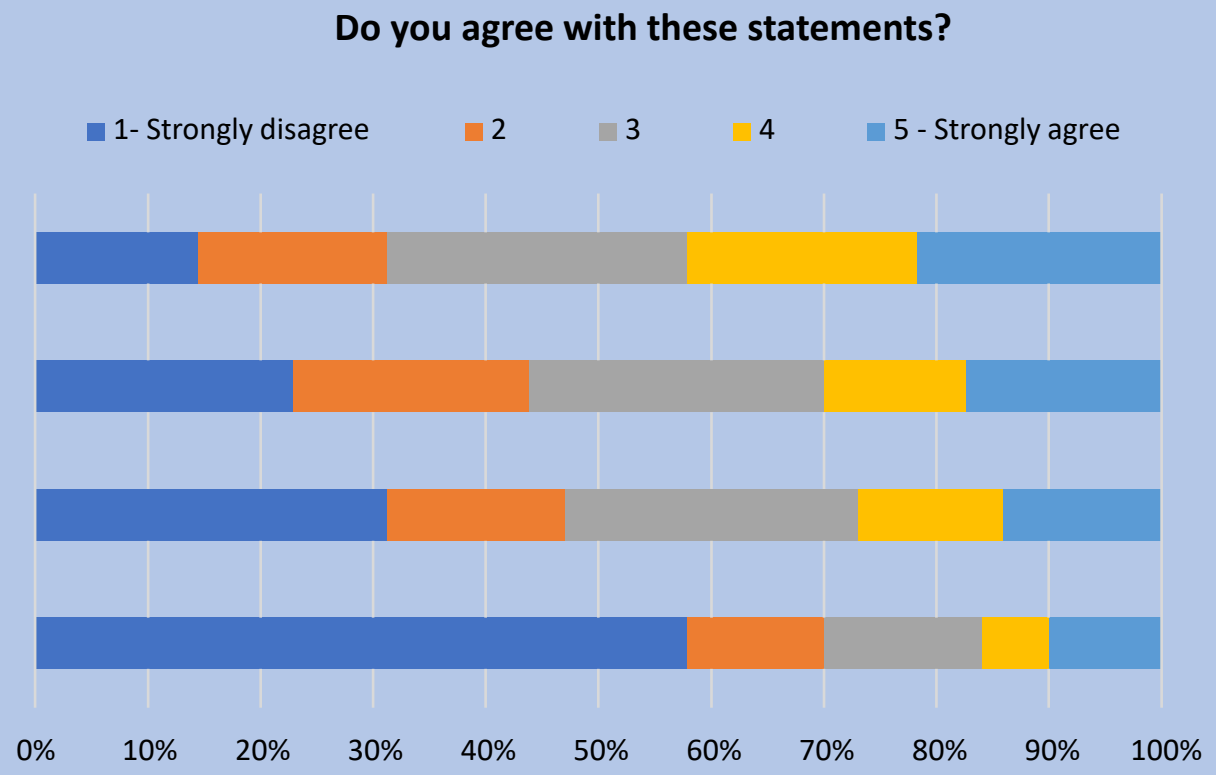
Whereas more than 40% of the respondents would welcome a **multimodal platform**, 60% of them would **not be willing to pay** for it and only 32% would pay but less than 100€/month.

It would be convenient to have a single platform where different services (e.g. taxi, car sharing, bike sharing) could be included, just like mobile phone subscription

There should be more car-free roads

Private traffic should be limited to reduce emissions

The obligation of building parking spaces should be waived when building new apartments



CITIZENS' SUGGESTIONS

The final part of the survey involved participants providing their own views on several targeted questions.

These included their **observations** on the general traffic situation in their locality, identifying hazardous road segments that pose a particular risk to cyclists and pedestrians, and articulating the underlying reasons for these dangers. Furthermore, respondents were encouraged to **share proposals** for change in order to create positive change of these areas.

RESULTS - OPEN QUESTIONS

Most important factors in traffic development

- Construction of **bypass road**/rerouting main traffic
- improvement/extension of **cycle paths**
- Improved **safety** for cyclists and pedestrians
- limitation/prohibition of **trucks** inside the living areas

Most mentioned proposals for change

- Implementation of **zone 30 km/h** also for main roads
- **Speed reduction measures** (speed bumps, traffic islands, radar)
- **Prohibition of heavy vehicules** entering the localities
- More **frequent controls** to ensure the compliance to speed limits

Sources of the biggest traffic problems

- High amount of **heavy vehicles** passing through the towns
- **Non-compliance** with speed limitations
- Lack of police controls/punishment
- **Limited** offer of **bus connections** paired with low frequency and delays

Sections primarily considered dangerous

- Rue de Kehlen (Keispelt)
- Rue de Mamer (Kehlen)
- Rue de Keispelt (Kehlen)
- Juddegaas (Kehlen)
- Rue d'Olm (Kehlen)
- Rue de Capellen (Olm)
- Rue de Nospelt (Olm)
- Junction next to the pharmacy in Kehlen
- Kräizwee junction in Olm

RESULTS - OPEN QUESTIONS

Other commonly mentioned ideas:

Wish for improved bus connections

- **Deletion of several bus stops** since implementation of new bus network
- **Lack of bus connection** from Kehlen to Mamer Station to use the train to the city

Lack of connections

- **Non-existent connection** / network from Dondelange to neighboring villages
- Wish for **cycle path/public transport** at least to Kehlen

Lack of infrastructure

- **Installation of mirrors** at junctions (e.g. Juddegaass - rue de Mamer)
- **Installation of bus stop** at roundabout of Quatre-vents

Safety measures for pedestrians

- Installation of **barrier at pedestrian walkways** (at rue de Mamer, rue de Kehlen, rue d'Olm)
- **Discouraging drivers** from driving over the sidewalk and added protection for pedestrians

RESULTS - OPEN QUESTIONS

Most dangerous bicycle roads

- rue de Mamer
- rue de Kehlen
- rue de Mersch
- rue de Keispelt, rue d'Olm
- Passage from industrial zone to Kehlen / Nospelt / Olm

Reasons for danger

- Lack of **path lighting and signage** of exisiting cycle paths
- Required **crossing of major roads** and **sudden end** of cycle paths
- Bad state of **path surfaces**

Most dangerous roads/path for pedestrians

- rue de Mamer
- rue de Keispelt
- rue de Kehlen
- rue de Kopstal
- rue de Mersch
- rue de Capellen

Reasons for danger

- **Too narrow sidewalks**
- **Recklessness of drivers** (driving over the sildewalk, excessive speeding, prohibited parking)
- Lack of **path lighting** and **signage** of exisiting cycle paths
- Required crossing of major roads and sudden end of cycle paths

CONCLUSIONS

The survey has shed some light on the **mobility attitudes** and preferences of the citizens within the municipality of Kehlen.

In line with national figures, the use of the **car remains predominant** and lack of service connectivity by public transport and partly by cycle infrastructure especially connecting the 6 towns is seen as a major hurdle for modal shifts.

Whereas **new mobility management solutions** and services are being considered, the first seem to be regarded by the citizens as more effective in the short term. The adoption of solutions like **30km zones**, **speed enforcement** and **access restriction to heavy vehicles** are considered priorities.

Finally, specific **traffic issues** and **hot spots** have been highlighted.

These suggestions will be an excellent starting point for the development of an effective package of solutions, which is the next step of the **Sustainable Urban Mobility Plan**.