Travel behaviour survey Brussels capital region (2023)

Summary

BRUXELLES MOBILITÉ
BRUSSEL MOBILITEIT
BRUSSELS MOBILITY

SERVICE PUBLIC RÉGIONAL DE BRUXELLES
GEWESTELIJKE OVERHEIDSDIENST BRUSSEL
BRUSSELS REGIONAL PUBLIC SERVICE

1 INTRODUCTION

Between October 2021 and October 2022, the Travel Behavior Study (OVG) was conducted. This is a study on the travel behavior of residents of Brussels. This study examines several mobility characteristics of households and individuals. The focus is on mapping the travel behavior of Brussels residents as accurately as possible. Therefore, participating respondents are surveyed about various travel-related aspects, such as characteristics of the person traveling, when, why, from where, to where, with what, how long, and how far someone travels. The study consists of a diary, a personal questionnaire, and a household questionnaire. The sample size of the OVG is 2685 respondents. Like other travel behavior studies, the OVG is designed as a tool to provide a "helicopter perspective" on the mobility of all Brussels residents, rather than focusing on one motive (e.g., "school") and one mode (e.g., "bicycle").

2 TRIPS

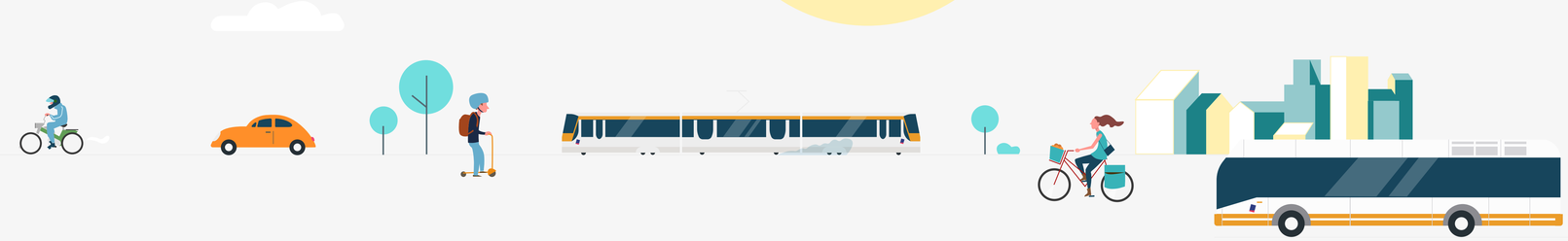
2.1 Average number of trips

The Brussels resident (aged 6 and above) makes an average of 2.92 trips per day. This figure represents a general average and includes all respondents, including those who did not make any trips on the specified reporting day (of the study). When we only consider the group of respondents who travelled on the specified reporting day, the average is 3.55 trips per day. On an average day, 20.1% of Brussels residents do not make any trips, 2.4% make one trip, 29.9% make two trips, 10.2% make three trips, 17.4% make four trips, 7.1% make five trips, and 13.0% make six or more trips.

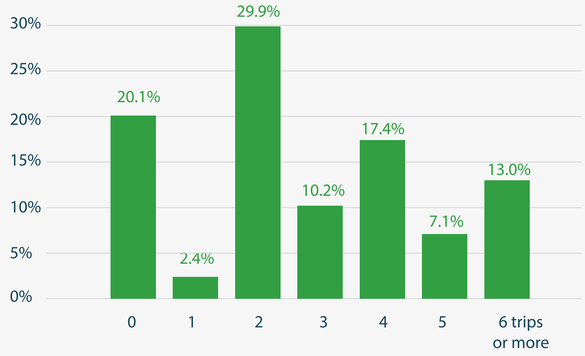
The Brussels resident (aged 6 and above) makes an average of

2.92

trips per day.



Distribution of the respondents per number of trips

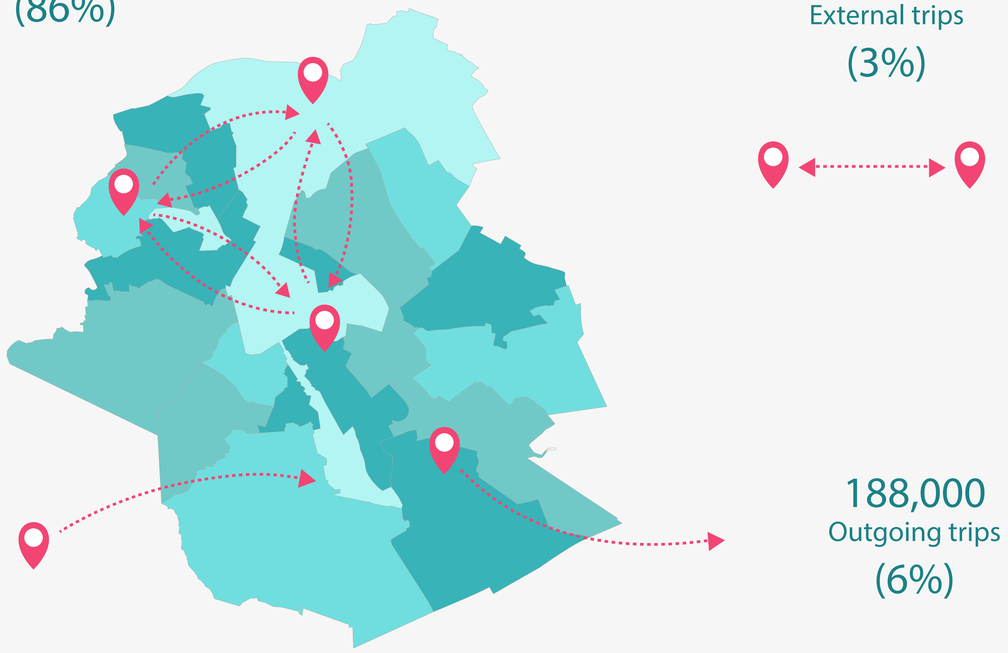


2 TRIPS

2.2 Total number of trips

At the population level, Brussels residents collectively make around 3.3 million trips per day. The vast majority (85.5%) of these trips are internal movements, where both the starting and ending points are within the Brussels-Capital Region. Inbound trips account for 5.4% of all trips, and outbound trips make up 5.7%. Brussels residents make 3.4% of trips entirely outside the Brussels-Capital Region.

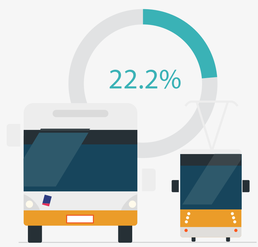
The figures in this summary pertain solely to the travel behavior of Brussels residents.



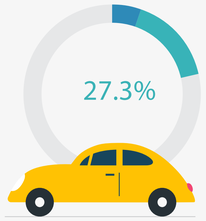
2 TRIPS

2.3 Main Mode of Transportation

On an average day, the modes of transportation “on foot” (35.9%), “public transport” (23.8%), and “bicycle” (8.6%) account for two-thirds of the trips made by Brussels residents, while the use of a car as a driver accounts for 19.8% of the trips (27% when including “car passenger”).



metro/tram/bus



20% Driver
7% Passenger

By electric scooter

By (electric) bicycle (including speed pedelec)

On foot

By moped/motorcycle

By taxi or similar

By train

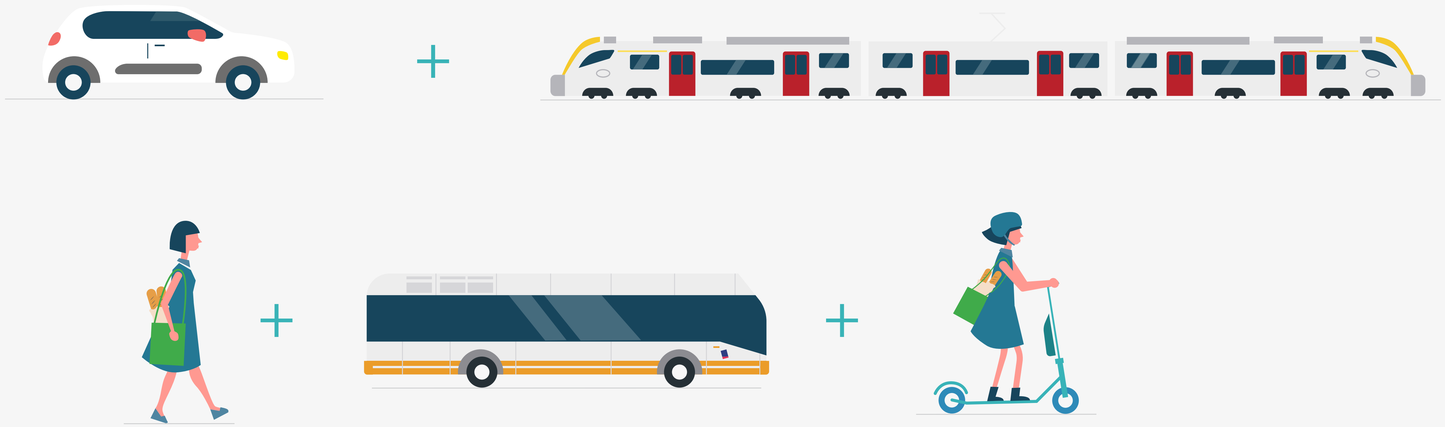
2 TRIPS

2.4 Multi-Modal Travel

Previous data were calculated at the level of the main mode of transportation (which is the means of transport covering the longest distance of a trip). However, in practice, it's common for a single trip to involve multiple modes of transportation. This is often seen (but not exclusively) as first- and last-mile connections for public transport.
The combination of different modes of transportation during a single trip is recorded in the OVG as a combination of individual "legs" (the overall concept is also referred to as "multi-modal travel"). The study indicates that in 71.9% of cases, a trip consists of a single leg, meaning that multi-modal travel accounts for 28.1% in the 2021-2022 period.

MULTI-MODAL TRAVEL

Combination of different modes of transportation during a single trip.



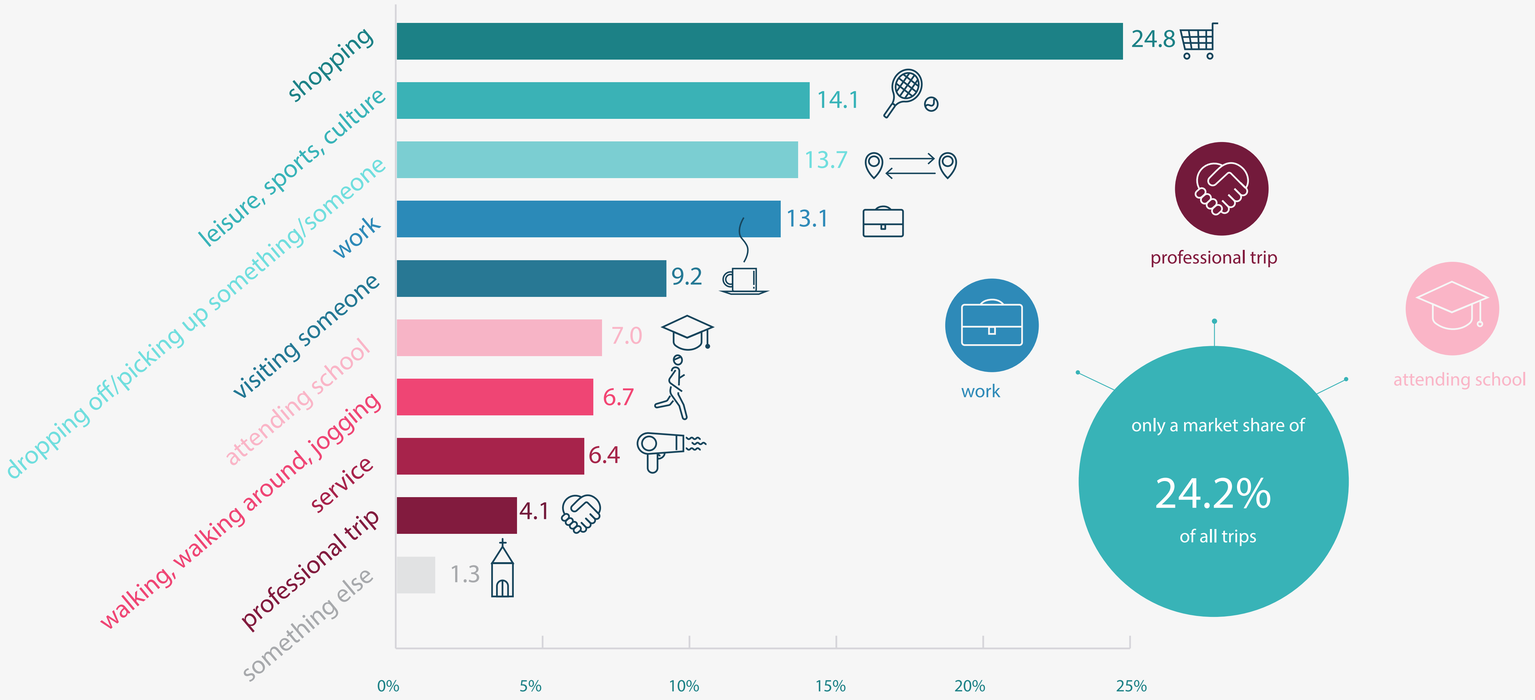
2 TRIPS

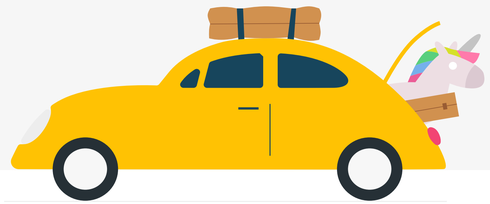
2.5 Travel purpose

Why do people travel? What is the reason? This graph makes it clear that the issue of mobility cannot solely be attributed to trips for purposes like “work,” “professional trip,” and “attending school.” All these purposes combined account for only 24.2% of all trips. The purpose of “shopping” alone represents more trips (24.8%).

The notion that mobility is mainly composed of commuting and school-related trips is primarily (mistakenly) driven by our general perception of the morning and evening rush hours. However, mobility is strongly tied to specific places and times, as it turns out.

Please note that a significant portion of trips are aimed at returning home from the last destination; these are categorized as “going home.” We have excluded this purpose from the graph above.

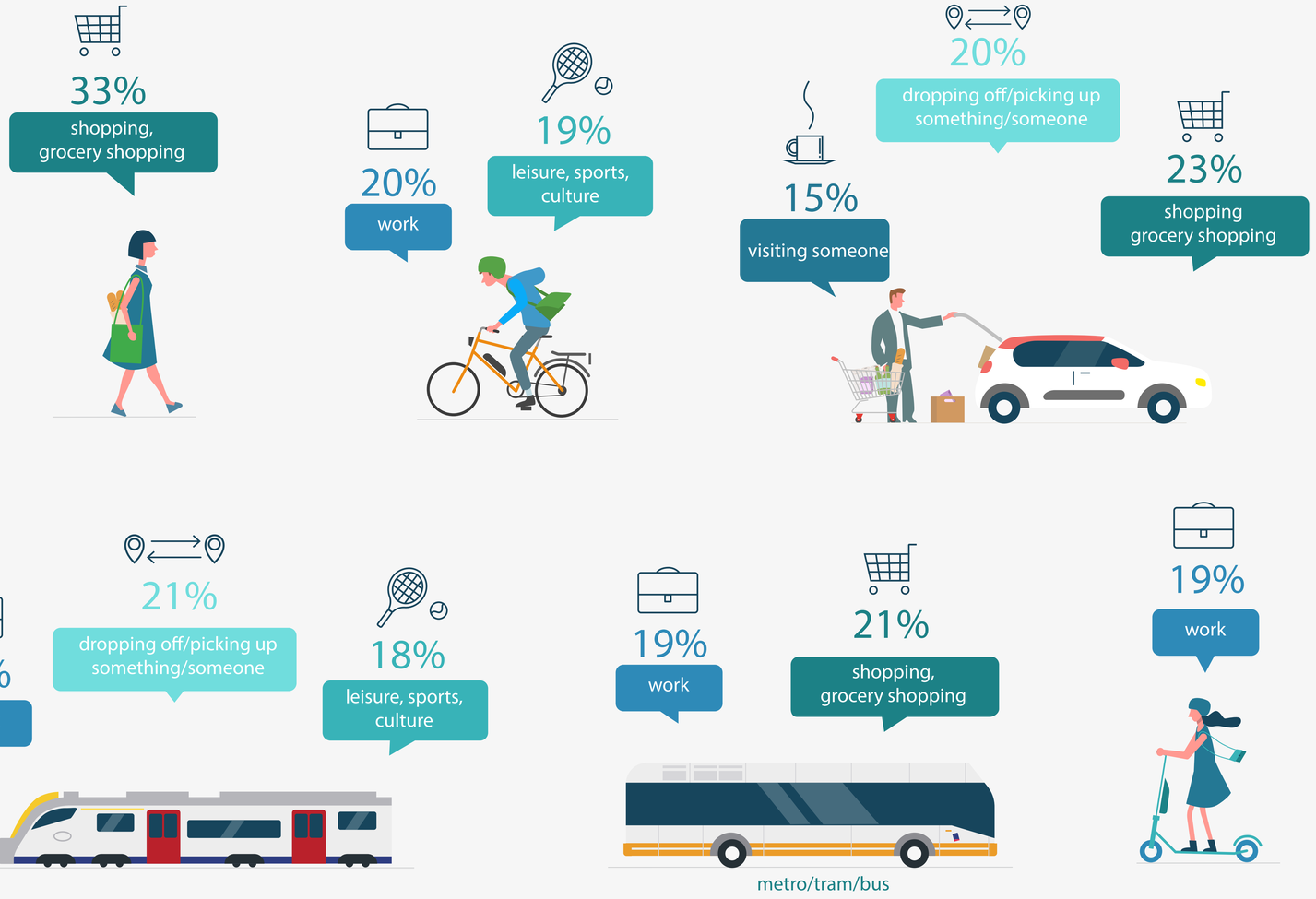




2 TRIPS

2.6 Travel purpose per mode of transport

Most modes of transportation are used for (almost) all purposes, but not equally frequently for all purposes. Walking is most commonly used for 'shopping/grocery shopping' (33%), while cycling is used more frequently for 'working' (20%) or 'leisure/sports/culture' (19%).
The car, whether as a driver or passenger, is mainly used for 'shopping/grocery shopping' (23%), 'dropping off/picking up something/someone' (20%), and 'visiting someone' (15%).
Tram/bus/metro is used for 'shopping/grocery shopping' (21%) and 'working' (19%), while the train is primarily used for 'working' (25%), 'visiting someone' (21%), and 'leisure/sports/culture' (18%).
Finally, the electric scooter is primarily used for the purpose of 'working' (19%).



2 TRIPS

2.7 Main mode of travel for work and school commute

For the main modes of transportation for commuting and school commuting, we choose to use data based on the personal questionnaire. Only respondents who are employed or students and who have a regular route to a fixed workplace or school address were asked about their most frequent mode of transportation for commuting or going to school.

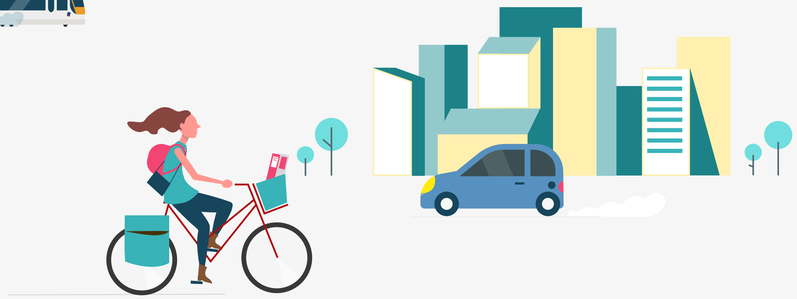
Regarding commuting, over a third of the respondents take the bus/tram/metro, with car and bicycle completing the top 3 modes. As for school commuting, bus/tram/metro accounts for more than half of the trips, with walking and car completing the top 3 modes.

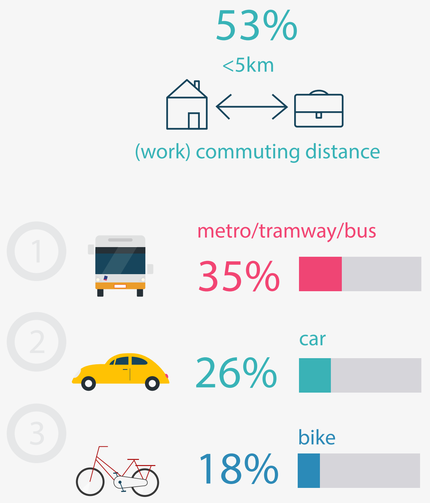
Also interesting to study is the commuting distance. The average commuting distance is 10.1 km. However, a more nuanced view reveals that 17.5% live 2 km or less from their workplace. 53% fall within the 5 km range, and even 82% within the 10 km range. This indicates that sustainable mobility, especially cycling, has significant potential.

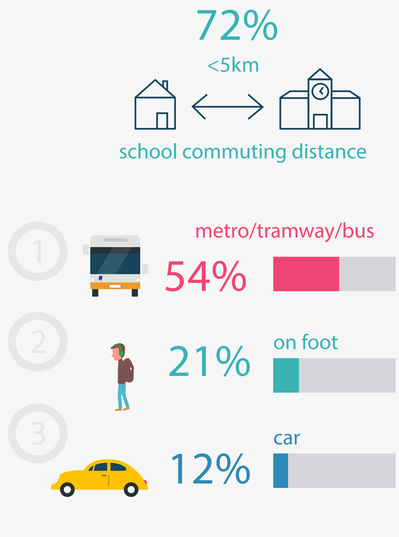
For school commuting, the average distance is 5.8 km. Furthermore, we see that 39.5% live 2 km or less from their school. 72% fall within the 5 km range, and even 90% within the 10 km range.

2.8 Remote work

51.5% of employed respondents indicate they can work from home regularly. Only 5.8% of employed respondents who can work remotely state that they cannot work from home (or less than 1 day per week); 14.5% work remotely at least 1 day but less than 2 days per week (some respondents report half days), 23% work remotely 2 days but less than 3 days per week, and nearly 57% even report working remotely for 3 days or more.







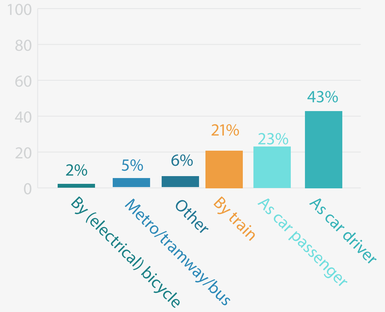
2 TRIPS

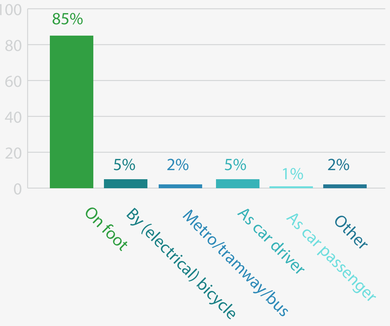
2.9 Travel distances

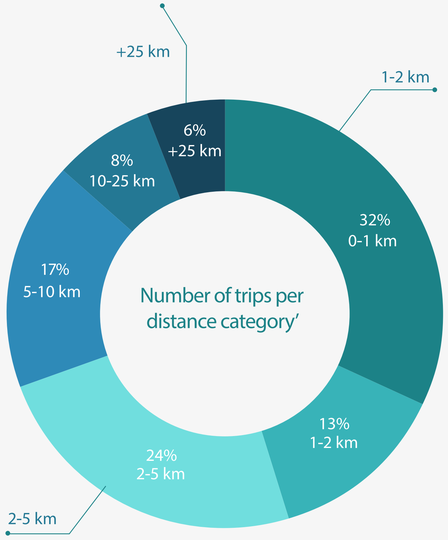
From the data, we can observe that in Brussels, more than 2 out of 3 trips are shorter than or equal to 5 km, and in nearly 95% of cases, they are shorter than or equal to 25 km. Only 5.6% of daily trips are over 25 km. The average distance per trip is 7.7 km.

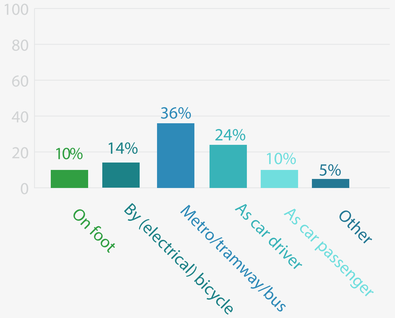
The modal distribution per distance class essentially reflects the significant "system boundaries" of transportation modes. For instance, over 85% of short trips up to 1 km are primarily done on foot, and walking remains the primary mode up to 2 km. Cycling gains importance for distances ranging from 1 to 10 km, being most used for trips of 2-5 km.

Of interest is the distance range for bus/tram/metro (B/T/M): this mode is frequently used for all distance classes between 2 and 25 km. For longer distance classes, we see the dominance of the car, accounting for more than 50% of trips starting from 10 km. Additionally, the modal share of trains becomes relevant for the longest distances.





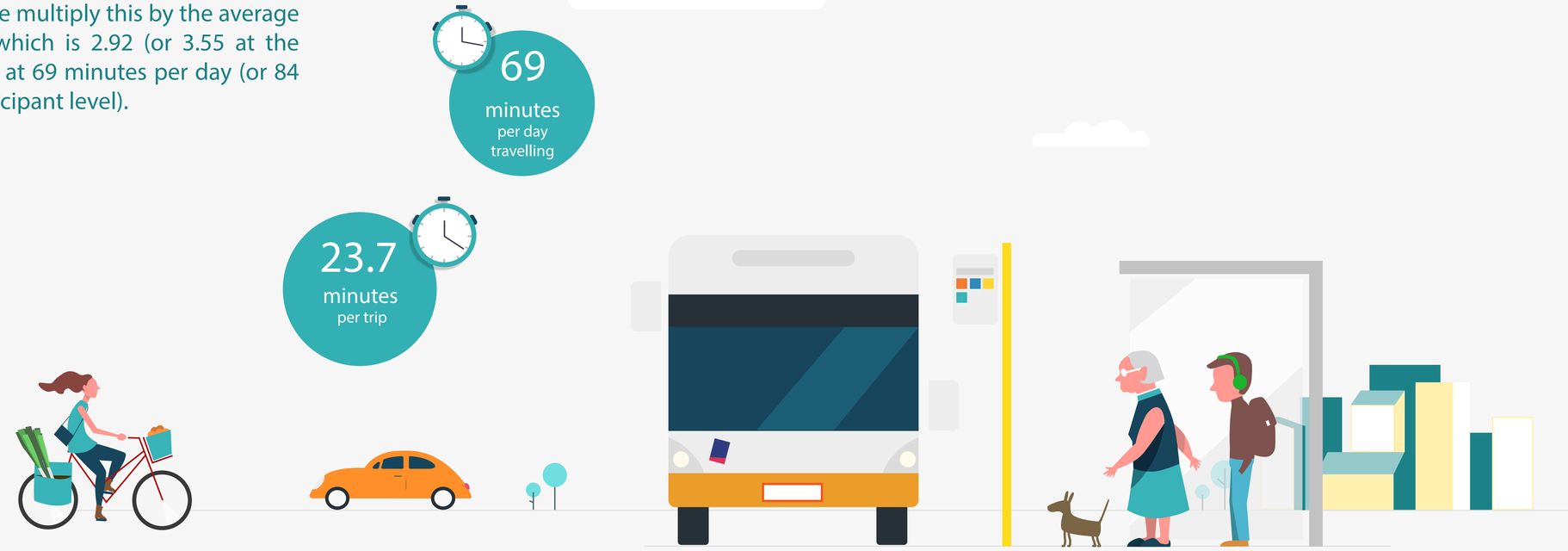




2 TRIPS

2.10 Travel time

Analysis for Brussels reveals that the average duration per trip is 23.7 minutes. If we multiply this by the average number of trips per day, which is 2.92 (or 3.55 at the participant level), we arrive at 69 minutes per day (or 84 minutes per day at the participant level).



3 DISTANCE TRAVELLED

3.1 Average number of kilometres

The average distance per trip is 7.7 km. When we multiply the average distance per trip by the average number of trips (2.92 at the respondent level), we arrive at an average daily distance of 22.6 km traveled by Brussels residents.
More than 2 out of 3 trips made by Brussels residents are shorter than or equal to 5 km, and 6% of daily trips are over 25 km. The average distance per trip is influenced by a relatively small number of long trips. This is due to the distinction between internal trips, with both the starting and ending points within the Brussels-Capital Region (with an average distance of 3.3 km), and longer outbound or inbound trips between Brussels and Flanders, Wallonia, or even abroad, as well as trips by Brussels residents outside the Region.
While the majority of trips (85%) are internal trips, the short distances involved mean they do not contribute significantly to the total distance traveled by Brussels residents. Outbound, inbound, or external trips are typically much longer on average and raise the average distance per trip to the aforementioned 7.7 km.

A trip is on average

7.7 km

A Brussels resident travels on average

22.6 km

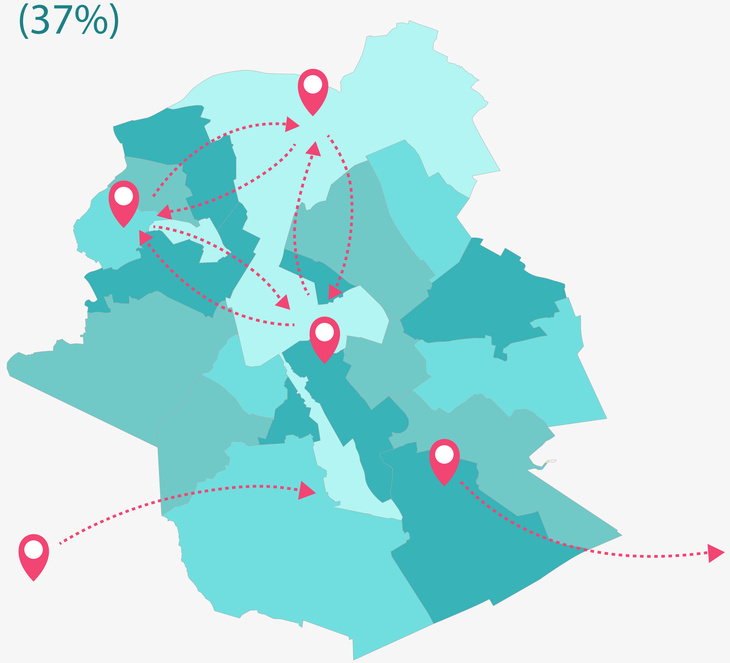
per day

3 DISTANCE TRAVELLED

3.2 Total number of kilometres

Collectively, Brussels residents cover over 25 million kilometres daily. When broken down by starting and ending points, the distribution is as follows: 37% of the kilometres are covered internally within the Brussels-Capital Region (BHG), while outbound and inbound trips account for 28% and 26% of the kilometres, respectively. External trips by Brussels residents outside the BHG make up 9% of the total distance traveled.

When examining the travel behavior of Brussels residents based on the number of kilometres, it's important to note that these figures are largely based on outbound and inbound trips, rather than internal trips. These internal trips, which constitute 85% of all trips, only account for 37% of the traveled distance.



9.3 millions km
Internal trips
(37%)

2.3 millions km
External trips
(9%)

6.6 millions km
Incoming trips
(26%)

7,2 millions de km
Outgoing trips
(28%)

3 DISTANCE TRAVELLED

3.3 Mode of transport

The aforementioned daily average number of kilometres per person is covered using various modes of transportation. Modes that allow for higher speeds naturally contribute more to this modal distribution (as faster modes allow for covering greater distances in the same amount of time). Given the limited range of pedestrians and cyclists, the car (and train) become more prominent when looking at the number of kilometres traveled, considering all trips.

This is logical since, in this perspective, it's the longer-distance trips, mainly outside the Brussels-Capital Region, that weigh more.

If we were to consider only internal trips within the Brussels-Capital Region, we would see that bus/tram/metro (B/T/M) accounts for 38% of the traveled kilometres. Walking and cycling still account for 26% of the kilometres within the region, and 30% of the traveled kilometres are done by car (22% as a driver and 8% as a passenger).

on foot or by (electric) bicycle

45%	11%
of all trips	of all kilometres travelled
	26% of all kilometres for internal trips

As car driver or passenger

27%	52%
of all trips	of all kilometres travelled
	30% of all kilometres for internal trips

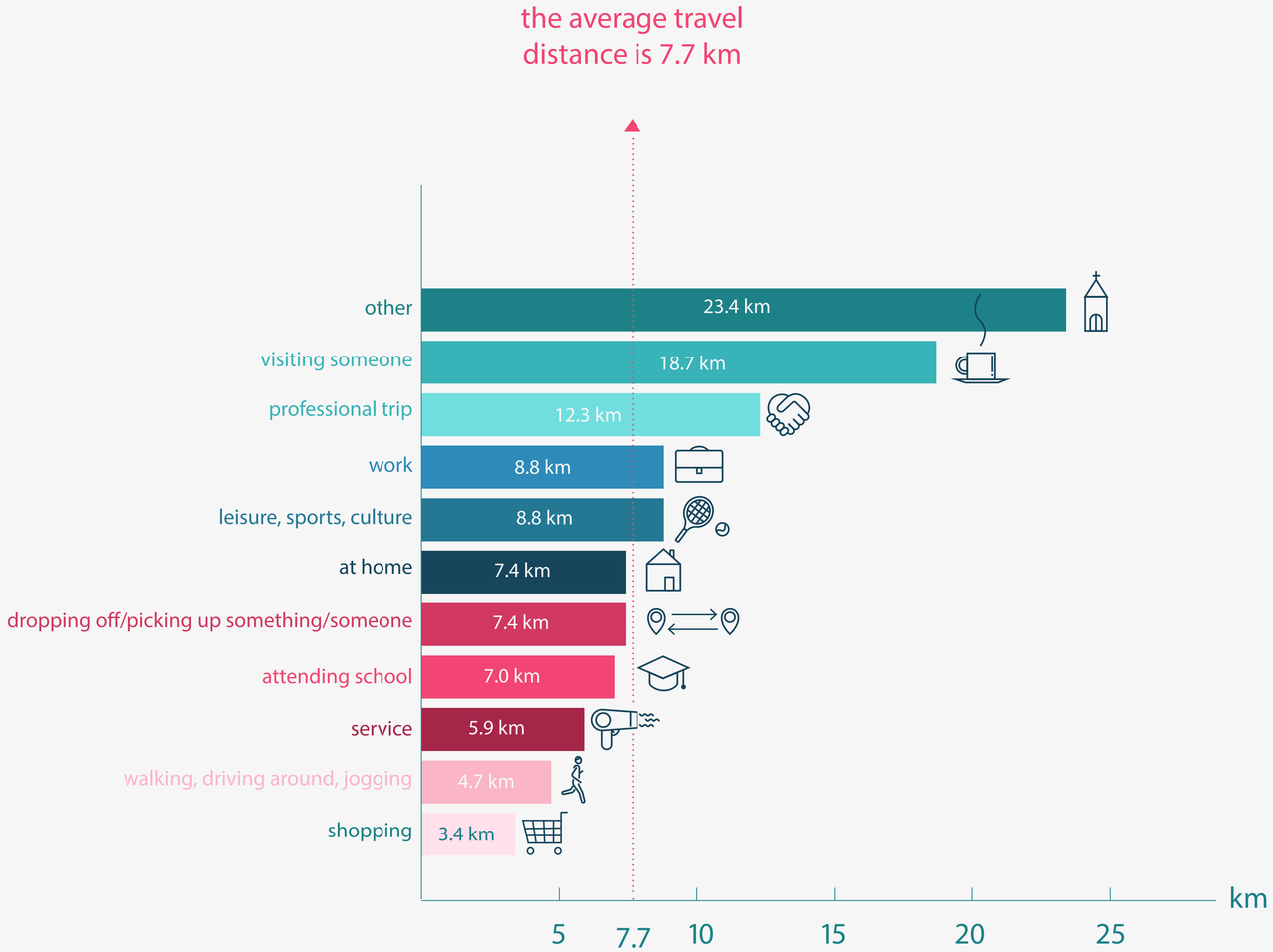
metro / tramway / bus

22%	16%
of all trips	of all kilometres travelled
	38% of all kilometres for internal trips

3 DISTANCE TRAVELLED

3.4 Travel purpose

Earlier, we had seen that the average travel distance is 7.7 km. However, there are purposes for which Brussels residents travel either farther or less than this average. On one hand, we observe that purposes like “shopping” (3.4 km), “walking, driving around, jogging” (4.7 km), and “services” (5.9 km) are below this average distance. On the other hand, purposes like “something else” (23.4 km), “visiting someone” (18.7 km), and “professional trip” (12.3 km) are above the average travel distance.

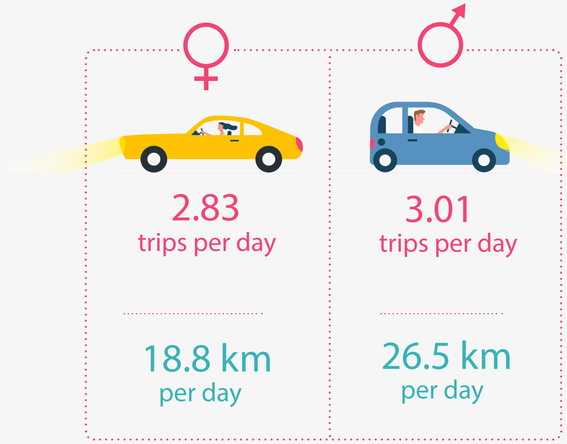


4 VARIATION IN TRIPS AND DISTANCE

4.1 Gender and age

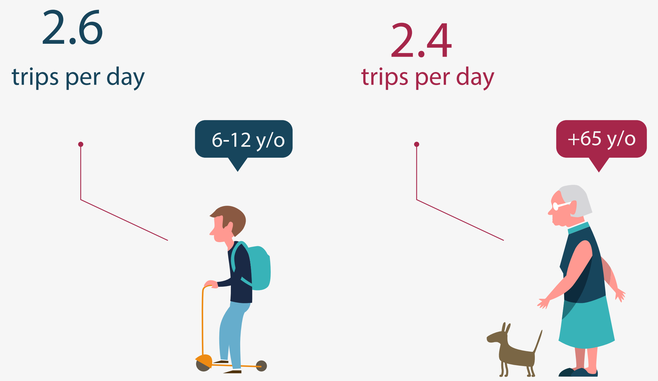
Gender

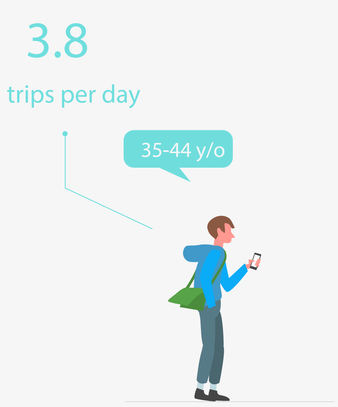
On average, men (3.01) travel slightly more per day than women (2.83). On average, men cover 26.54 km per day, while women cover an average of 18.73 km per day.



Age

The youngest and oldest age groups travel less frequently and cover shorter distances than the other age groups. In the latter group, some individuals already face difficulties in traveling. Additionally, there are more trips in the "active age categories" of 25-54 years. This is crucial to keep in mind when citing the average number of trips and kilometres traveled per person per day (2.92 and 22.6 km at the respondent level): this represents an overall picture, and there are age groups that make significantly fewer or more and longer trips.





age	Average number of trips per person per day	Average number of km travelled per person per day
6-12	2.6	14.0
13-17	2.5	14.3
18-24	2.7	24.5
25-34	3.0	27.0
35-44	3.8	27.6
45-54	3.0	26.2
55-64	2.9	23.1
+65	2.4	15.0
total	2.9	22.6

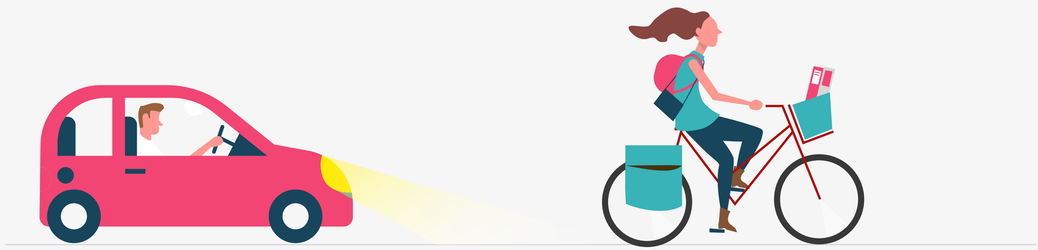
4 VARIATION IN TRIPS AND DISTANCE

4.2 Level of education

Respondents with a (post-)university degree, on average, tend to make more trips than individuals with lower education levels (no diploma or primary education diploma). Caution is advised before seeking causal relationships: mobility behavior depends on many parameters, and educational level is correlated with numerous other variables.

Household income naturally impacts mobility, as well as occupational status, profession type, age, gender, place of residence, and many more factors.

Degree	Average number of trips per day and per person	Average number of kilometers per day and per person
None	1.5	9.3
primary education	2.1	6.9
1st and 2nd section of ESG	2.9	24.6
1st and 2nd section of EST/ESP/ESA	2.6	22.4
3rd section of ESG	2.8	20.4
3rd section of EST/ESP/ESA	2.7	26.0
Higher education (not university)	3.1	23.5
Higher education (university or post-university)	3.6	29.4
Total	2.9	22.6

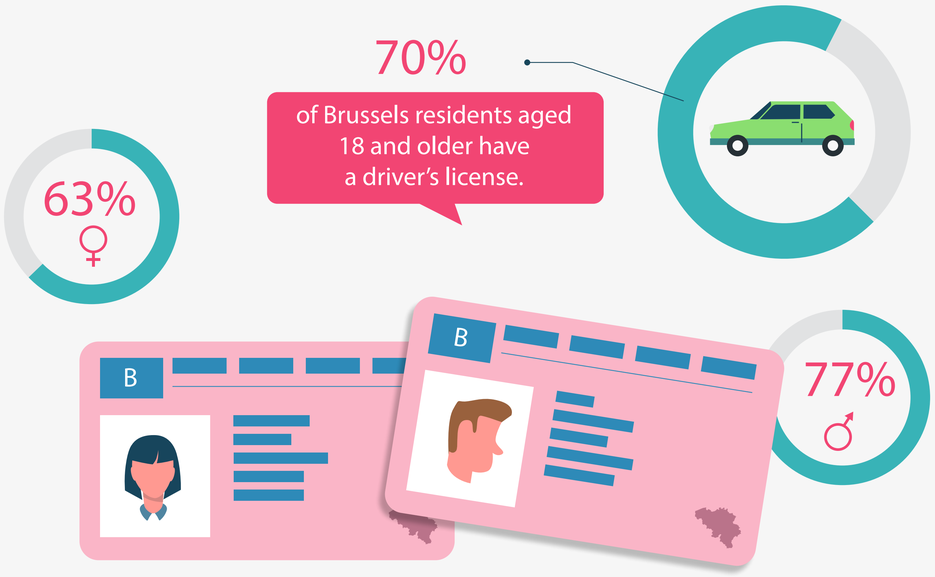


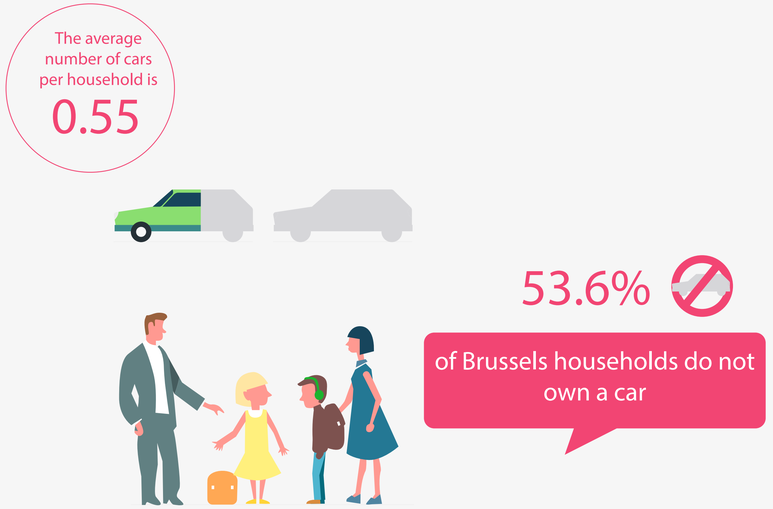
2x more trips

5 GENERAL

5.1 Driver's Licenses

According to OVG 6, nearly 70% of Brussels residents aged 18 and older possess a driver's license. Among men, 76.6% have a driver's license, while this percentage is 63% among women.





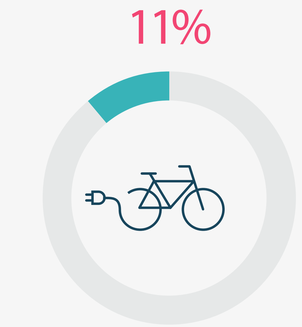
5.2 Number of cars

The average number of cars per household is 0.55. 53.6% of Brussels households do not own a car, 38.4% have one car, and 8% of households possess more than one car. Among those, slightly more than 0.7% have three or more cars.

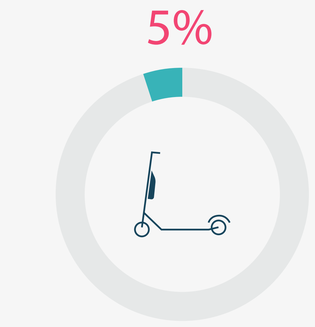
5 GENERAL

5.3 Number of bicycles and electric scooters

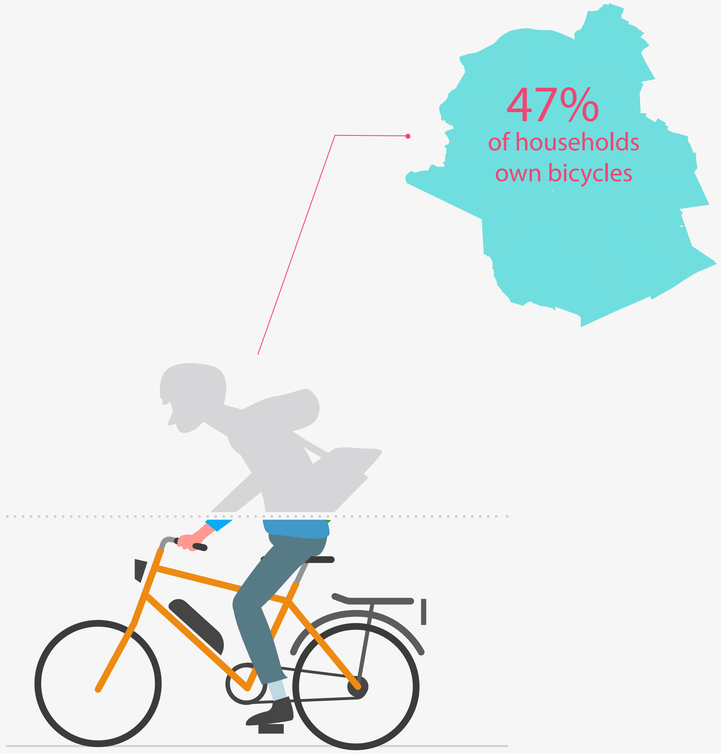
Just under half of the Brussels households own a bicycle (47%). The majority of bicycles remain non-electric so far: only 11% of households own an electric bicycle. Regarding electric scooters (steps), there's a relatively high percentage of 11% of households owning one or more scooters. Among these, 4.6% of households have an electric scooter, and in 6.4% of households, it's a non-electric scooter. There's potential for significant growth in the future for both bicycles and scooters.



electric bicycles



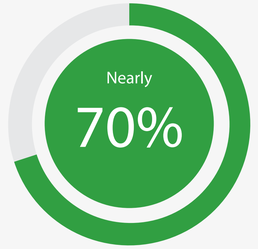
electric scooter



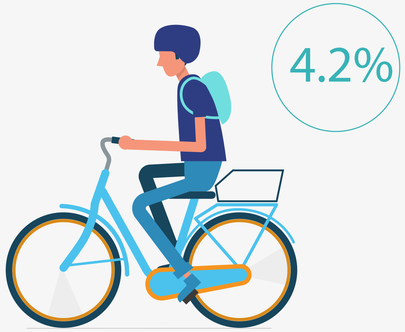
5 GENERAL

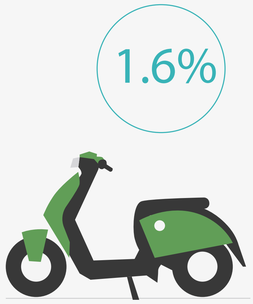
5.4 Public Transport Subscriptions and Registrations for Shared Mobility Systems

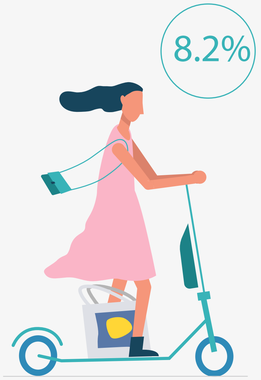
Nearly 70% of Brussels residents claim to have a subscription with the MIVB-STIB. Notably, registration numbers for shared electric scooters are quite significant: 8.2% of Brussels residents have registered for a shared electric scooter app, which is quite substantial for such an innovative form of mobility. Shared electric scooters are followed by shared cars (5.1%) and shared bicycles (4.2%). Additionally, 1.6% of the surveyed individuals report having registered with a shared electric scooter provider.

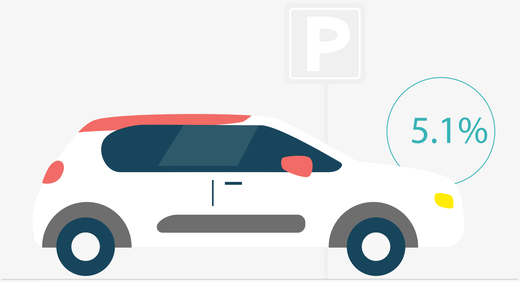


of Brussels residents claim to have a public transport subscription

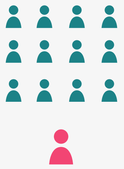








APPENDIX : DESCRIPTION OF THE SURVEY



SAMPLE

Residents aged 6 and above, randomly drawn from the national registry

SURVEY

Consists of 2 questionnaires and a travel diary

SAMPLE SIZE

2,685 citizens from the Brussels Capital Region

SURVEY

Administered on paper or online, with validation done in person or via phone by surveyors

DATA COLLECTION

From October 2021 to October 2022

SURVEY DATA

Weighted to obtain a representative dataset