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LIFE2M – Long Life to Micromobility

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Deliverable D2.2
User's needs report

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Dissemination Level

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Change History

Document status		
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V0.3	26/07/2023	Final version for upload in the EC portal
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Disclaimer/ Acknowledgment

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Executive Summary

The User Needs Analysis (UNA) Report presents the findings of a survey conducted to identify and understand users' perceptions and needs regarding micromobility in three cities: Florence, Palermo and L'Aquila. The survey methodology involved an online questionnaire distributed through various channels between April and June 2023.

The questionnaire covered socio-economic characteristics, travel habits, the purpose of micromobility usage and its role in a multimodal mobility system, the current and expected number of trips, perceptions, limitations, concerns and suggestions. The survey received a total of 1,115 responses, with eligible answers numbering 1,051. Demographic analysis indicated differences in gender, age, income, and education levels among the cities.

Key findings indicate that micromobility usage was relatively low, with 62.8% of respondents never having used micromobility. Safety concerns and perceived lack of comfort were cited as reasons for not using micromobility. The cost was identified as a barrier, with prices of both private and shared micromobility deemed high. Accessibility was perceived differently among the cities, with Palermo expressing a preference for improved public transportation services instead of increased micromobility options. Comfort was a significant factor affecting micromobility usage, particularly for women.

Based on these findings, several user needs were identified, including the need for improved safety measures, reduced costs, enhanced accessibility, and increased comfort. Addressing these needs would help promote the adoption and usage of micromobility in the three cities.

In conclusion, this UNA serves as a valuable resource for informing future product designs and the development of new micromobility fleets. Understanding user perceptions and addressing their needs is crucial to encourage the adoption of sustainable and efficient micromobility options in urban environments.

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Abbreviations and acronyms

Abbreviation / Acronym	Description
WP	Work Package
EC	European Commission
CINEA	Climate, Infrastructure and Environment Executive Agency, an agency of the European Commission
CFS	Certificate of the Financial Statement
VAT	Value Added Tax (a sales tax)
TBC	To be confirmed

Partner short name used in this document	Partner FULL name
UNIFI	UNIVERSITA' DEGLI STUDI DI FIRENZE
EUABOUT	EUROPEAN RESEARCHES AND PROJECTS FOR INNOVATION
USGM	UNIVERSITA' DEGLI STUDI GUGLIELMO MARCONI – TELEMATICA
UNEED	UNEED.IT S.R.L.
SILIDEA S.R.L	SILIDEA S.R.L.
ESCO S.R.L.	ESCO MOBILITY
F&N COMPOSITI	F&N COMPOSITI SRLS
L'AQUILA	COMUNE DELL'AQUILA

Deviations

No deviation from the actions foreseen in the LIFE2M Grant Agreement.

1. Introduction

The User Needs Analysis (UNA) Report identifies and elaborates the user's perception and needs regarding micromobility as part of Task 2.2 of the project. This UNA focuses on users and non-users in the three project sites, Florence, L'Aquila and Palermo. Distribution of this questionnaire was conducted in collaboration with the local partners.

The outcomes of this task will be used as input for all other products of the LIFE2M project. In this report, the methodology of Task 2.2 and its corresponding user's needs analysis has been analysed in depth.

2. Methodology

The survey was carried out through an online questionnaire (https://forms.gle/sCRpFVxa48fUcC9z5) focusing on the following aspects:

- Socio-economic characteristics
- User habits (time and place of use)
- Purpose of use
- The role in a multimodal mobility system
- Current/expected number of trips with microvehicles
- Perception of micromobility, suggestions and perceived criticalities
- Accessed areas, used infrastructure elements
- Current limitations and concerns.

The survey was carried out between 3 April 2023 and 9 June 2023. It was distributed through the local partners (Unifi, Esco and L'Aquila), local newspapers and several Facebook groups. A detailed outline of the specific questions posed in the questionnaire can be found in Annex 1.

The analysis was preceded by a data quality check in order to ensure the consistency of information. For example, respondents from places that could not travel or work in one of these cities on a regular basis were excluded from the analysis.

3. Results

3.1 General results

The database is composed by 1,115 total responses. However the eligible answers were 1,051, with 124 responses from Florence (12%), 735 responses from L'Aquila (70%) and 192 responses from Palermo (18%).

The data set collected cannot be considered as representative of the entire population of the cities (with the exception of L'Aquila) as various characteristics of the data sets are overrepresented whilst others are underrepresented.

In Florence, most responses came from the academic and university environment where it is represented mostly by men and people from group of age 25 to 44 years. Women and people form group of age 14 to 24 years are underrepresented. One-third of respondents hold a doctoral degree, followed by people who hold bachelor's and master's degree and high school diploma.

In Palermo, the questionnaires were distributed through the project partner ESCO mobility, who operates in the new emerging market of 'green mobility' and specifically in the management of electric vehicle sharing fleets and most responses came from this environment. Women are even more underrepresented if compared to Florence, with only 20.8% of responses came from women and the other came from men. Similar to Florence, people from group of age 14 to 24 years are also underrepresented. More than half of the respondents hold a high school diploma, followed by people who hold bachelor's or master's degree and secondary school diploma whereas people with doctoral degree are underrepresented.

In L'Aquila, on the other hand, the dataset has equal distribution of female and male respondents. The group of age is also represented well for people between 15 and 64 years and people between 14 to 24 years. Almost half of the respondents hold a bachelor or master degree, this is followed by those with a high school diploma and doctoral degree.

In general, the 65+ age group is underrepresented.

In the three cities most people ranging in income from EUR 0 to EUR 39,999. Less than 20% of the samples have incomes in the EUR 40,000 to 59,000 range and over EUR 60,000.

Socio-economic characteristics of the sample

3.1.1 Gender composition

Figure 1 illustrates the gender distribution of the respondents, which is relatively balanced with 54% male respondents, 45% female and 1% preferred not to state. However, a closer look indicates some differences in gender distribution of respondents across cities, as shown in Figure 2. In L'Aquila the differences are quite similar but in Palermo and Florence the differences are relatively large especially in Palermo where females only make up 20% of the respondents.

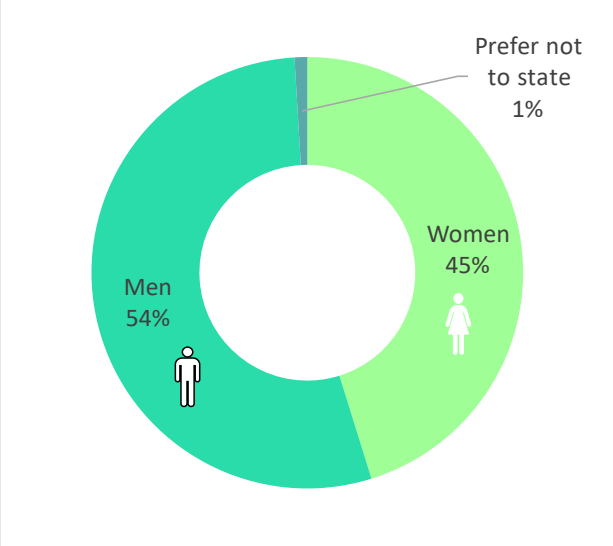

Figure 1 – Questionnaire responses and gender division of respondents

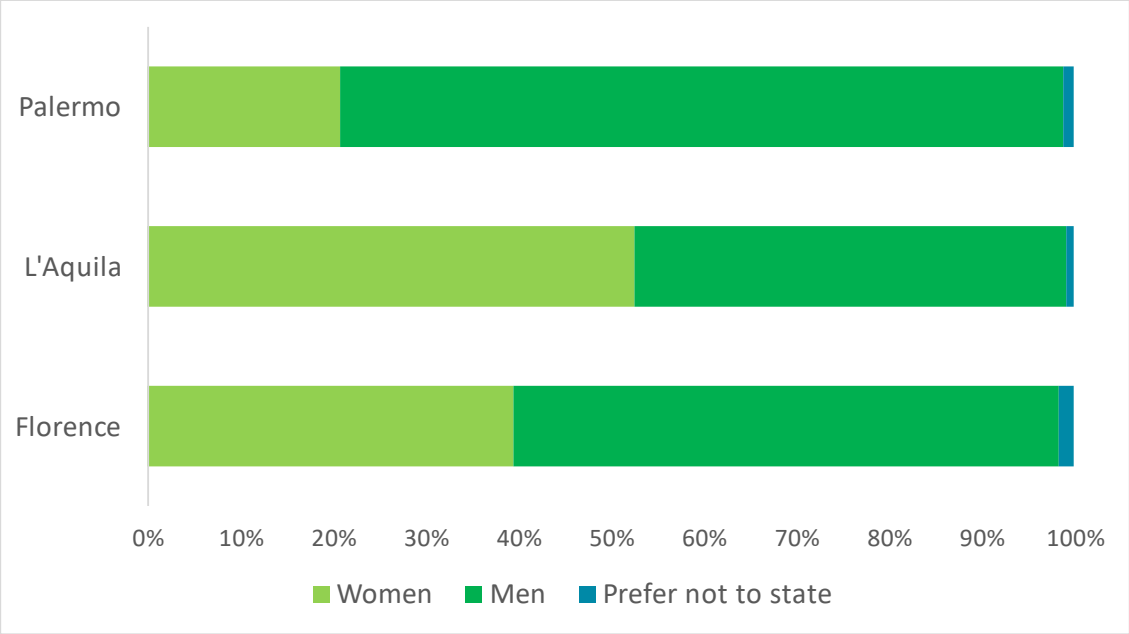

Figure 2 – Gender distribution for each city

3.1.2 Age composition

The respondents are represented by 40.9% of group age between 25 to 44 years old, 35.5% between 45 to 64 years old, 20.5% between 14 to 24 years old and 3.1% older than 65 years old. As reported in Figure 3, in general, responses were lack of population sample of people from group of age more than 65 years.

Table 1 summarises the age group percentage of respondents in each city. In Florence and Palermo, the population sample for people of group of age 14 to 24 years was marginal (14.5% and 12.5% respectively) if compared with sample for people of group of age 25 - 44 and 25 - 64.

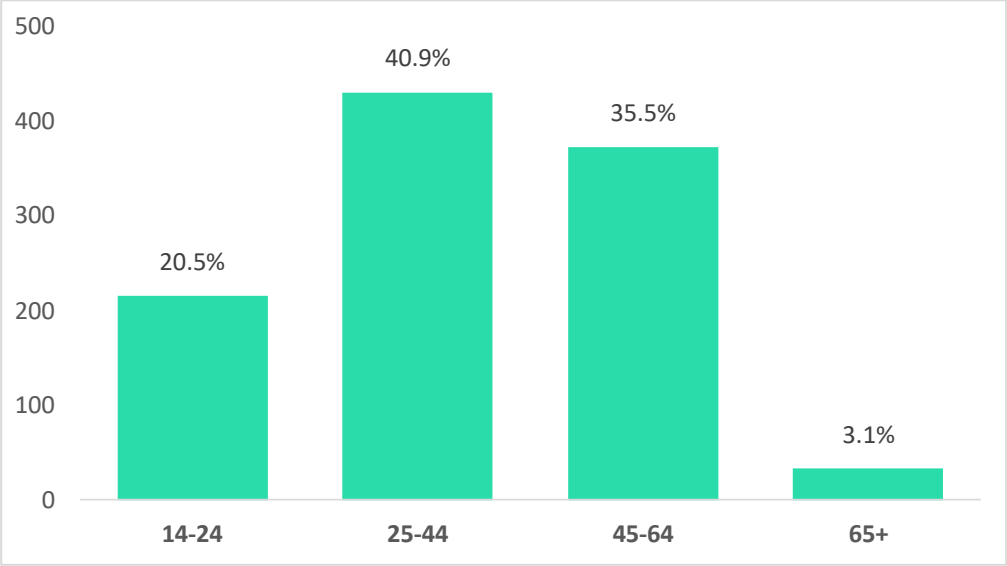

Figure 3 – Respondents' group of age

Table 1: Group of age by cities

Age group (years)	Florence	L'Aquila	Palermo	Total
14-24	14.5%	23.5%	12.5%	20.5%
25-44	50.0%	37.4%	48.4%	40.9%
45-64	33.9%	35.2%	37.5%	35.5%
> 65	1.6%	3.8%	1.6%	3.1%
Total	100.0%	100.0%	100.0%	100.0%

3.1.3 Income composition

Figure 4 illustrates income levels for all respondents and Table 2 summarises the income level percentage of respondents in each city. Forty point eight per cent of respondents have a level of income between EUR 20,000 to EUR 39,999; 40.1% between EUR 0 to EUR 19,999; 12.5% between EUR 40,000 to EUR 59,999; 4.0% more than EUR 60,000 and 2.7% did not state their income level.

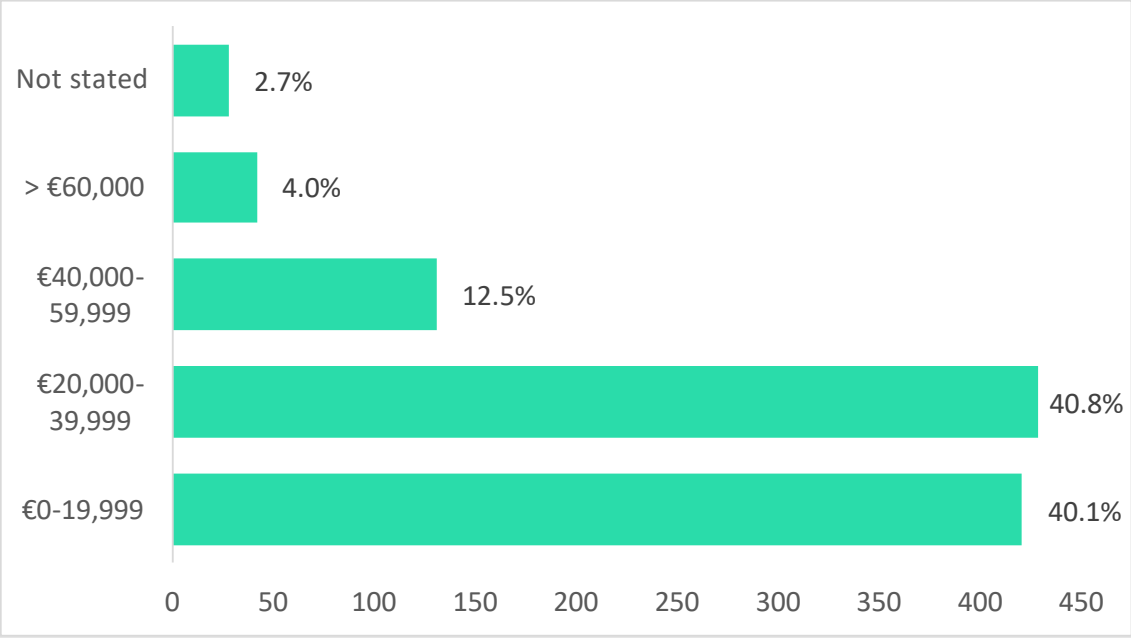

Figure 4 – Income level

Table 2: Income level by cities

Income Level (EUR)	Florence	L'Aquila	Palermo	Total
0 – 19,999	36.5%	39.9%	41.6%	39.8%
20,000 – 39,999	39.1%	40.4%	44.2%	41.0%
40,000 – 59,999	14.8%	13.9%	5.8%	12.5%
> 60,000	7.8%	4.0%	2.1%	4.1%
Not stated	1.7%	1.8%	6.3%	2.6%
Total	100.0%	100.0%	100.0%	100.0%

3.1.4 Educational composition

Figure 5 illustrates the education levels for all respondents and Table 3 summarises the education level for each city. Overall, 45% of respondents hold bachelor's or master's degrees, 40.1% hold high school diplomas, 10.7% hold doctoral degrees, 3.6% finished secondary school and the other 0.7% either finished primary school, do not have an education, or did not state their education level.

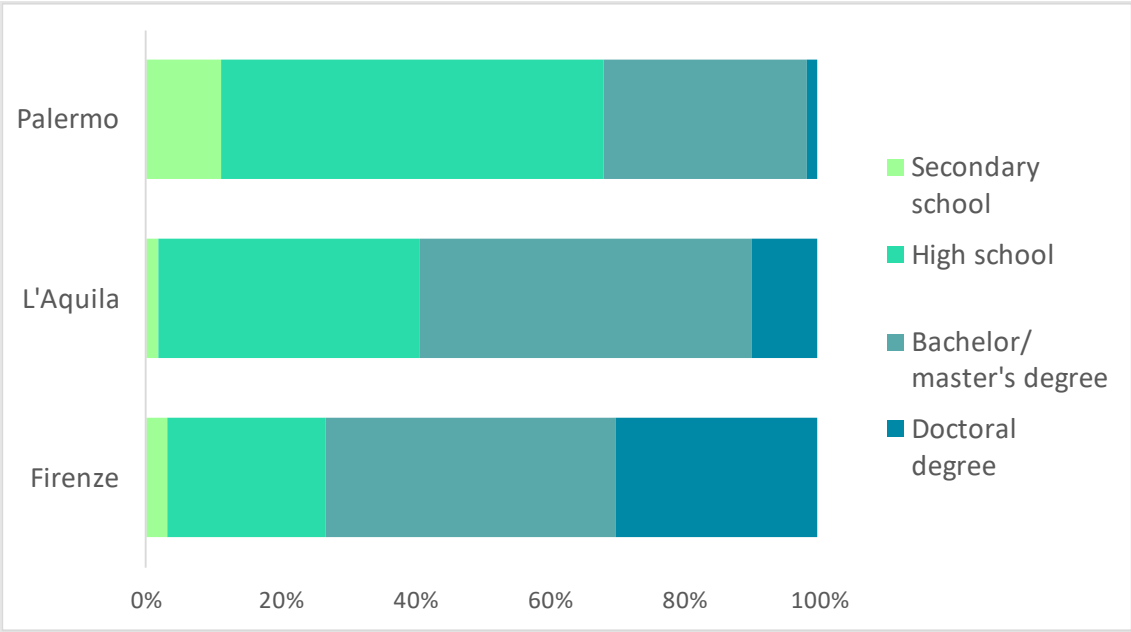

Figure 5 – Education level

Table 3: Education level by cities

Education Level	Florence	L'Aquila	Palermo	Total
Primary school	0.0%	0.1%	0.0%	0.1%
Secondary school	1.7%	1.8%	11.1%	3.5%
High school	23.5%	38.9%	55.3%	40.2%
Bachelor/ master's degree	42.6%	49.2%	30.0%	44.9%
Doctoral degree	31.3%	9.8%	1.6%	10.7%
None/ not stated	0.9%	0.1%	2.1%	0.6%
Total	100.0%	100.0%	100.0%	100.0%

3.1.5 Smartphone and credit card ownership

Figure 6 shows smartphone and credit card ownership. Almost all respondents own a smartphone and only less than one percent do not own a smartphone. When it comes to credit card ownership, three-quarters of people own a credit card and 20% do not own a credit card. Those who do not own a credit card mostly have an income between EUR 0 to EUR 19,999.

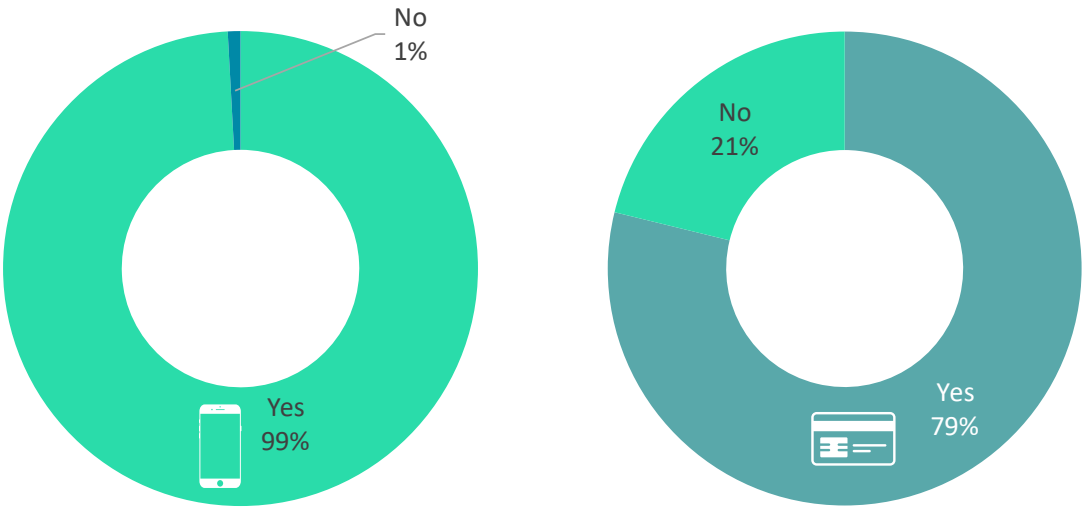

Figure 6 – (a) Smartphone and (b) Credit card ownership

3.1.6 Travel habit

The survey identified the trip purpose, frequency of trips, trip distance and means of transport used by the respondents. The respondents were able to choose more than one trip purpose and 1,083 responses were obtained. As depicted in Figure 7, most respondents travel for work (61.4%), study (23.6%), domestic errands (7.6%), leisure or free time (7.6%) and other reasons including medical visits and accompaniment (1%).

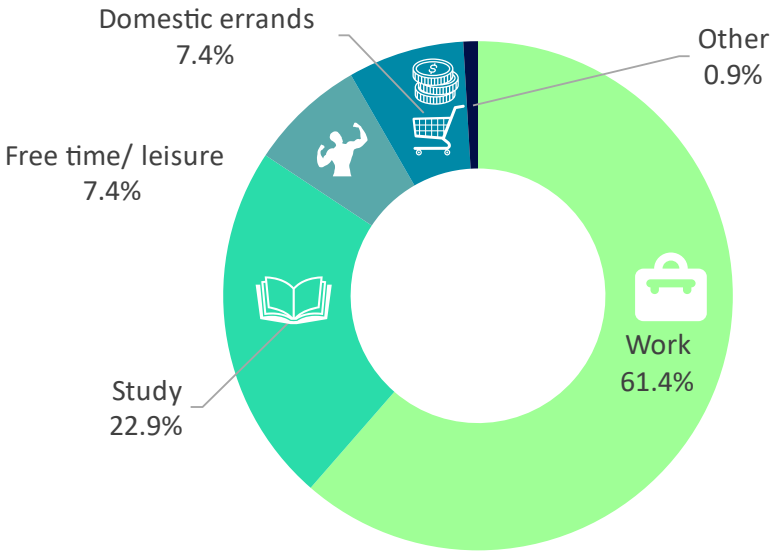

Figure 7 – Trip purpose

Figure 8 shows the travel frequency and Figure 9 shows the average trip distance covered by the respondents. Fifty-one point two per cent of the respondents travel every day, 32.7% travel four to six times a week, 16.7% travel one to three times a week, and only 3.2% travel less than once a week, with a distance of more than

eight kilometres (34.8%), two to four kilometres (18%), four to six kilometres (17.1%), six to eight kilometres (15.2%) and less than two kilometres (11.9%).

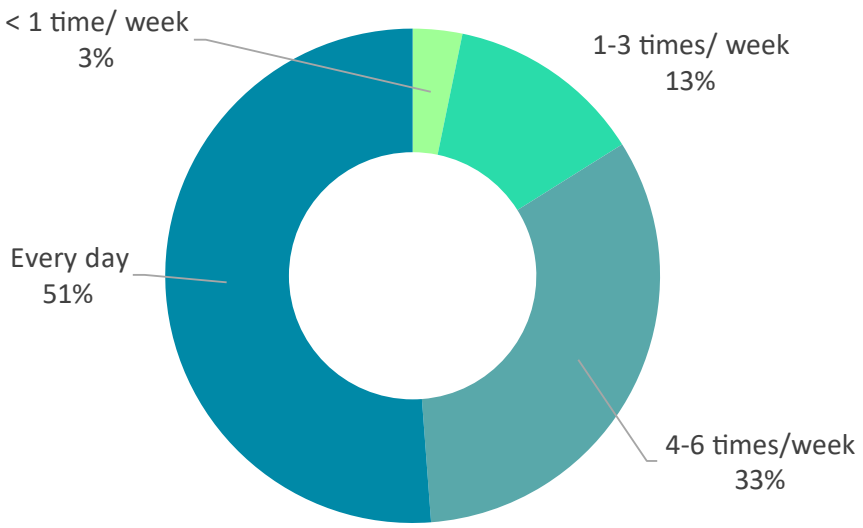

Figure 8 – Travel frequency

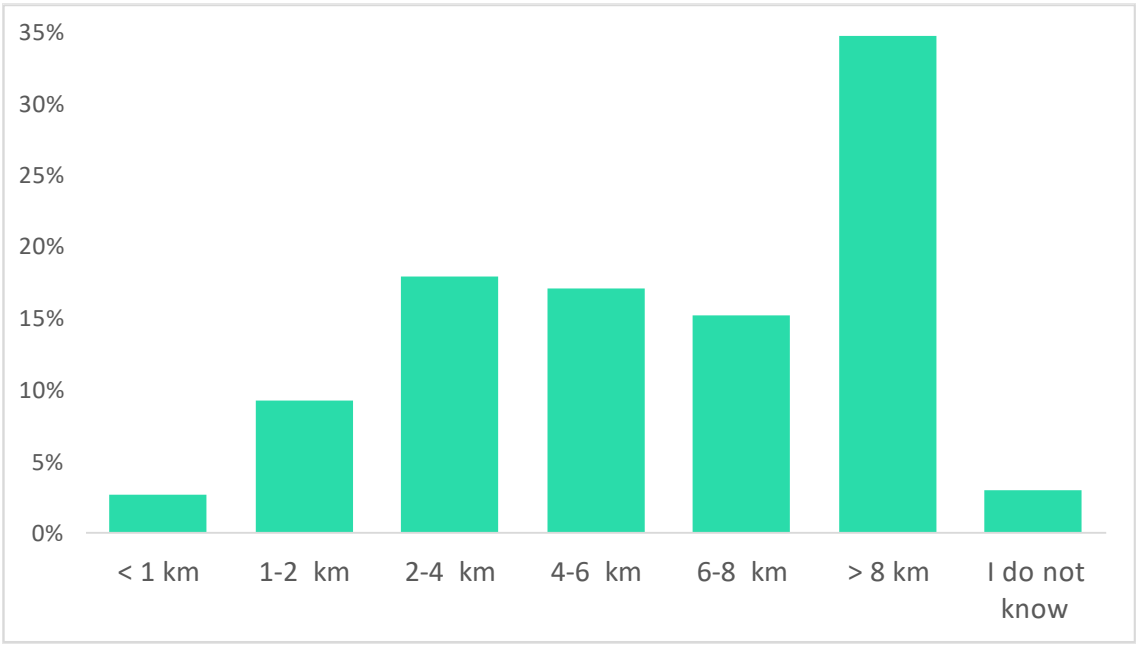

Figure 9 – Trip distance

The car is the main form of transportation used (63.7% of respondents); this is followed by public transport usage (14.2%), walking (9.5%), e-kickscooter (3.9%), scooter (3.6%), bicycle (2.8%) and other means of transportation (2.4%).

In L'Aquila, almost 70.9% of the respondents are using internal combustion engine cars as transport mode. Electric and hybrid cars make up 2.9% of the total amount of respondents in L'Aquila. In both Palermo and Florence only 1 person responded to use an electric car. In Palermo, although the car share is considerably

high, there is an equal share of micromobility use such as e-kickscooter, scooter and bicycle. In Florence, cars take one third of the modal share and other means such as walking, micromobility and public transport have almost equal share between them. Figure 10 and Figure 11 illustrates the mode of transport used by the respondents.

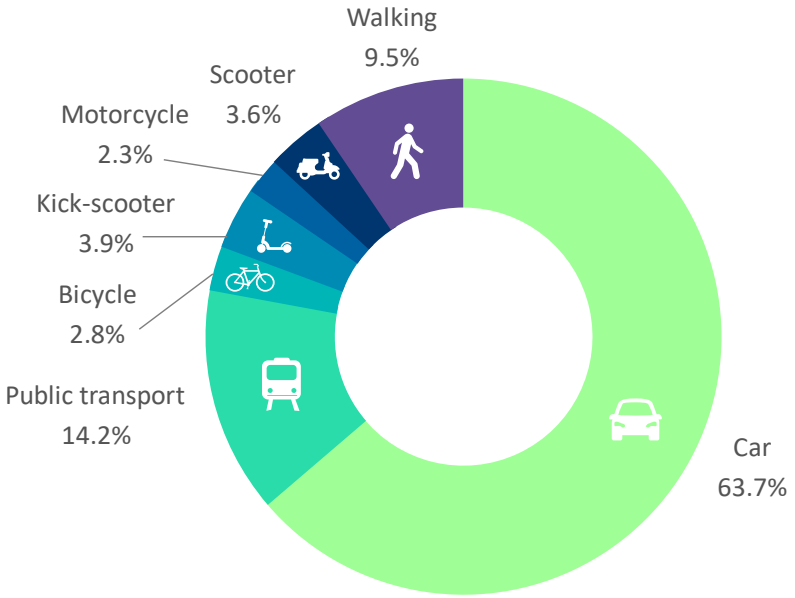

Figure 10 – Transport modal share

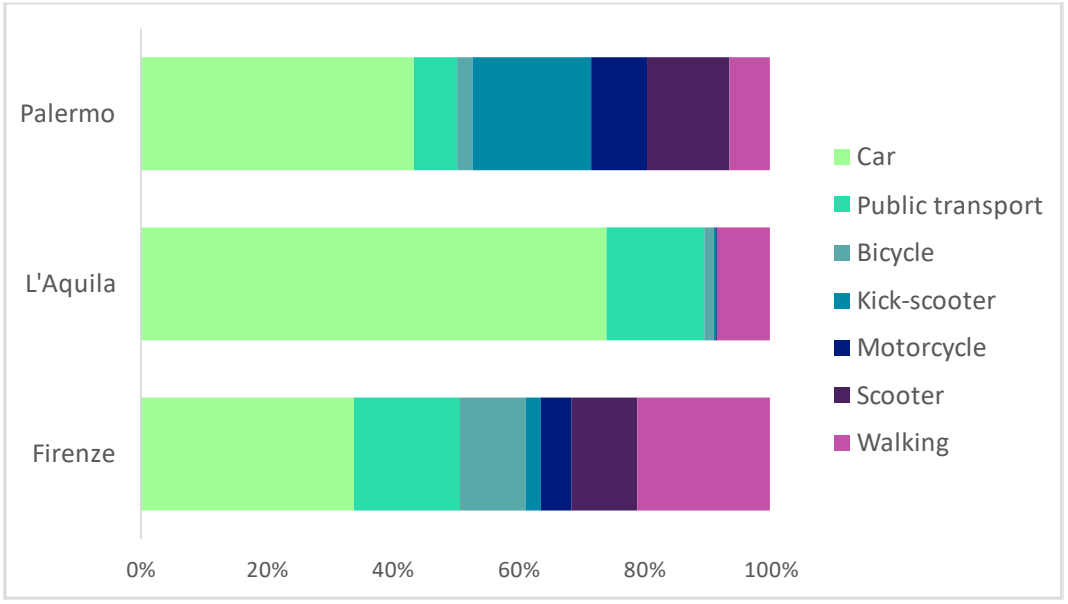

Figure 11 – Transport modal share by cities

3.1.6 Micro mobility usage

More than half of the respondents have never used micromobility (62.8%) and only 37.2% have used it. Of the total 391 respondents who have used micromobility, 44.5% used a private vehicle, 34.3% used a shared vehicle and 21.2% has used both private and shared micromobility. Figure 12 shows the micromobility experience for all cities and Table 4 summarises the micromobility experience for each city.

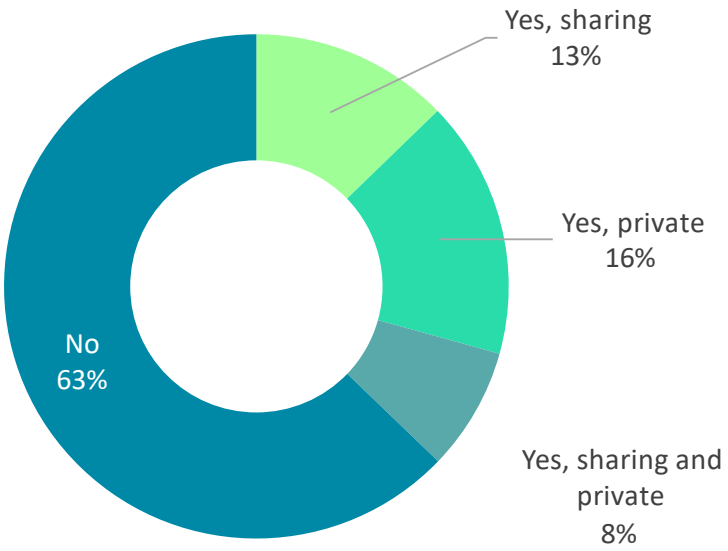

Figure 12 – Micromobility usage experience

Table 4: Micromobility usage experience by cities

Micromobility experience	Florence	L'Aquila	Palermo	Total
Yes, sharing micromobility	26.6%	6.7%	27.1%	12.7%
Yes, private micromobility	19.4%	15.6%	18.2%	16.6%
Yes, sharing and private micromobility	9.7%	5.3%	16.7%	7.9%
No	44.4%	72.4%	38.0%	62.8%
Total	100.0%	100.0%	100.0%	100.0%

Figure 13 illustrates reasons not to use a micromobility and reasons that encourage people to use it. People who do not use micromobility think that it is either not safe for the users, not comfortable or that it creates dangerous situations for other road users. Another reason mentioned by respondents on why they do not make use of micromobility vehicles is that because they think that it does not save time. This response was mainly given by those that use car as main form of transportation.

Reasons for using micromobility are that it is good for the environment, allows to save time and is flexible. Answers therefore show that the respondents do have an understanding of the benefits that micromobility can have in term of reduction of pollutant and CO2 emissions.

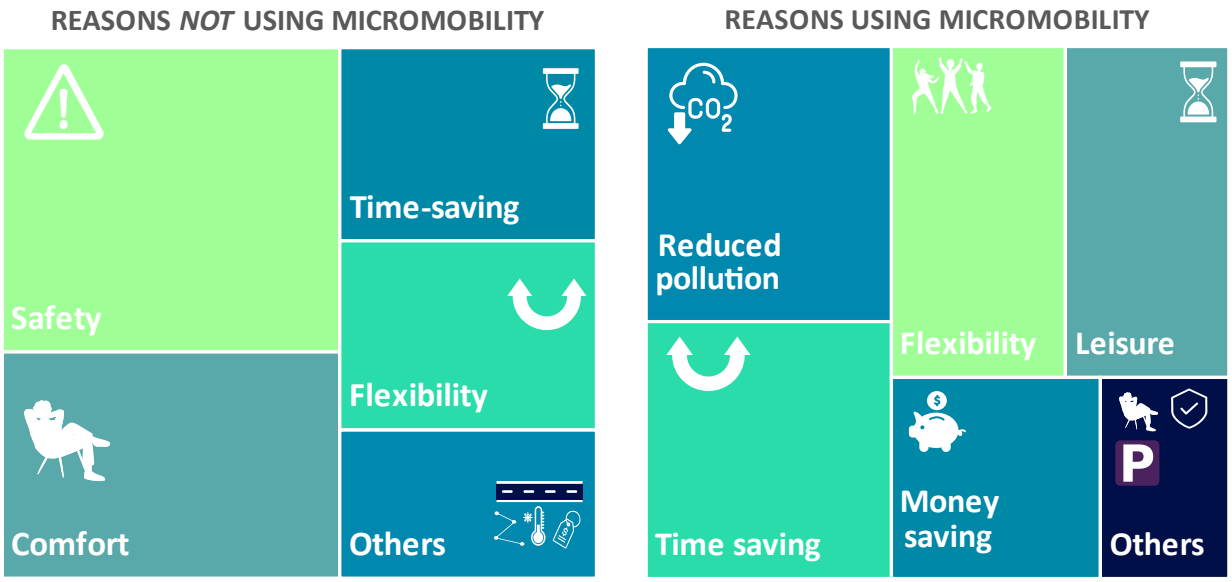

Figure 13 – Reasons of (a) not using and (b) using a micromobility

The most frequently used form of micromobility is the e-kickscooter (34.70% of respondents) followed by the bicycle (32.70%); e-bicycle, e-mopeds have been used by the least number of respondents (Figure 14).

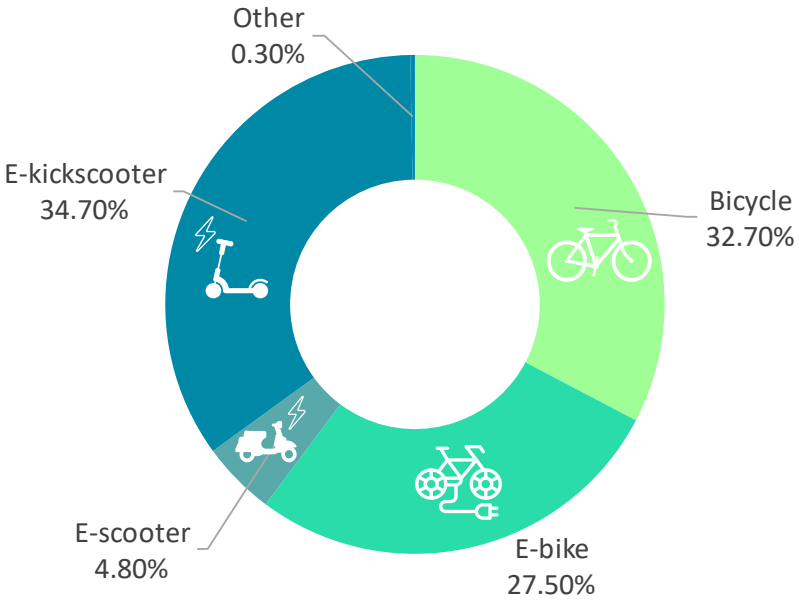

Figure 14 – Type of micromobility used

In general, almost 40% of respondents use micromobility less than once per month, 23.5% use it at least once per week, 19.7% at least once per month and 11.8% every day or almost every day. Almost half of the respondents do not use micromobility with other forms of transportation, as illustrated in Figure 15, while 19.9% use it in combination with a private car, 17.1% use it in combination with walking and 13.6% use it in combination with public transportation.

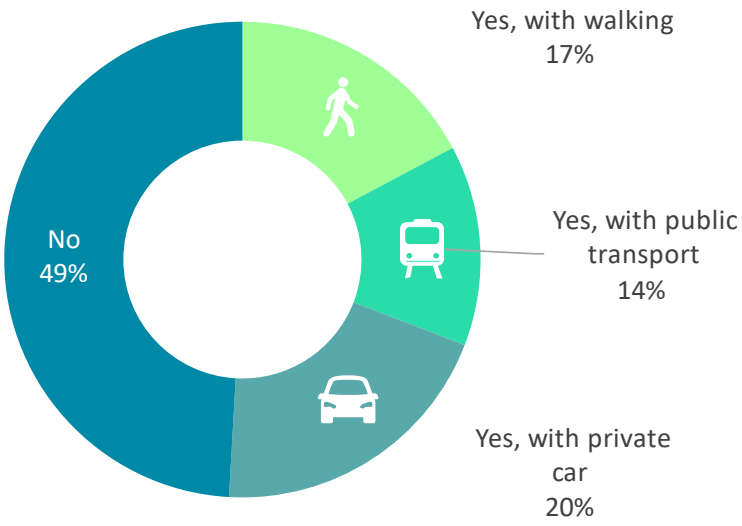

Figure 15 – Micromobility transport modal mix

When using micromobility (Figure 16), the respondents are predominantly substituting cars (59.3%), walking (18.8%), public transport (14.2%), and scooters or motorcycles (7.5%). A large amount of micromobility trips thus substitute mainly car trips, with an expected positive environmental impact. However, almost 1/5th of all trips substitutes walking and public transport and this partially reduces the positive environmental impact of the shift to micromobility. Furthermore, the substitution of trips by public transport, on the one hand could constitute a relief for such service and, on the other, could create issues in terms of financial sustainability.

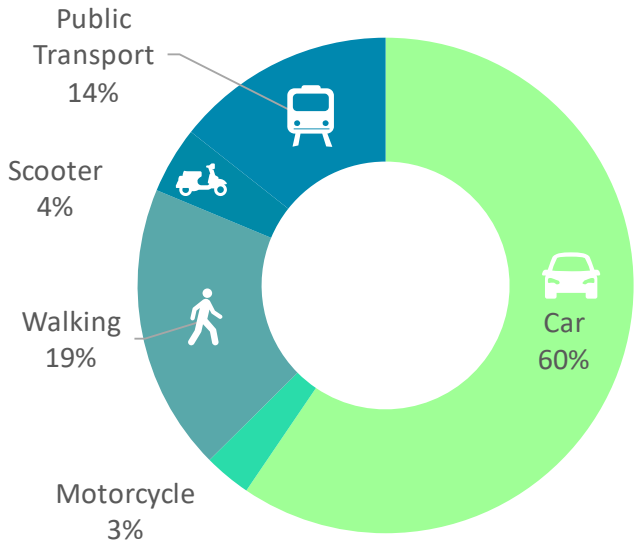

Figure 16 – Means of transport substituted when using a micromobility

In three cities, when traveling with bicycles, scooter, kick-scooter or other micromobility forms, almost 75% of respondents are usually riding on the road, 19.2% on the cycle path, 5.2% on the sidewalk and other 0.8% are riding on unpaved road such as gravel or dirt road.

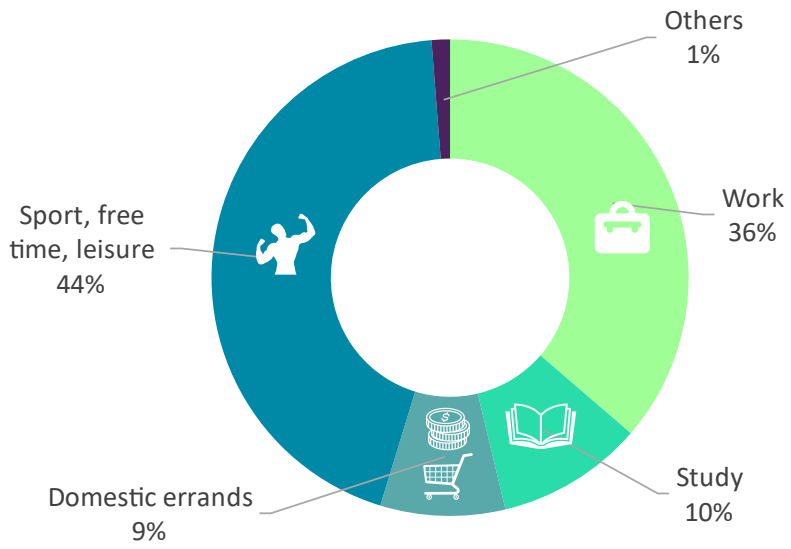

Figure 17 – Micromobility use purpose

Figure 17 illustrates the micromobility use purpose. The largest percentage of respondents uses micromobility in their free time or for leisure purposes and sport (44.4%); this is followed by work reasons (36.4%). Other reasons such as study or domestic errands are less mentioned as reasons for using micromobility but still hold a sizeable percentage of the respondents with 9.2% and 7.7% respectively.

Figure 18 depicted micromobility usage among women and men. Most women used it for sport, free time and leisure (51%), work (26%), study (15%) and other reasons including domestic errands (8%), while men mostly used it for work (47%), sport, free time and leisure (33%), study (10%), domestic errands (9%) and other reasons (1%).

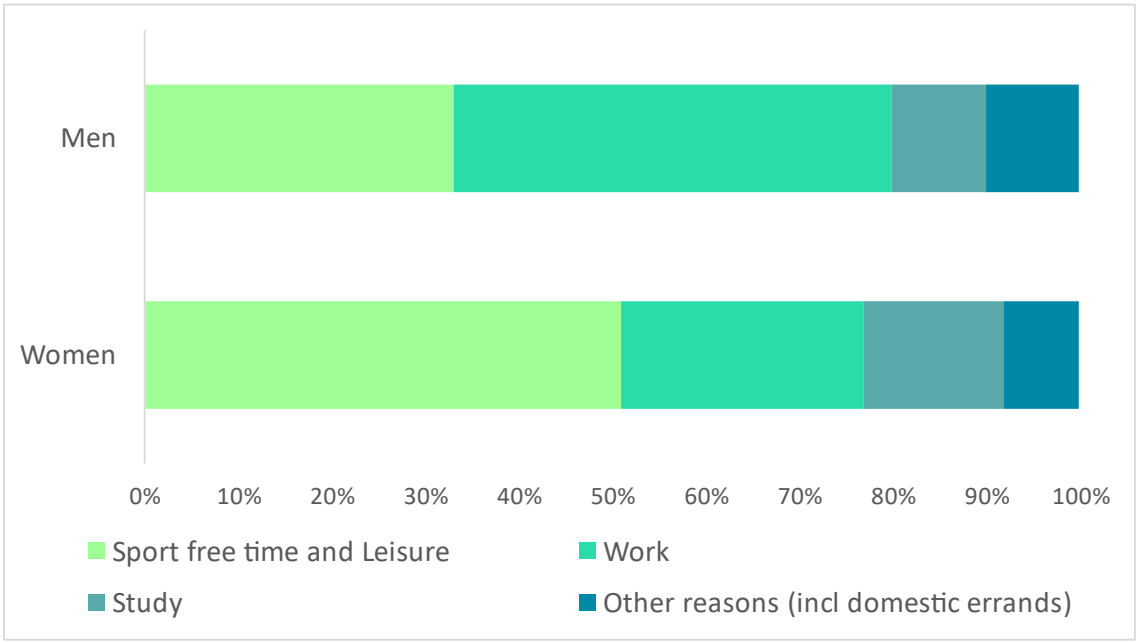

Figure 18 – Micromobility trip purpose by gender

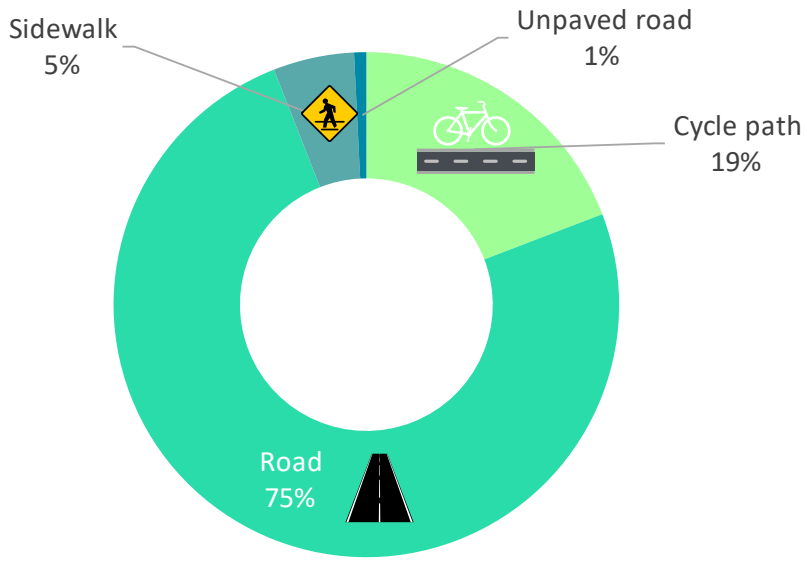

Figure 19 – Path used when using micromobility

People perceived positively when asked how they think about the introduction of new micromobility in their city. Overall, slightly more than one-third of respondents perceived that the increase of micromobility is absolutely positive for their cities, while it was declared to be positive by 23.5% of respondents, neither positive nor negative by 23.4%, negative by 9.6% and absolutely negative by 9.6%.

Those who perceive micromobility positively and absolutely positive believe that it improves urban mobility, is environmentally friendly and more affordable. Those who have neither positively nor negatively perceived micromobility believe that it creates dangerous or unsafe situations for other road users and is unsafe for those who use it. Those who perceived it negatively and absolutely negative shared the same reason with those who responded neutrally and also perceive micromobility as not comfortable.

Figure 20 shows a comparison of micromobility perception for those who have used and never used it. On average, those who have never used it have a more negative perception (13.4%) than those who have used it (3.4%). About 27.4% of the groups that has never used it has a neutral perception of micromobility whilst this is 18.3% of the group that has used micromobility. In the latter group, 74.9% of the respondents has a positive or very positive perception compared to only 45.8% of the non-users.

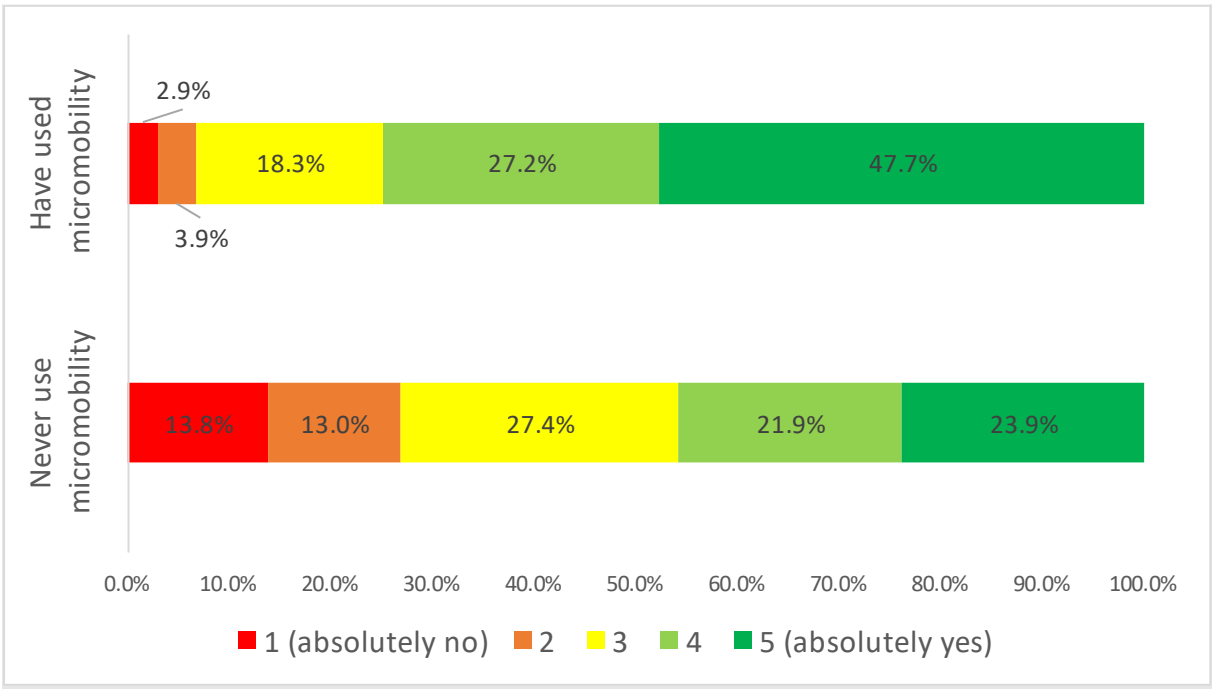

Figure 20 – Perception of micromobility for those who have user and never used a micromobility

For what concerns the time of the day in which respondents use micromobility (as shown in Figure 21), most respondents use it in the morning (33,2%) and the afternoon (34.2%). Sizeable amounts of respondents declared that they have no specific time during the day to use micromobility (14.6%), while about 13.6% declared to use it in the evening (13.6%) and 4% during the night.

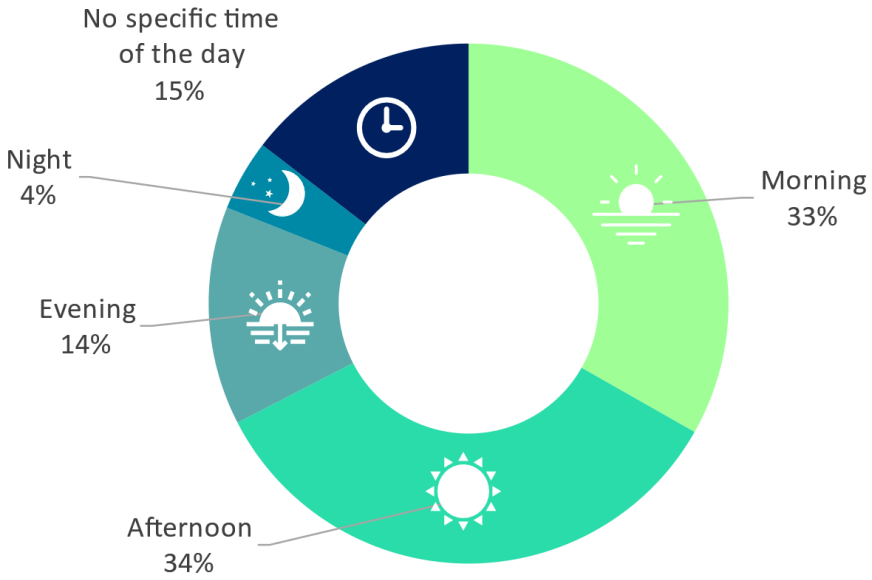

Figure 21 – Micromobility usage time

As illustrated in Figure 22, in the morning and afternoon, most people use micro-mobility for work while in the afternoon and evening people use it in their free time as leisure. When using a micromobility for leisure, people usually do not have specific time of the day.

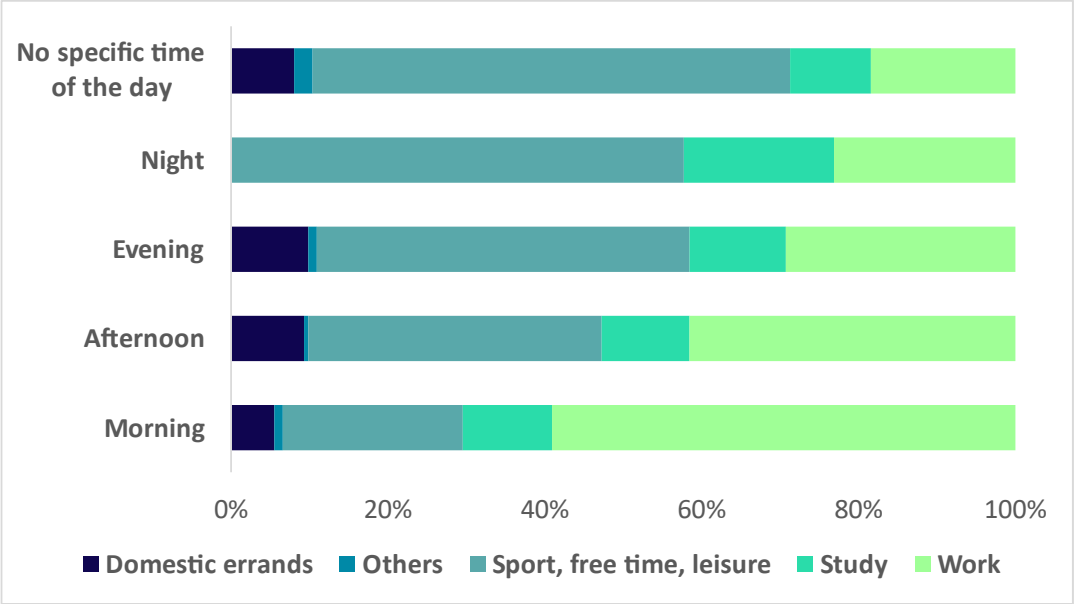

Figure 22 – Micromobility usage time and purpose

3.1.7 Synthesis of the results

Table 5 is a synthesis of the main results of the questionnaire survey from the three cities of Florence, Palermo and L'Aquila. Based on these results the user's needs are analysed for each city and they are described in the following sub chapters

Table 5: Synthesis of the main results of survey

Variable	Florence	Palermo	L'Aquila
Perception			
▪ **Positive**	66%	69%	53%
▪ **Neutral**	21%	16%	26%
▪ **Negative**	13%	15%	21%
Current number of trips with microvehicles	Less than once per month		
Micromobility used			
▪ **Sharing**	56%	56%	36%
▪ **Private**	44%	44%	64%
Types of micromobility used	Bicycle, e-bike, e-kickscooter		E-kickscooter, e-bike, bicycle
Purpose of use	Work/ Leisure or free time	Work	Leisure or free time

Variable	Florence	Palermo	L'Aquila
Use as last mile	Mostly no, some combined with PT	Mostly no, but there is equal share of combination with private cars, PT and walking	Mostly no, some combined with private cars
Means of transport avoided when using micromobility	Cars, walking		
Time of use	34% afternoon, 33% morning, 15% no specific time, 14% evening, 4% night		
Path used	75% road, 20% cycle path, 5% sidewalk		
Criticalities	Safety, comfort, cost, accessibility, regulations, inclusivity, infrastructure		

3.2 Florence

In Florence, there were 124 responses which consists of almost 40% women, 59% men and less than 1% preferred not to state. Most people belong to group of 25 to 44 years of age and 45 to 64 years of age and, there was not enough population sample of people in group age 14 to 24 years and people older than 65 years. The majority of respondents belong to income group between EUR 0 to 19,999 and EUR 20,000 to EUR 39,999 and hold bachelor's or master's degree.

On average, people travel every day or four to six times per week, with a small percentage of travel frequency one to three times per week or less than once per week, with travel distance two to four kilometers, followed by more than eight kilometers and from one to two kilometers and from four to six kilometers. The most used means of transport is car, followed by walking, public transport, bicycle and scooter (Figure 23) mainly for work, study and free time or leisure (Figure 24). It is interesting that the number of women travelling by public transport is four times higher than men and the number of men travelling by car is twice as much as that of women.

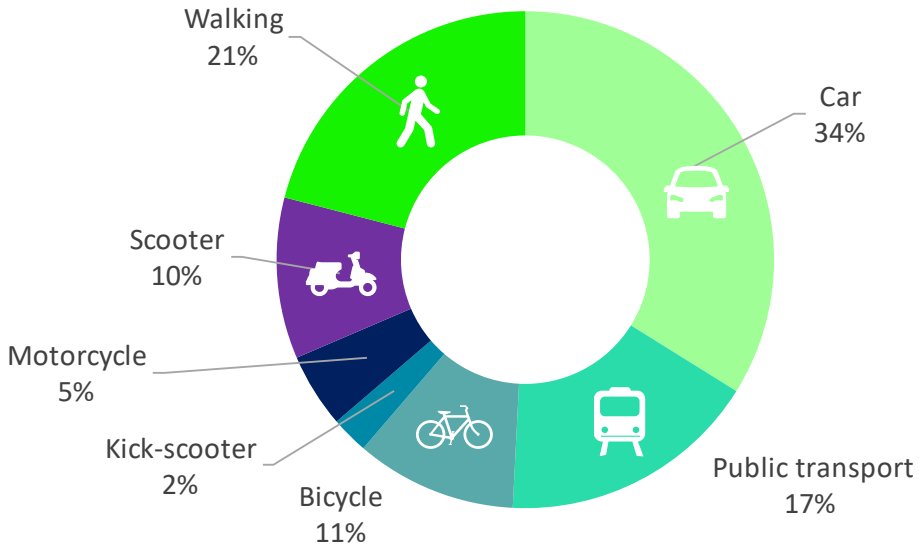

Figure 23 – Means of transport used in Florence

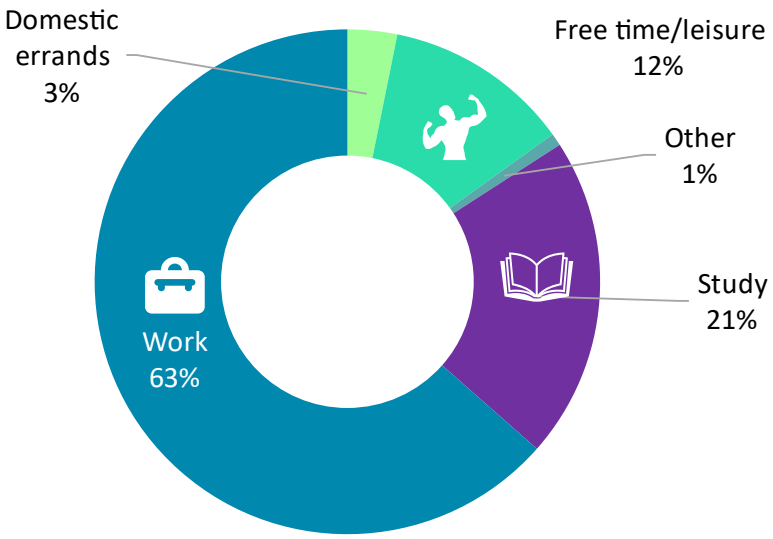

Figure 24 – Trip purpose in Florence

The number of people who have used or have not used micromobility is divided almost equally (56% and 44% respectively, illustrated in Figure 25), although looking into details more people from group of age 45 to 64 years have never used micromobility if compared to younger group of age as shown in Figure 26. People who have used micromobility mostly have used sharing micromobility (47.8%), private micromobility (34.8%) and both (17.4%). Almost half of these people use micromobility less than once per month, however 40% of respondents use it at least once per week or per month. As depicted in Figure 27, bicycle and e-bike seem to be the most used type of micromobility. Forty-four percent of people use bicycle, 29% use e-bike and 22% use e-kickscooter, however e-kickscooter users among people of group of age 45 to 64 years are less if compared to the younger group of age.

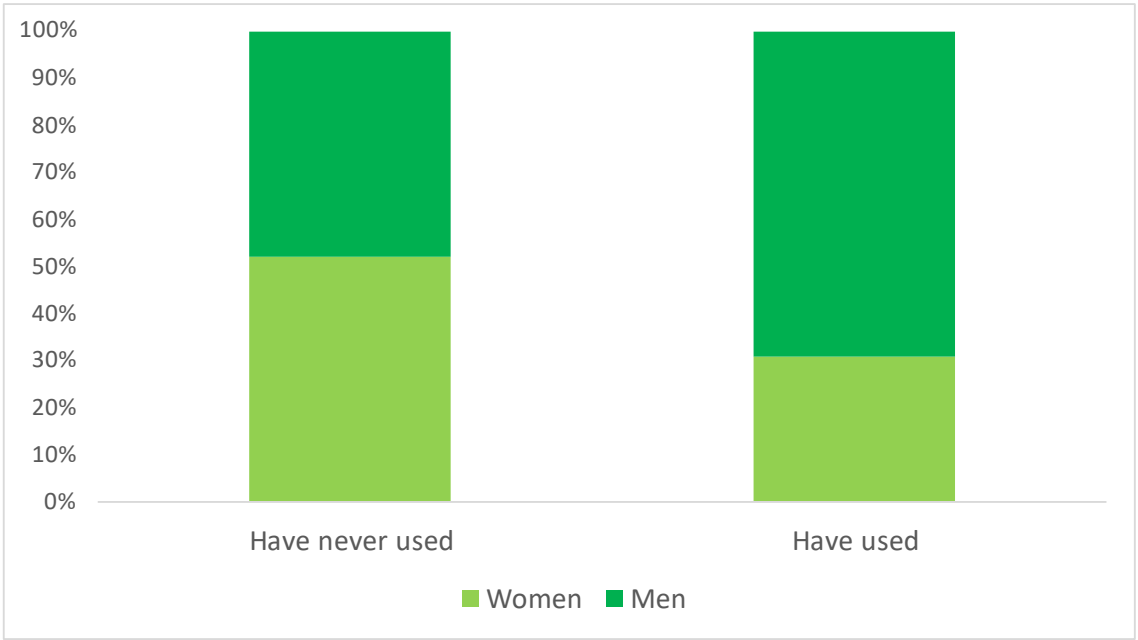

Figure 25 – Micromobility experience by gender in Florence

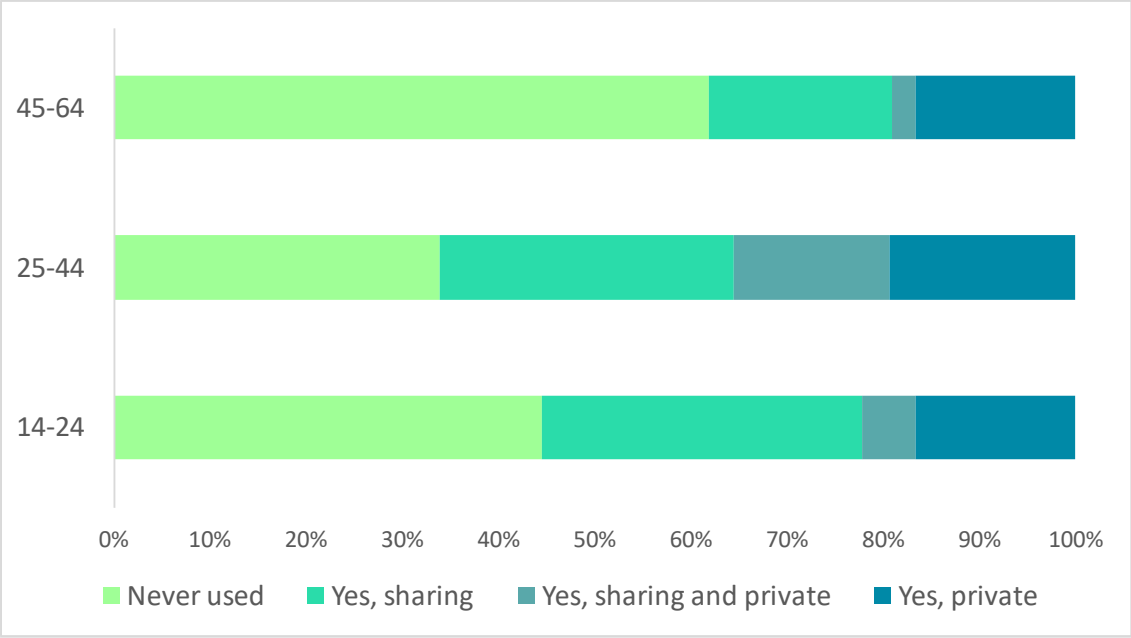

Figure 26 – Micromobility experience within each group of age in Florence

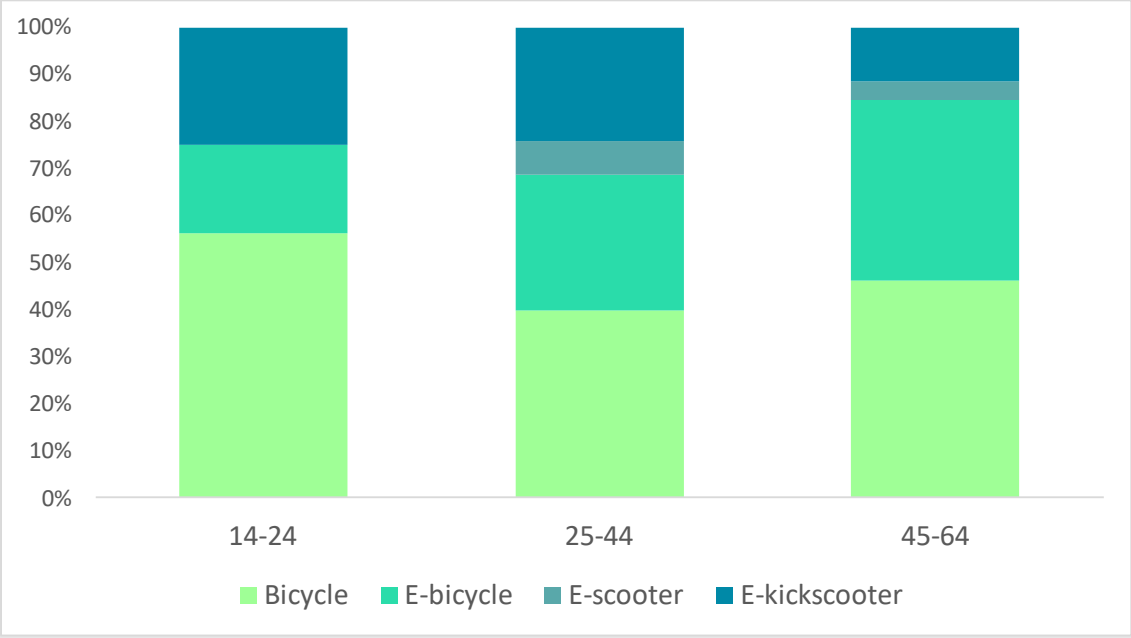

Figure 27 – Micromobility types used within each group of age in Florence

The principal reasons why people have not used micromobility are related to safety, saving time, comfort and flexibility and reasons of people using micromobility are related to saving time, flexibility, pollution reduction and leisure, free time and physical activities.

Half of the respondents reported not to use micromobility in combination with other forms of transportation, 21% combines it with public transport, 14.5% combines it with walking and 11.6% combines it with their private car. The use of micromobility in Florence is mostly related to work, leisure, sport and free time and study.

In general, people's perception of micromobility in this city is positive regardless of their experience whether they have used or have not used micromobility, although people who have never used micromobility have tendency to perceived it negatively or neutrally. Figure 28 illustrates the perception of people who have never used micromobility in Florence and the motives behind their perception. People who have not used micromobility think that micromobility creates dangerous situations for other road users and is not safe for those who drive it but also think that it is environmentally friendly and improves urban travel.

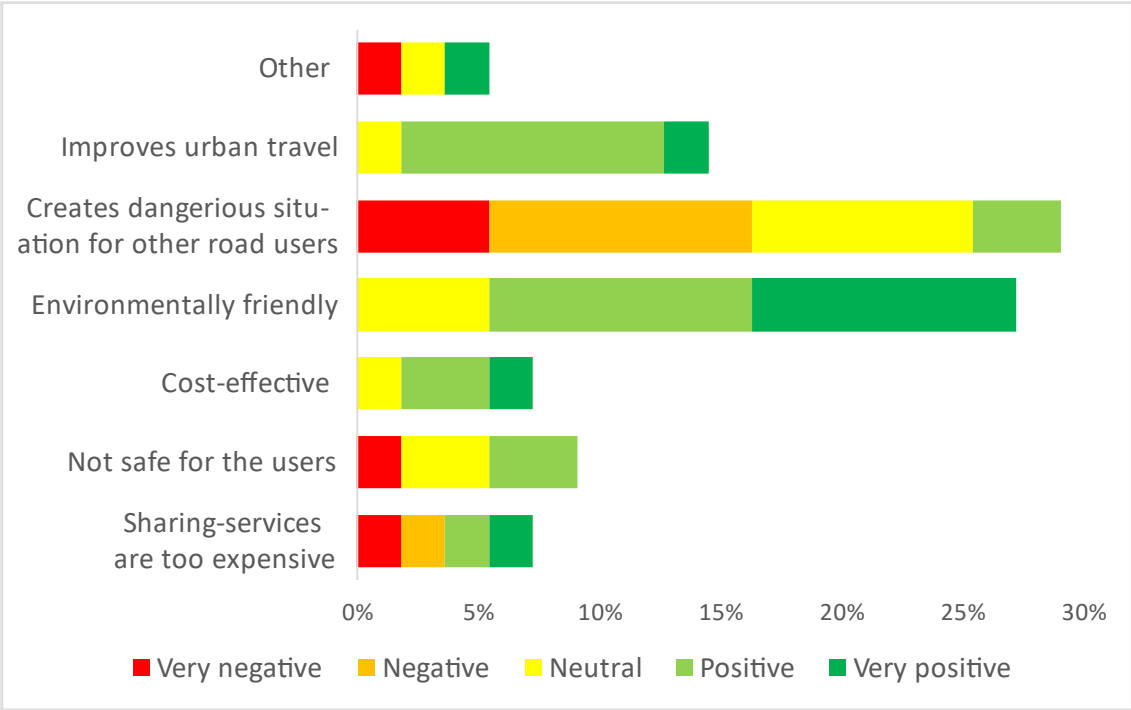

Figure 28 – Perception and their motives of people who have never used micromobility in Florence

Figure 29 illustrates the perception of people who have used micromobility and their motives regarding their perception. People think that micromobility improves urban travel and environmentally friendly, but also think that sharing services are too expensive and it creates dangerous situations for other road users.

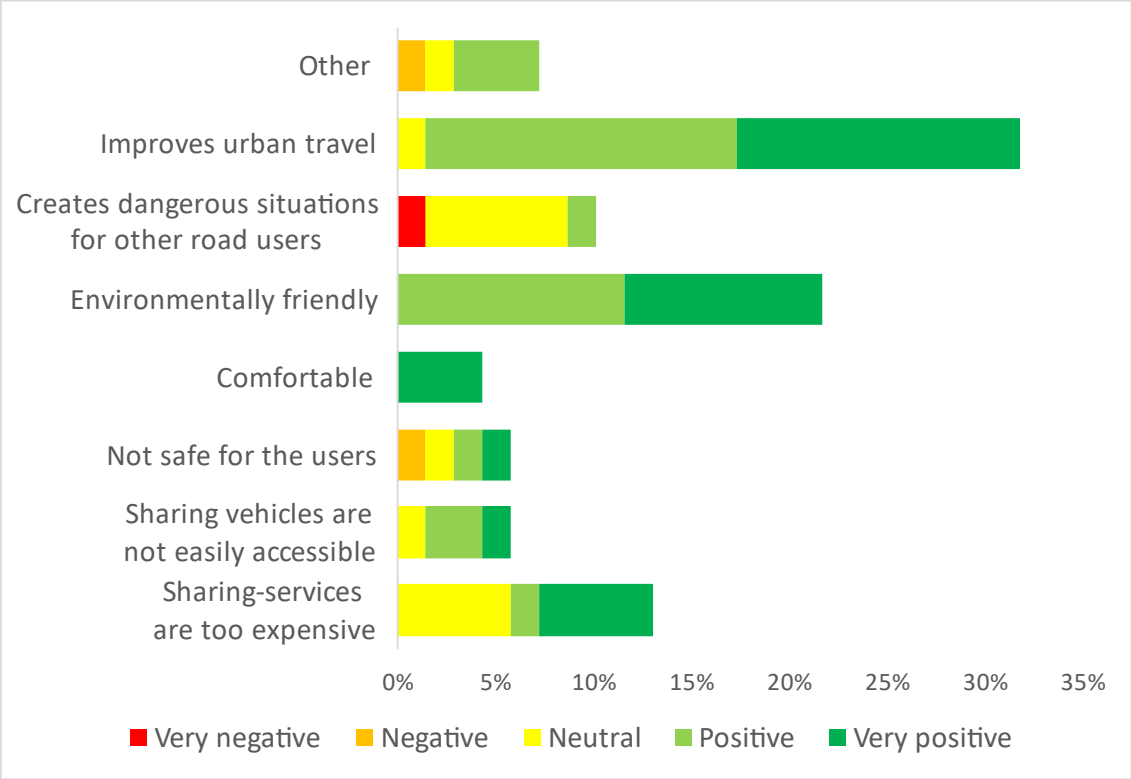

Figure 29 – Perception and their motives of people who have used micromobility in Florence

3.3 Palermo

In Palermo, there were 192 responses which consist of 21% women and 78% men. Most people belong to group of 25 to 44 years of age, followed by 45 to 64 years of age; people from group of age 14 to 24 years and older than 65 years are underrepresented. The majority of respondents have an education level of high school diploma, followed by bachelor's or master's degree and secondary school. People declared an income level up to EUR 39,999.

Almost half of the respondents travel every day, 28.6% travel four to six time per week, 16.7% travel one to three times per week and about 5% travel less than one time per week. On average, travel distance is more than eight kilometers, followed by four to six kilometers and two to four kilometers. Figure 30 shows the most used means of transport in Palermo, which are dominated by car usage (43.2%), followed by kick-scooter (18.8%), scooter (13%) and motorcycle (8.9%). Travel is mainly related to work (83%), free time or leisure (8%), domestic errands (6%) and study (3%) (Figure 31).

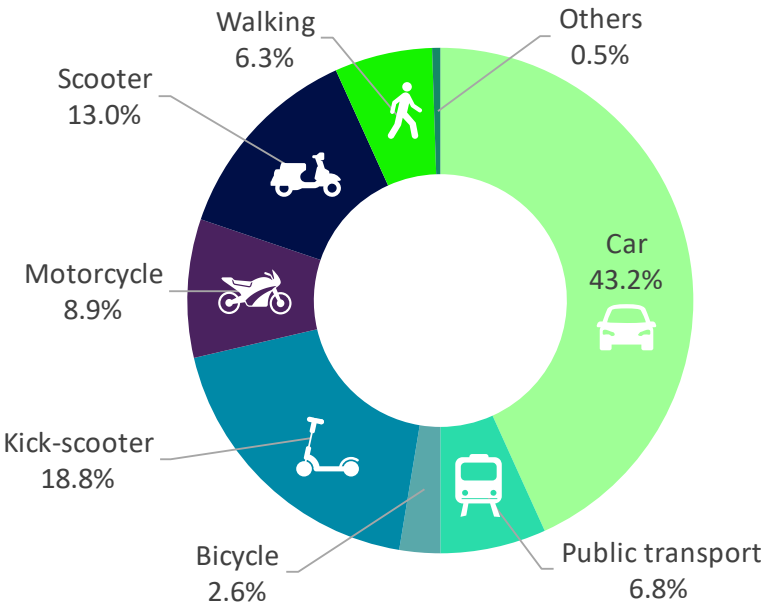

Figure 30 – Means of transport used in Palermo

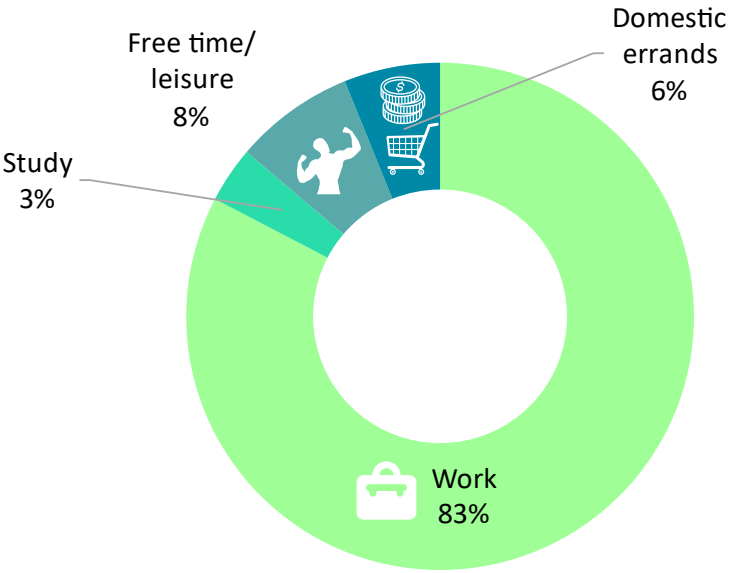

Figure 31 – Trip purpose in Palermo

Regarding the experience of micromobility, as illustrated in Figure 32, 62% of respondents have used micromobility and 38% have not used it. The group of people who have never used micromobility are mostly in group of age 45 to 65 years, while among the younger age groups most of respondents have used it, as illustrated in Figure 33. People from group of age more than 65 are excluded in the graph since only 3 people responded for this category and all of them have never used micromobility.

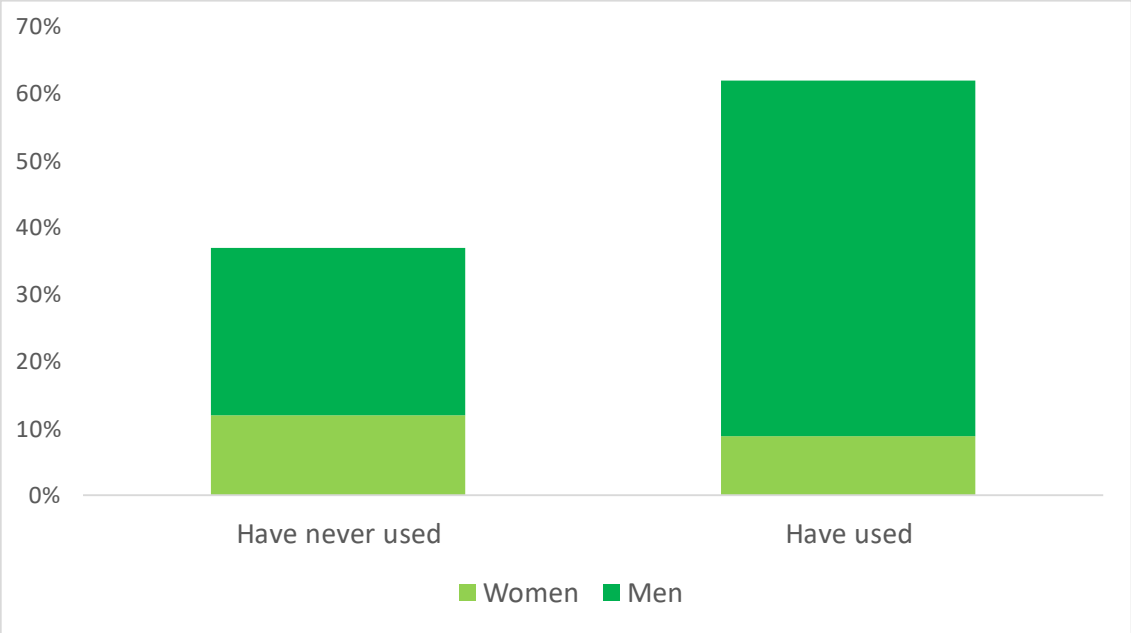

Figure 32 – Micromobility experience by gender in Palermo

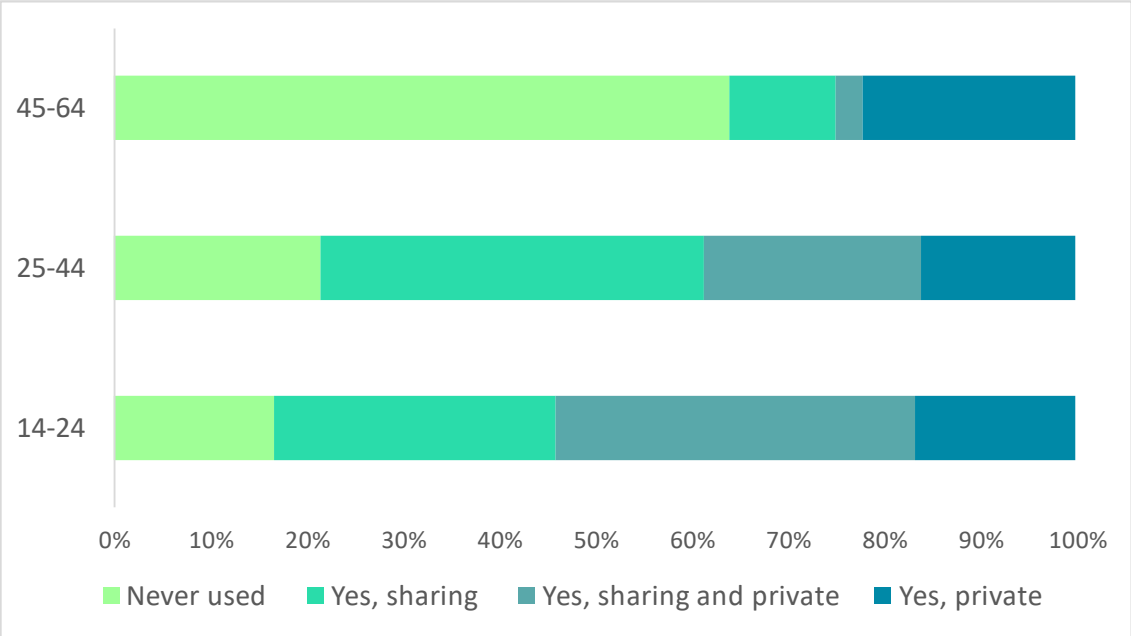

Figure 33 – Micromobility experience within each group of age in Palermo

When using micromobility, almost 40% of people do not do it in combination with other means of transport, while 23.5% use also private car and 19.3% use a combination of micro-mobility and walking or public transport. It is worth noting that a significant 65.5% of people who use micromobility tend to substitute private cars. Conversely approximately 12% of users opt to avoid walking or using public transport when using micromobility. Travel with micromobility is largely related to work (60.2%) and leisure or free time (28.8%).

Generally the most used micromobility vehicle is e-kickscooter; analysing it in more detail, as shown in Figure 34, e-kickscooter is used mostly in the group of age 25 to 44 years and 14 to 24 years, while people in the group of age 45 to 64 years use more bicycle or e-bike.

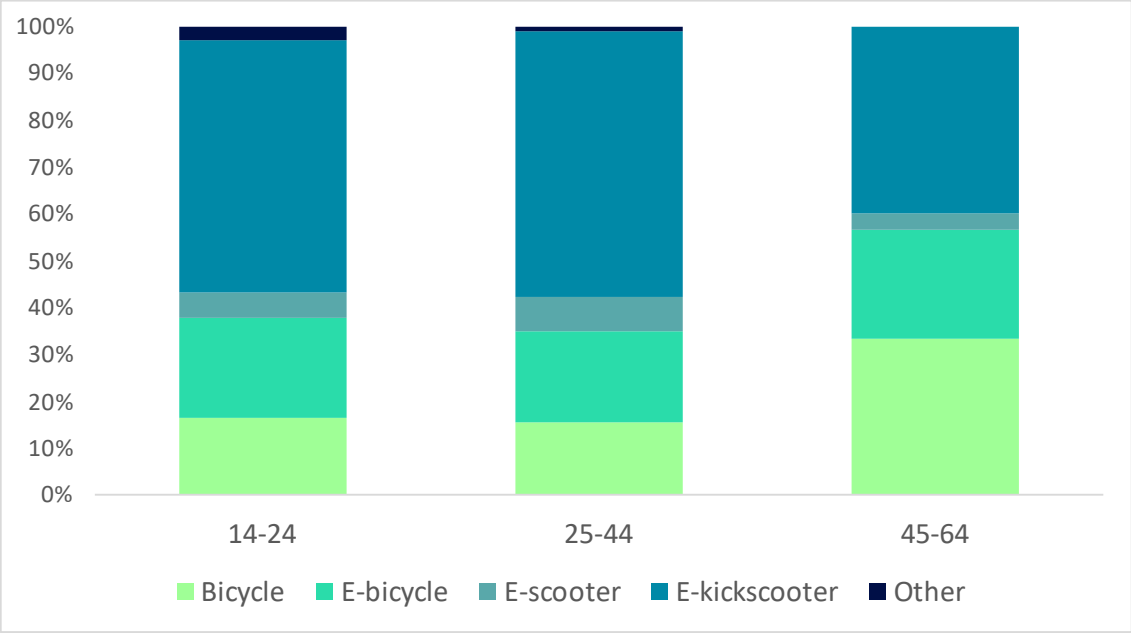

Figure 34 – Micromobility types used within each group of age in Palermo

The motives of people who have not used micromobility are related to security, comfort, saving time and flexibility. However, if we look deeper the difference between men and women as illustrated in Figure 35, the main reasons of women who have not used micromobility are related to comfort, safety and flexibility while the main reason of men who have not used it relates to safety, saving time and comfort.

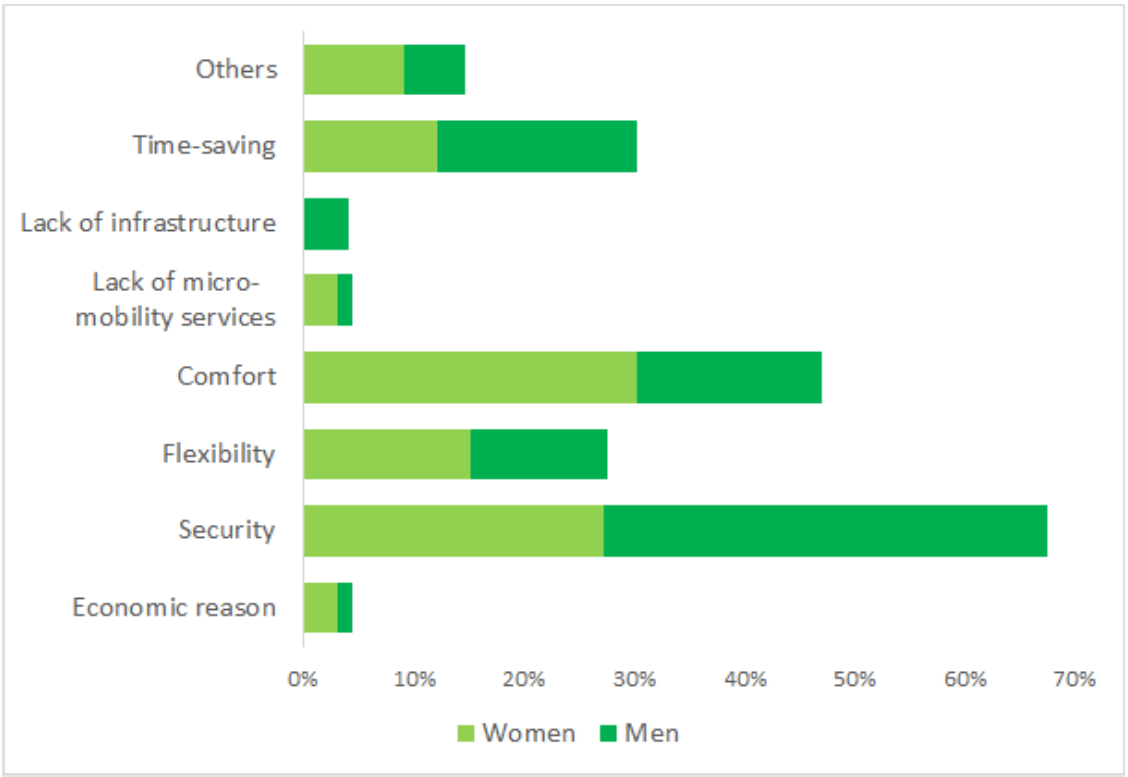

Figure 35 – Motives of not using micromobility in Palermo

In general, people's perception about the introduction of micromobility in Palermo is positive even though, looking into details, there are differences between people who have never used and have used it.

People who have never used it have a tendency of more negative perception (30%) if compared to people who have used it (7%). The main negative perceptions are that it creates dangerous situations for other road users and it is not safe for the users. Positive perceptions are linked to the nature of environmentally friendly modes and their capacity to improve urban travel (Figure 36).

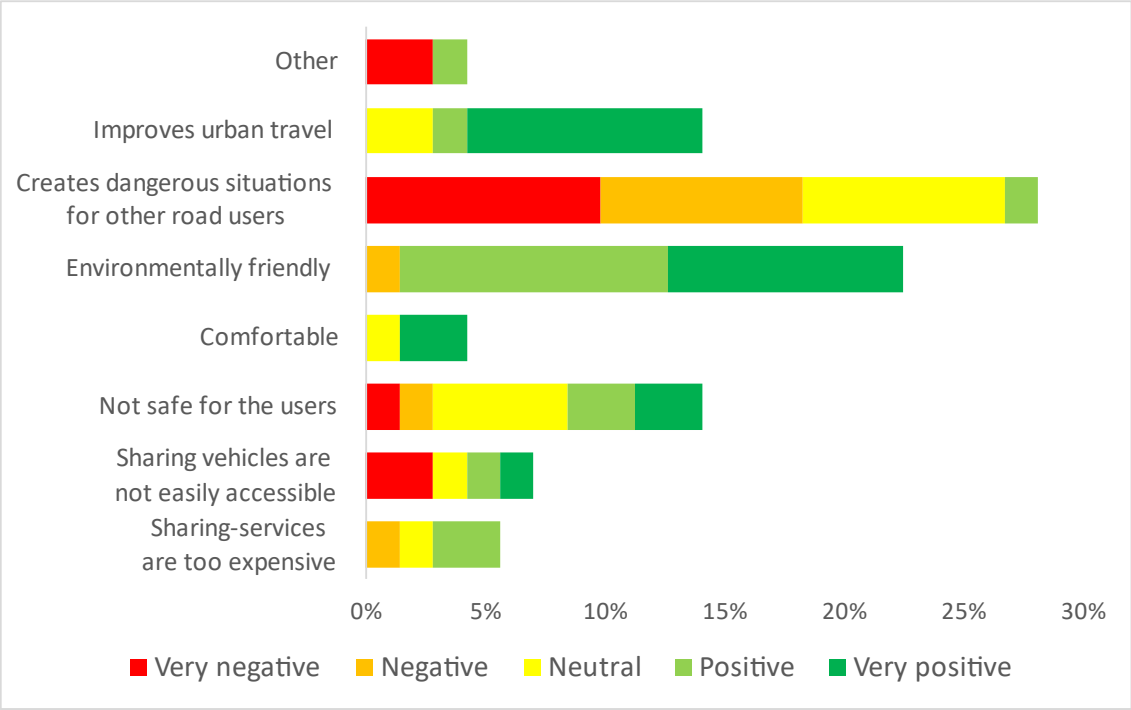

Figure 36 – Perception and their motives of people who have never used micromobility in Palermo

Eighty percent of people who have used micromobility perceived it positively, while only 7% perceived it negatively and 13% of people remain neutral. People with positive perceptions agree that micromobility improves urban travel and is environmentally friendly; people with negative perceptions think that it creates dangerous situations for other road users, while considering sharing services not easily accessible (Figure 37).

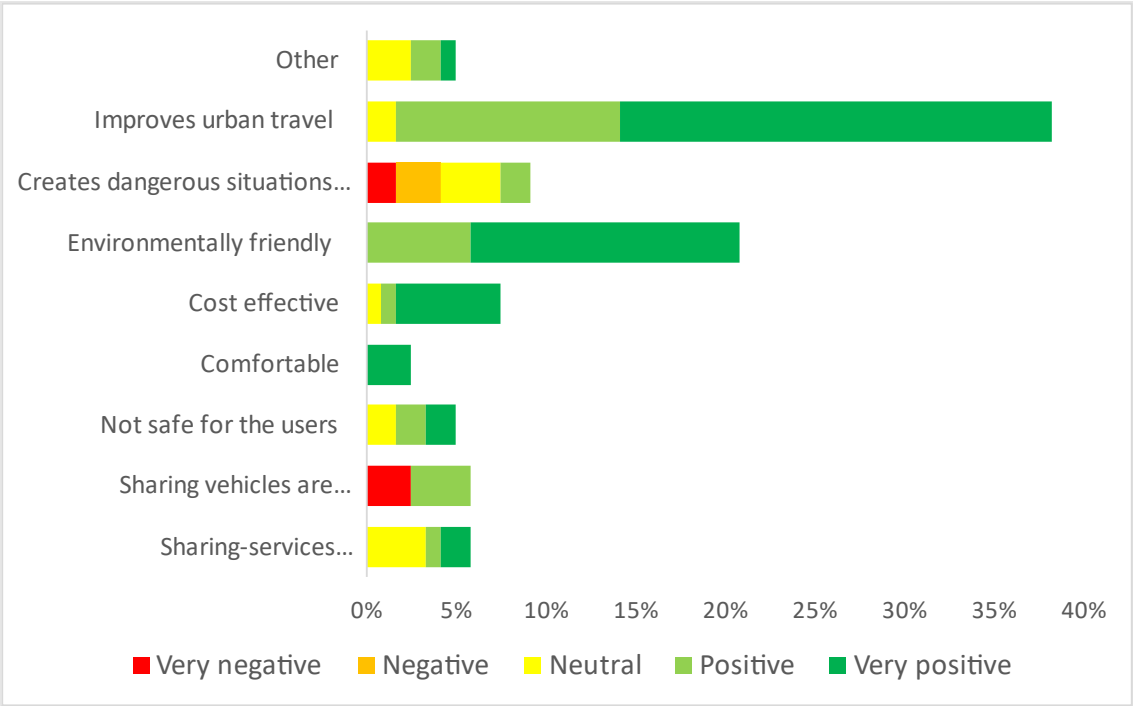

Figure 37 – Perception and their motives of people who have used micromobility in Palermo

3.4 L'Aquila

In L'Aquila, there were 735 responses in total (53% women and 47% men). The three groups of age are distributed equally, although the group of age 14 to 24 years is slightly lower than the group of age 25 to 44 years and 45 to 64 years. Similar to Florence and Palermo, responses from group of age more than 65 years were low (less than 5%) with respect to the other age categories.
Almost half of the respondents hold a bachelor's or master's degree, followed by a high school degree (39%) and doctoral degree. Eight percent of income level is between EUR 0 to EUR 39,999, with only 14% with an income group EUR 40,000 to EUR 59,999 and less than 5% of income group more than EUR 60,000. Most respondents own a smartphone and only 1% of people do not own a smartphone.

Concerning travel habits, more than half of respondents travel every day, one-third travel four to six times per week and less than 15% travel one to three times per week or less. One-third of travel distance declared is more than eight kilometers with about 17% of people travelling from two to eight kilometers. Similar to Florence and Palermo, the predominant means of transport in L'Aquila is the car. However, in L'Aquila the usage of cars is significantly higher (Figure 11), accounting for nearly 75% of transportation choices (Figure 38). Only 15.6% of people use public transport and less than 10% usually travel on foot.

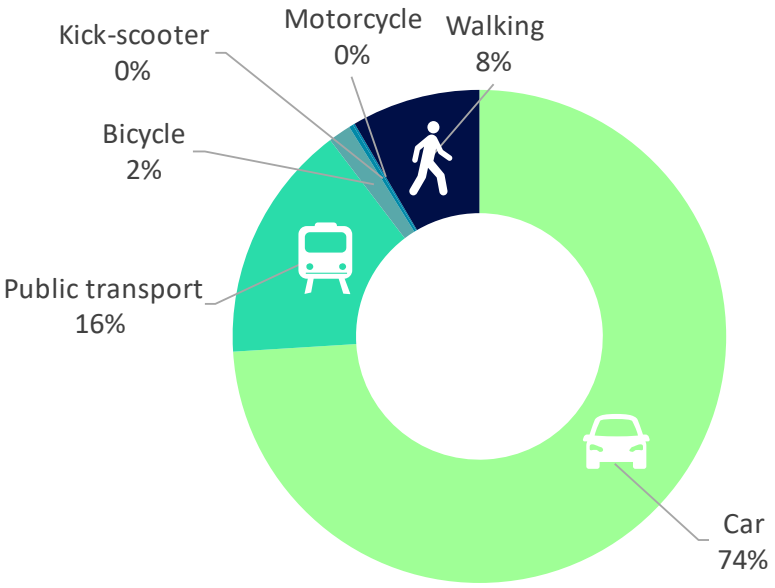

Figure 38 – Means of transport used in L'Aquila

Figure 39 illustrates that the majority of the respondents that travel in L'Aquila have as their main travel purpose work (57%). About 29% of the respondents travel for study purposes, 8% for free time/leisure and 6% for domestic errands.

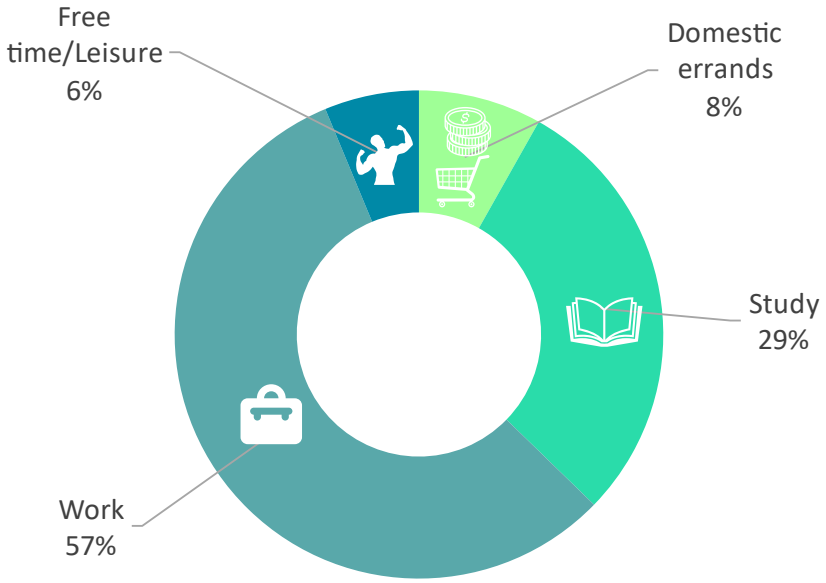

Figure 39 – Trip purpose in L'Aquila

A large majority in all groups of age in L'Aquila have no experience with micromobility as illustrated in Figure 40; for all the age groups the percentage of respondents that has never made use of micromobility is more than 65%. Among the older groups of 45-64 and 65+ most of respondents declare no usage of micromobility whilst the younger groups of age (14-24 and 25-44) declare some usage of shared mobility, although it remains relatively small when compared to the overall data.

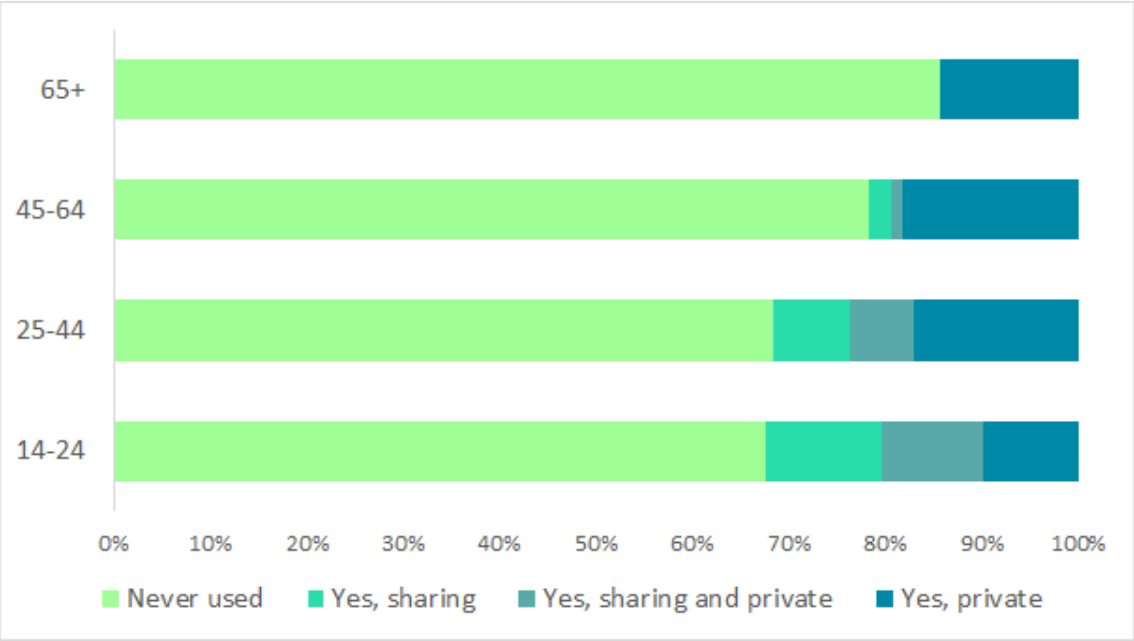

Figure 40 – Micromobility experience within each age group in L'Aquila

Among those that have made use of micromobility, almost 55% respond that they do not use it in combination with another form of transport. Almost 21% says that they use it in combination with a private car, 16.8% in combination with walking and 7.4% in combination with public transportation.

Generally, the most used form of micromobility in L'Aquila are bicycles and e-bicycles. As illustrated in Figure 41, differences between the various age categories can be appreciated. The age group of 14-24 years demonstrates a higher prevalence of e-kickscooter usage, whereas individuals aged 25 to 44 predominantly rely on bicycles. E-bikes, on the other hand, are most commonly used by the age group of 45 to 64 years.

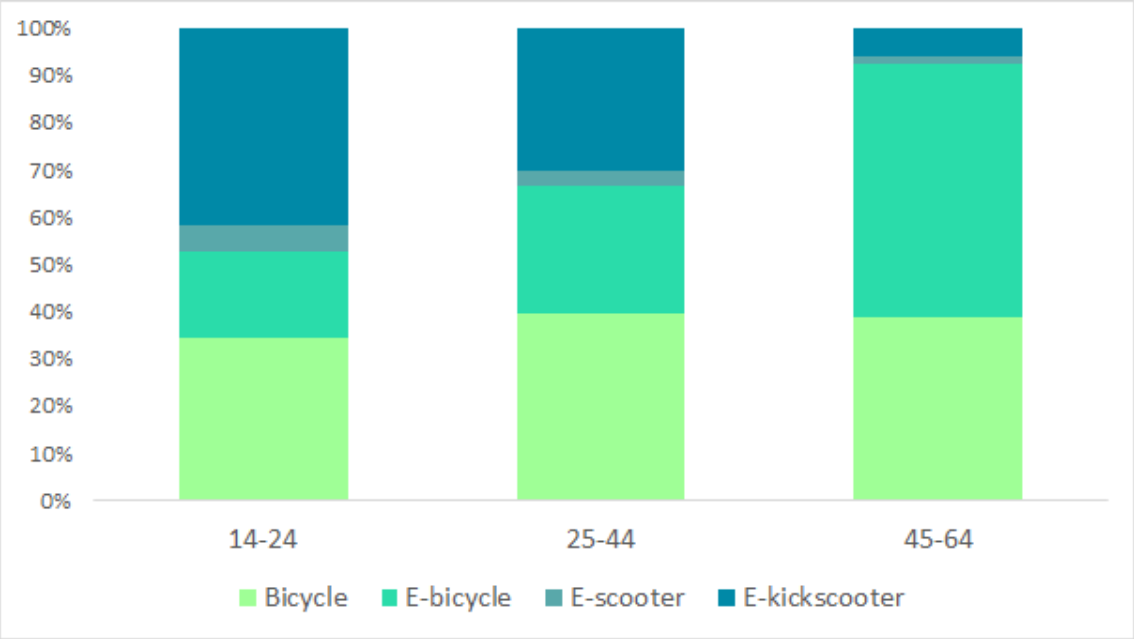

Figure 41 – Micromobility types used with each group of age L'Aquila

Among the 72% of people who have never used a micromobility, women are predominant (Figure 42). The factors that discourage individuals from using micromobility are connected to safety concerns, comfort preferences, limited flexibility and time savings.

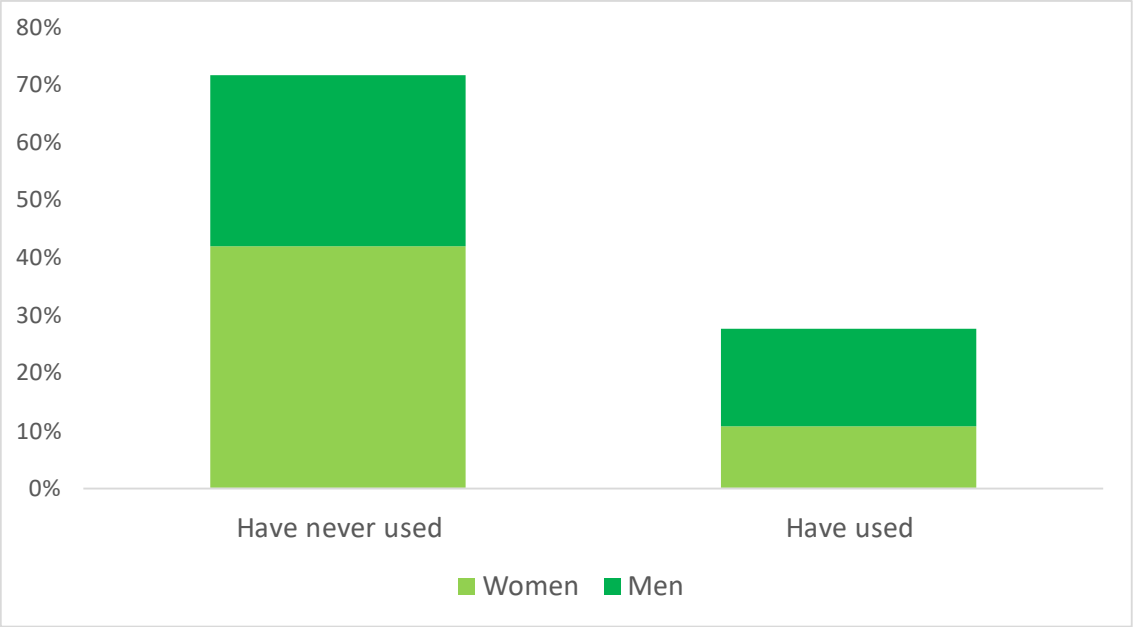

Figure 42 – Micromobility experience by gender in L'Aquila

The usage of micromobility among people stems from various factors such as the mitigation of pollution, recreational purposes, flexibility and time efficiency. Among people who have used it in L'Aquila, the type of micromobility used is mainly bicycle, whether it is the normal bicycle or the pedal-assisted bike and e-kickscooter. Almost all respondents from group of age 45 to 64 years and more than 65 years use more bicycle, while people from group of age 14 to 24 years and 25 to 44 years use bicycle but also e-kick scooter. It seems that e-kick scooter is more popular in the younger group of age.

Micromobility usage is predominantly related to leisure, free time and sport (55.2%), work (21.2%) and study (11.3%). When using it, people substitute the usage of cars and public transport and avoid walking. Half of the respondents also did not combine with other means of transport, 20.7% combine with private car and 16.7% combine with public transport. When using it, 76% of people ride in the roadways, 16% ride in the cycle paths and 6.5% ride on the sidewalks.

Regarding the perception of micromobility, analogously with Florence and Palermo, generally people perceived the micromobility introduction to their city positively. The negative or indifferent perception is much more common among people who have never used micromobility.

As illustrated in Figure 43 and Figure 44, people who have not used micromobility felt that it is not safe for the users and creates dangerous situations for other road users but also think that it is environmentally friendly and improves urban travel. One-third of people who have used it think that it improves urban travel and 22% think it is environmentally friendly, but they also think that it is not safe for the users.

Furthermore, people also mention that there is a lack of such infrastructure that could make them feel safe when using micromobility. Some group of people say that micromobility is not comfortable for those that have health or physical problems. Some respondents mentioned that they do not make use of micromobility because of the cold weather, especially in the winter, while also declaring that the city's configuration is not

suitable for this kind of mobility. Regarding the sharing services, the respondents declared they are insufficient, not easily accessible and too expensive. Looking at the development of various forms of micromobility in recent years, the respondents think that sharing services should be more regulated and education is needed to avoid that people abandon or destruct the sharing fleets.

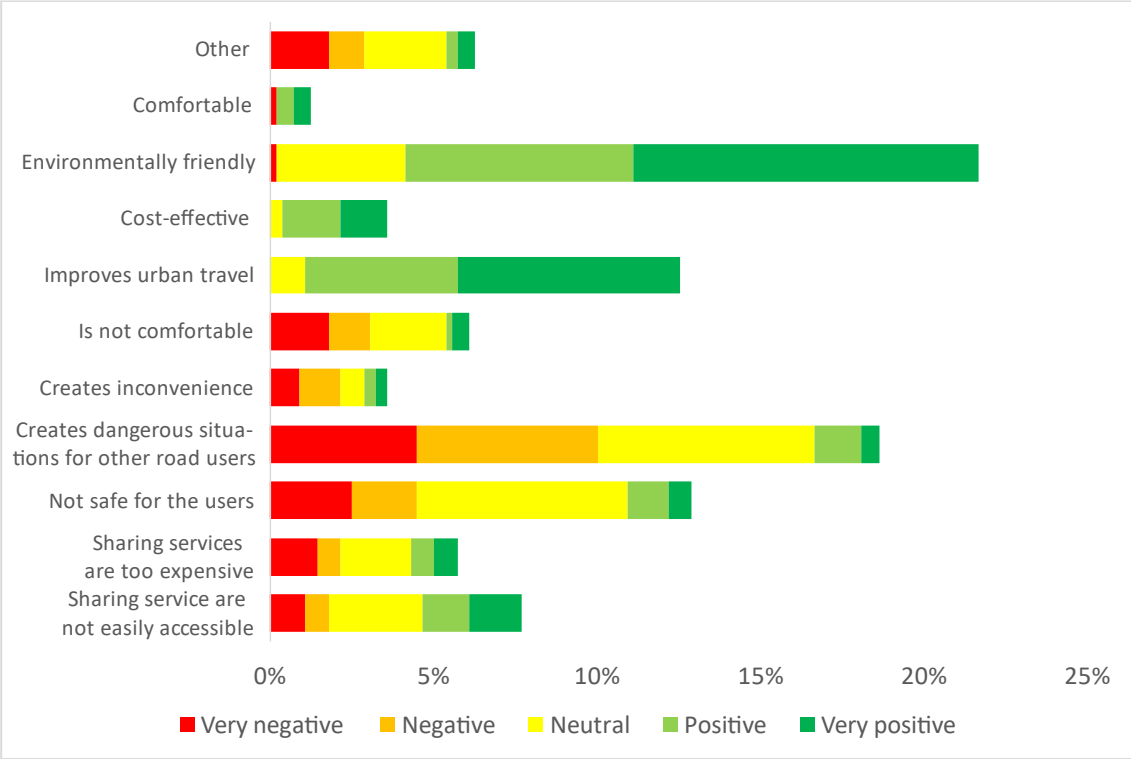

Figure 43 – Perception and their motives of people who have never used micromobility in L'Aquila

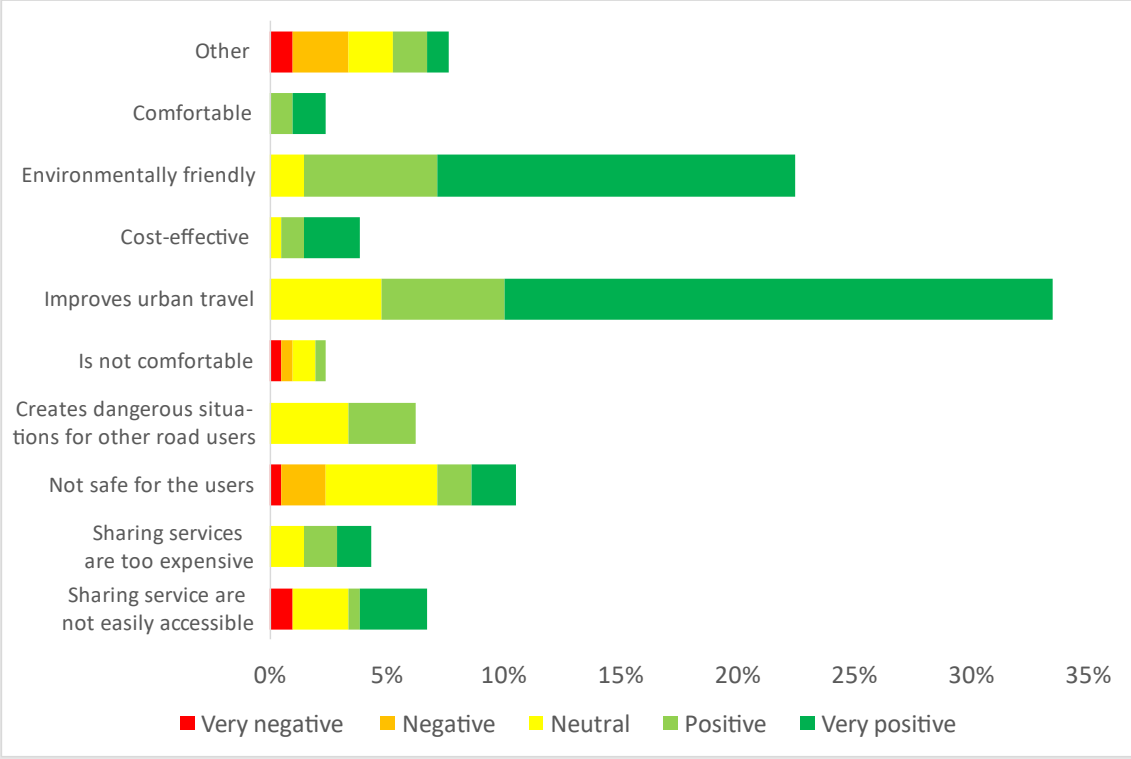

Figure 44 – Perception and their motives of people who have used micromobility in L'Aquila

4. The identified user's needs and recommendations

Based on the perceptions and motives of the respondents of Florence, Palermo and L'Aquila the following user's needs have been defined:

- Safety

  A large percentage of the respondents have mentioned that they do not have a very positive perception of micromobility; this opinion is mainly shared by those that have never made use of a microvehicle in their life. The most common reason is that they believe that micromobility creates dangerous situations for other road users. This opinion is mainly shared by those that mainly travel on foot, public transport or private car.

  A lack of appropriate infrastructure has been highlighted, as a large percentage of respondents have to drive on the street when using micromobility and this can create dangerous situations both for them and other road users. This calls thus for the development of special infrastructure (cycling paths) that can keep the various transport modes separated.

  Since negative responses come mainly from those that have never used micromobility, an attempt should be made to get people more experienced with it and more aware about potential benefits.
- Cost

  The costs of using micromobility are deemed too high by several respondents.

  For private micromobility the average market prices in Italy are around EUR 500 to EUR 600 for an e-bicycle and around EUR 400 to EUR 600 for an e-kickscooter, by considering basic models (vehicles with higher quality and characteristics could cost up more than EUR 1,000). For many people, this

price range is not affordable. Regarding sharing services, on average a bicycle or e-kickscooter ride could cost around EUR 3 to EUR 5 and in addition people need to pay the unlocking cost around EUR 0.50 to EUR 1, people think that this price is too high.

The decrease of rental and retail prices would increase the number of micromobility users. Furthermore, since a sizeable percentage of people makes use of micromobility in combination with public transport, the creation of attractive fares could strengthen this type of trip contributing to a more sustainable transport within the cities.

- Accessibility

  In the different cities there is a different perception on the accessibility of micromobility. In Palermo a large number of respondents said that they would prefer the development of tram and metro services, opposed to the introduction of more micromobility. They would rather see micromobility as service for those areas poorly served by public transport. In L'Aquila micromobility services are not developed while its introduction at a larger scale should ensure a satisfactory accessibility to vehicles in those parts of the territory with low population density.

  According to this research accessibility in Florence is not a problem as little respondents commented negatively on the accessibility of micro vehicles.

- Comfort

  Comfort is a very frequently answered reason of why one does not make use of micromobility; looking at the gender divide, females are much more likely to comment that they do not think that micromobility is comfortable. Extensive research needs to be conducted into what exactly is not comfortable about using micromobility. This will help determine the next steps that need to be taken to increase micromobility usage.

5. Conclusion

The described Deliverable, provide a preliminary Users' Need Analysis focusing on the perception of micromobility, perceived criticalities, users' travel habit, purpose of use, current limitations and user's suggestions. The results within this task will be used as input for the products designs, including the development of new micromobility fleet.

In general, most people in the three cities have never used micromobility, only less than 40% have experience with it. The fact that people have no experience using micromobility reflects in their perception. Most respondents have a perception that tends to be in a negative direction or if not rather indifference. On the other hand, people who have used micromobility in the past or using a micromobility mostly tend to perceive it positively. Socio-economic characteristics such as gender or age influence the perception about micromobility.

The following factors are recommended to be considered in order to satisfy the users' needs:

- Safety
- Cost
- Accessibility
- Comfort

If any instance in this document is ambiguous or further assistance/advice is required, please refer to the Project Management Team:

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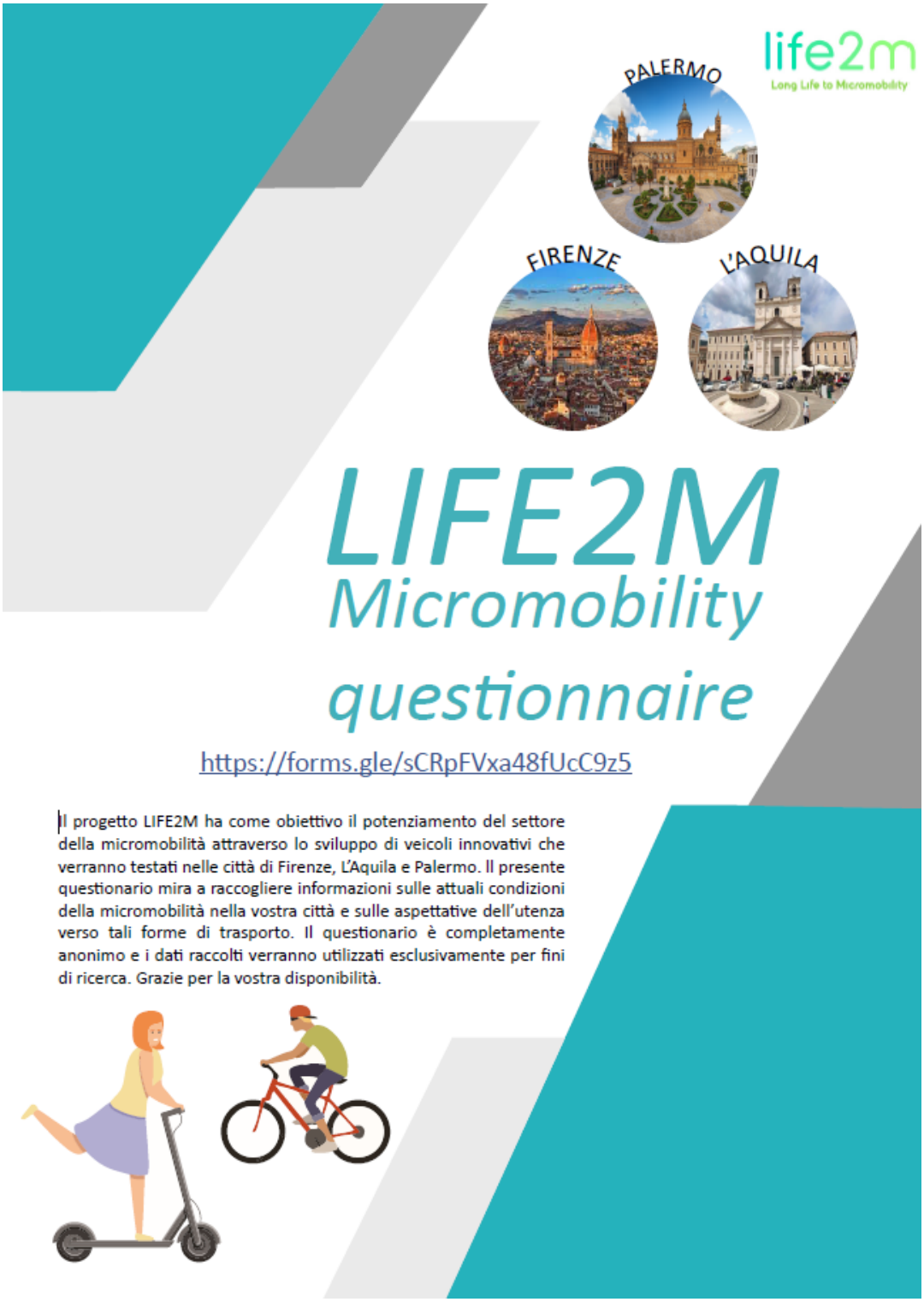
Annex 1 - Questionnaire



Questionnaire

Q1: In which city do you live?
A1: Metropolitan area of Palermo
A2: Metropolitan area of Florence
A3: Metropolitan area of L'Aquila
A4: Other (please specify)

Q2: You are a?
A1: Man
A2: Woman
A3: Other
A4: I prefer not to say

Q3: Which age group do you belong to?
A1: 14-24
A2: 25-44
A3: 45-64
A4: 65+

Q4: Do you own a smartphone?
A1: Yes
A2: No
A3: I do not know

Q5: Do you own a credit card?
A1: Yes
A2: No
A3: I do not know
A4: I prefer not to say

Q6: What is your annual income?
A1: € 0-19.999
A2: € 20.000-39.999
A3: €40.000-60.000
A4: More than €60.000

Q7: What is the main reason for your travels in the city?
A1: Work
A2: Study
A3: Free time
A4: Domestic errands
A5: Other (please specify)

Q8: How often do you make these trips?
A1: less than once a
A2: 1-3 times a week

A3: 4-6 times a week
A4: Everyday

Q9: What is the length (one-way) of such travel?
A1: Less than 1 kilometre
A2: 1-2 kilometres
A3: 2-4 kilometres
A4: 4-6 kilometres
A5: 6-8 Kilometres
A6: More than 8 kilometres

Q10: What vehicle do you predominantly use for these trips?
A1: Car
A2: Electric car
A3: Shared car
A4: Bicycle
A5: Electric bicycle
A6: Shared bicycle
A7: Scooter
A8: Electric scooter
A9: Shared scooter
A10: Kick scooter
A11: E-kick scooter
A12: Motor
A13: Public transport
A14: By foot
A15: Other (please specify)

Q11: Have you ever used micromobility?
A1: yes, shared micromobility
A2: Yes, private micromobility
A3: yes, both private and shared micromobility
A4: No

Q12: Which types of micromobility vehicles have you used? (multiple answers possible)
A1: E-kick scooter
A2: Bicycle
A3: Electric bicycle
A4: Electric scooter
A5: Other (please specify)

Q13: In a year, how often do you use micromobility vehicles?
A1: Never
A2: Less than once a month
A3: At least once a month
A4: At least once a week
A5: Almost every day/ everyday

Q14: Do you usually use micromobility in combination with other forms of transportation?
A1: No
A2: Yes, in combination with public transport
A3: Yes, in combination with a private car
A4: Yes, In combination with walking
A5: Other (please specify)

Q15: What other form of mobility do you usually substitute with micromobility?
A1: Car
A2: Public transport
A3: Walking
A4: Moped
A5: Motor

Q16: Travel by micromobility vehicles is mainly related to?
A1: Business reasons
A2: Study reasons
A3: Pleasure
A4: Domestic errands
A5: Sport
A6: Other (please specify)

Q17: At what time of day do you predominantly use micromobility? (multiple answers are possible)
A1: In the morning
A2: In the afternoon
A3: In the evening
A4: at Night
A5: No specific part of the day

Q18 In your travels with micromobility vehicles you use:
A1: Mainly the street
A2: Mainly the bicycle path
A3: Mainly the pedestrian path
A4: Other (please specify)

Q19 What are the reasons why you do not use micromobility? (multiple answers are possible)
A1: Saving money
A2: Safety
A3: Not flexible
A4: Comfort
A5: Lack of micromobility services

Q20: What are your reasons for using micromobility vehicles? (Multiple answers are possible)
A1: Flexibility
A2: Time saving
A3: Comfort
A4: Fun
A5: Safety

A6: Saving money
A7: Pollution reduction

Q21: What are the reasons that do NOT motivate you to use micromobility vehicles? (Multiple answers
are possible)
A1: Flexibility
A2: Saving time
A3: Comfort
A4: Safety
A5: other (please specify)

Q22: On a scale of 1 to 5, do you think the increase in the number of micromobility vehicles such as bicycles and scooters (both private and shared) is good for your city?
1= Absolutely not
5= Absolutely yes

Q23: What motivates your answer to the previous question? (multiple answers are possible)
A1: Micromobility sharing vehicles are not easily accessible
A2: Micromobility sharing services are too expensive
A3: Micromobility vehicles are not safe for those who drive them
A4: Micromobility creates dangerous situations for other road users
A5: Micromobility vehicles create inconvenience
A6: Micromobility is not comfortable
A7: Micromobility improves urban travel
A8: Micromobility is cost-effective
A9: Micromobility is environmentally friendly
A10: Micromobility is comfortable
A11: Other (please specify)

L'Aquila tra le 3 città scelte per il progetto sulla microviabilità

Insieme a Palermo e Firenze darà vita all'iniziativa "Life2M" Sondaggi tra i cittadini per le abitudini negli spostamenti

di Monica Pelliccione 13 aprile 2023

L'AQUILA. L'Aquila è tra i tre comuni italiani scelti per sperimentare il progetto europeo sulla micromobilità. A renderlo noto è l'assessore alla Mobilità, **Paola Giuliani**, che ha invitato tutti i cittadini alla compilazione di un questionario per conoscere le abitudini legate agli spostamenti in città, la frequenza di utilizzo dei più diffusi mezzi di micromobilità come le biciclette, anche a pedalata assistita e ciclomotori elettrici, sia in condivisione che privati. Insieme a Firenze e Palermo, infatti, L'Aquila, è stata inserita nel progetto europeo finanziato dal programma comunitario. Si tratta del progetto "Life2M", che ha come obiettivo il potenziamento del settore della micromobilità attraverso lo sviluppo di veicoli innovativi che verranno testati nelle tre città. Il questionario, che si può compilare solo in via telematica all'indirizzo *https://forms.gle/sCRpFVxa48fUcC9z5*, punta a raccogliere informazioni sulle attuali condizioni della micromobilità e sulle aspettative dell'utenza verso tali forme di trasporto. È completamente anonimo e i dati raccolti, fa sapere il settore Mobilità del Comune, verranno utilizzati esclusivamente per fini di ricerca. Life2M intende promuovere la micromobilità come sistema di mobilità urbana e periurbana più efficiente: il progetto, eliminando la necessità di riciclare le batterie al litio, ha l'obiettivo di prolungare la vita dei microveicoli, diminuendo di conseguenza il consumo di risorse, di energia e la produzione di rifiuti, limitando l'impiego di materie prime e massimizzando il riciclo. Obiettivi che verranno raggiunti attraverso tre gruppi di azioni: sviluppo e dimostrazione nelle tre diverse città di elementi e componenti tecnologici innovativi, con particolare attenzione agli accumulatori basati sulla tecnologia dei supercondensatori ibridi, sviluppo di strumenti e campagne di comunicazione che aumentino la consapevolezza sull'importanza e utilità della micromobilità e ne supportino la diffusione, focalizzandosi sul comportamento degli utenti, sugli aspetti di sicurezza stradale e sull'impatto ambientale e l'implementazione di modelli di business, strategie e best practices per la sostenibilità del mercato della micromobilità nelle sue varie forme (veicoli privati, sharing e trasporto merci). Il Comune dell'Aquila si è dotato di un piano della mobilità sostenibile, che contempla 163 interventi per 104 milioni di euro totali. Tra gli obiettivi fa realizzare, la chiusura alle auto del centro storico entro il 2027, la realizzazione dell'ascensore di collegamento tra il terminal bus di Collemaggio e viale Rendina e quattro nuovi parcheggi a servizio del centro storico, per ben 1.559 nuovi posti auto.

MICROMOBILITÀ: L'AQUILA FRA I TRE COMUNI ITALIANI DEL PROGETTO LIFE2M, IL QUESTIONARIO

12 Aprile 2023 16:03
L'AQUILA - CRONACA

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L'AQUILA – L'Aquila, Firenze e Palermo, sono gli unici comuni d'Italia inseriti nel progetto europeo finanziato dal programma comunitario Life2M per la micromobilità.

Il Settore Mobilità Sostenibile del Comune dell'Aquila invita tutti i cittadini alla compilazione di un questionario per conoscere le abitudini legate agli spostamenti in città, la frequenza di utilizzo dei più diffusi mezzi di micromobilità quali biciclette, anche a pedalata assistita e ciclomotori elettrici, sia in condivisione che privati.

Il progetto Life2M ha come obiettivo il potenziamento del settore della micromobilità attraverso lo sviluppo di veicoli innovativi che verranno testati nelle tre città. Il questionario – che si può compilare solo in via telematica all'indirizzo https://forms.gle/sCRpFVxa48fUcC9z5 o scansionando il Qr Code in fondo – mira a raccogliere informazioni sulle attuali condizioni della micromobilità e sulle aspettative dell'utenza verso tali forme di trasporto. Il questionario è completamente anonimo e i dati raccolti verranno utilizzati esclusivamente per fini di ricerca. Life2M intende promuovere la micromobilità come sistema di mobilità urbana e periurbana più efficiente.

Il progetto, eliminando la necessità di riciclare le batterie al litio, ha l'obiettivo di prolungare la vita dei microveicoli, diminuendo di conseguenza il consumo di risorse, di energia e la produzione di rifiuti, limitando l'impiego di materie prime, massimizzando il riciclo.

Questi obiettivi verranno raggiunti attraverso tre gruppi di azioni: sviluppo e dimostrazione nelle 3 diverse città di elementi e componenti tecnologici innovativi, con particolare attenzione agli accumulatori basati sulla tecnologia dei supercondensatori ibridi; sviluppo di strumenti e campagne di comunicazione che aumentino la consapevolezza sull'importanza e utilità della micromobilità e ne supportino la diffusione, focalizzandosi sul comportamento degli utenti, sugli aspetti di sicurezza stradale e sull'impatto ambientale; sviluppo di modelli di business, strategie e best practices per la sostenibilità del mercato della micromobilità nelle sue varie forme (veicoli privati, sharing e trasporto merci).

Link Qr Code al questionario:

Commenti da Facebook

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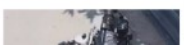

TRAGICO INCIDENTE A ISOLA DEL GRAN SASSO, MUORE GABRIELE CECI, DIRETTORE POLISERVICE

Sam
22 aprile 2023 08:39

Si parla di
Palermo

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Micromobilità, anche a Palermo il progetto Life2M per una città più sostenibile

Parte l'iniziativa finanziata dall'Unione Europea. Sondaggi tra i cittadini per capire le abitudini negli spostamenti

Nota- Questo comunicato è stato pubblicato integralmente come contributo esterno. Questo contenuto non è pertanto un articolo prodotto dalla redazione di PalermoToday

Palermo, Firenze e L'Aquila sono gli unici comuni d'Italia inseriti nel progetto europeo finanziato dal programma comunitario Life per la micromobilità. Tutte le persone che vivono, lavorano o studiano a Palermo sono invitati a compilare un questionario per conoscere le abitudini legate agli spostamenti in città, la frequenza di utilizzo dei più diffusi mezzi di micromobilità quali biciclette, anche a pedalata assistita, ciclomotori elettrici e monopattini sia in condivisione che privati, e la percezione sulla micromobilità.

Life2M ha come obiettivo il potenziamento del settore della micromobilità attraverso lo sviluppo di veicoli innovativi che verranno testati nelle tre città. Il questionario – che si può compilare solo in via telematica all'indirizzo https://forms.gle/sCRpFVxa48fUcC9z5 – mira a raccogliere informazioni sulle attuali condizioni della micromobilità e sulle aspettative dell'utenza verso tali forme di trasporto. Il questionario è completamente anonimo e i dati raccolti verranno utilizzati esclusivamente per fini di ricerca.

Il progetto, coordinato dall'Università di Firenze, intende promuovere la micromobilità come sistema di mobilità urbana e periurbana più efficiente. Il progetto, eliminando la necessità di riciclare le batterie al litio, ha l'obiettivo di prolungare la vita dei microveicoli, diminuendo di conseguenza il consumo di risorse, di energia e la produzione di rifiuti, limitando l'impiego di materie prime, massimizzando il riciclo. Per maggiori informazioni sul progetto, consultare il sito web: https://www.life2m.eu/.

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