

Article

Motivational Patterns and Personal Characteristics of Potential Carsharing Users: A Qualitative Analysis

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Abstract: In the last decade, in Europe and the US, carsharing has become a mainstream transportation mode offering a sustainable solution to serious urban problems such as pollution, economic crisis, congestion, and parking. In Greece, carsharing is currently entering its commercial phase. Planners and providers strive to gain an insight into the factors influencing the use of carsharing to effectively implement carsharing systems (CSS). In this context, understanding the motives and usage conditions are considered necessary. Based on a qualitative analysis (semi-constructed interviews, $n = 52$), this paper identifies motivational patterns as well as personal characteristics of potential users that can be further explored through quantitative research methods. During the data analysis process, participants' responses were classified into categories that revealed not only the factors that motivated them but also unveiled the challenges they face when utilizing carsharing schemes. These factors were the following: familiarity, comfort, mindset, everyday life, usability, and economy. Next, these factors were analyzed further based on the personal characteristics of the respondents preparing the ground for quantitative research in future research initiatives. Notably, the present findings could be beneficial to operators, policymakers, and stakeholders endeavoring to appraise shared mobility schemes in Greece and Mediterranean countries in general.

Keywords: carsharing users; qualitative research; shared mobility; transportation business; Greece



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1. Introduction

During the last decade, sharing economy has become a mainstream option [1,2]. Sharing economy, for example, carsharing, bike sharing, property sharing, device sharing, tools sharing, etc., are currently highly favored. Considering carsharing, it should be noted that it has gained significant ground in the transportation market. There are numerous operators of carsharing in Europe, America, and Asia. Recently, many automakers started participating in carsharing programs. Their success contributes to reducing serious urban challenges such as pollution, economic crisis, congestion, and parking [3].

Carsharing systems lead to a decline in car ownership, when they are efficient and user friendly [4,5]. Each shared vehicle might replace four to eight private cars. On the other hand, carsharing could be also beneficial for people that do not own a private vehicle like students or low-income households [6]. Through this way, some people could be served occasionally by carsharing (especially for routes where other modes provide inadequate service), without being forced to buy a car that will bring about negative externalities (e.g., consumption of public space, environmental degradation, etc.).

Furthermore, carsharing induces a reduction in vehicle-kilometers traveled, thus leading to lower gas emissions [7,8]. There are multiple benefits for carsharing users since carsharing services exempt users from vehicle ownership and maintenance costs [9], cover the need to use a vehicle (when it occurs) [10], and strengthen the environmental consciousness of users and their sense of responsibility towards the community [11]. As for the benefits to society, carsharing contributes to enhancing the use of public transportation,

to improving the mobility of disadvantaged people (which also strengthens social equality), and to protecting the environment through the reduction in energy consumption and emissions [12]. It is clearly demonstrated that carsharing services could function as one key tool for promoting sustainable mobility and bringing about positive impacts, especially in urban or rural areas where private car usage prevails [13]. Nevertheless, carsharing may also nurture a rise in automobility culture against sustainable modes [14]. To this end, the factors influencing (support or hinder) carsharing usage should be thoroughly understood; thus, paving the way for successful policy measures that appraise carsharing as a supplementary tool for sustainable mobility.

In this context, this article aims to explore the view of the public (i.e., potential user perspective) in terms of carsharing and to identify those parameters that play an important role in the intention of selecting it as a transportation mode. Special emphasis is given to spatial parameters. The main research hypothesis is the following: the choice of carsharing services is influenced by personal characteristics, spatial attributes of the users' activities, and emotional/utilitarian factors. A qualitative approach to this subject was considered necessary, in order to gain in-depth knowledge of the factors that motivate or prevent carsharing use, going beyond existing quantitative studies. Tellingly, qualitative methods are capable of capturing participants' nuanced perspectives and experiences, thus, providing a deeper understanding of the influential factors [15].

This qualitative approach that entails in-depth semi-structured interviews was carried out in Greece since it is a new ground for the adoption of carsharing. While there have been numerous studies in the last two decades addressing the motives and challenges related to carsharing (see Section 2), however, to the best of the authors' knowledge, there has not been an in-depth qualitative study conducted in Greece. Apart from being a newcomer in carsharing, Greece is a challenging case for exploring influential factors, as it presents urban environments favorable for establishing carsharing systems (limited parking provision, inadequate public transportation, etc.), while car ownership is highly appraised to be a status symbol. To this end, exploring this topic in a challenging newcomer country will significantly contribute to understanding the motives and challenges of the public referring to carsharing use. For instance, is car ownership a deterrent for carsharing or does the place of residence affect the probability of using a shared car. The results of this research could be used by local authorities, planners, and carsharing operators to deploy successful carsharing systems or improve those already established. Interestingly, these insights might be useful in other similar contexts like other Mediterranean countries that present common characteristics and culture.

The remainder of the paper is structured as follows: The second section presents the theoretical background, demonstrating some similar previous works. The third section contains the research method and basic assumptions made. The fourth section illustrates the results of the in-depth interviews. Next, the fifth section discusses the outcomes of this study. Finally, the sixth section draws conclusion, thus underlining key insights for the future.

2. Literature Review

In the existing literature, much attention is paid to highlighting aspects of the carsharing system, to identifying carsharing users, and to quantifying their characteristics and choices, mainly through the lens of a quantitative perspective. Carsharing was found to be particularly influenced by age, marital status, and car ownership [16]. Curtale et al. [17] applied a structural equation modeling to a survey with 656 respondents in the Netherlands, demonstrating that the user acceptance of electric carsharing is affected by social influence, performance expectancy, and personal attitude. Through a large study in 177 cities from Western European Countries, Münzel et al. [18] found that education level and lifestyle play a significant role in adopting carsharing services. Wang et al. [19] studied individuals' acceptance of free-floating electric carsharing in China through a web-based survey with 826 participants. They concluded that intention to use carsharing is affected by familiarity, distance of the

trip, and income level. Another research by Ullah et al. [20] explored travelers' acceptance of carsharing through a stated preference survey with 453 respondents in Peshawar, Pakistan, and found that both demographic characteristics, such as age, gender, and income, and service attributes, like travel time and cost, play an important role. In the same direction, Safdar et al. [21] carried out a stated preference survey with 242 respondents in Lahore, Pakistan, to reveal that generic attributes like cost, waiting time, and sociodemographic attributes, like income, age, and education level, were found to be significant for adopting carsharing.

Chun et al. [22] underlined that lifestyle and income level has the most influential impact on intention to use carsharing. The survey of Hu et al. [23] revealed that carsharing services in Beijing, China, are influenced by age, gender, time, distance of the trip, and cost. Zhou and Kockelman [24] carried out a survey with 403 participants to explore travelers' preferences and estimate latent demand for Austin Carsharing (ACS) in Austin, Texas, USA. They demonstrated that car ownership, income level, and educational status quo have major influence in adopting carsharing services. Furthermore, according to Acheampong and Siiba [25], who used structural equation modelling, highly influential factors are lifestyle, familiarity, gender, education, usability, and public transport provision. Finally, Ohta et al. [26] conducted a web survey with 1095 respondents to examine the acceptance rate of carsharing and eco-cars in Japan. This survey illustrated that the most influential factors are car ownership, familiarity, centrality, age, gender, and trip period.

Despite the previous research works, a few studies use qualitative research methods, either because they want to collect high-quality and in-depth data [27], or as a basis to building correct questionnaires. A notable work was conducted by Jain et al. [28]. The authors employed a qualitative study utilizing focus groups and semi-structured interviews in Melbourne, Australia. This study displayed that while cost, convenience, and environmental concerns are major motivators, other factors like the feeling of sharing with the community and reducing costs related to car ownership also play a critical role. Another interesting example is the study carried out by Xie et al. [29] that identified 14 influencing factors, i.e., vehicle efficiency, supporting service facilities, safety, pick up and returning mode, cost, vehicle condition, brand image, user-friendliness, real-time feedback, traffic transferring convenience, brand diversity, environment cleanliness, pleasure and novelty, and value identification. However, there has not been sufficient qualitative research on the reasons why one chooses carsharing [27,30], even if it would be beneficial [24]. Correspondingly, the correlation of those reasons with spatial parameters, has not been sufficiently investigated yet [31,32], although it is proven to be of great importance in social computing platforms [33,34]. Furthermore, policy suggestions related to carsharing schemes and the real motives or deterrents behind their use are not yet adequately examined [35].

Focusing on Greece, carsharing is now approaching its commercial phase. It should be noted though that despite carsharing's success in several countries in Europe, the few cases that have attempted to establish such systems in Greece have completely failed. The failure of adopting carsharing shows a serious weakness of local authorities and planners to align with international successful practices, proven to be beneficial for the economy, environment, and society. For this reason, to successfully deploy carsharing systems (CSS), planners and providers should strive to truly understand the factors that influence the utilization of carsharing. With the respect to that, the knowledge of motives and conditions is deemed crucial. Existing research works related to the Greek context have underlined that cost is one of the most significant factors to join a carsharing scheme [36,37]. Moreover, two other factors influencing the adoption of such schemes are (a) age, with older people being more reluctant than younger ones [37] and (b) environmental awareness [38]. However, research on carsharing in the Greek reality and the Mediterranean in general, is still limited, calling for new contributions examining motives and perceptions.

3. Research Method

This section refers to the research method followed. Particularly, it includes the interview design and the formulation of the sample, the main interview process, and a few words about the study area.

3.1. Interviews' Design and Sample

This research follows a descriptive/interpretive approach aiming to create a communication channel between the researcher and the interviewee. It also provides more attention to the quality of the information gathered than to its quantity [38]. The research questions as well as the lack of familiarity with carsharing in Greece dictated an interpretative research method. Hence, in-depth, one-to-one semi-structured interviews were conducted to allow the researcher to better highlight, understand, and interpret people's motivations and behaviors. An in-depth interview can be defined as: "a (usually unstructured) personal interview that uses extensive probing to get a single respondent to talk freely and to express detailed beliefs and feelings on a topic" [39]. The interviews were carried out during December 2022 and February 2023.

The main difference between qualitative and quantitative research is that in qualitative research, analysis is carried out after each interview, and this means that researchers do have information that allows them to know when to stop. In particular, the interviews ended when there a theoretical saturation was achieved: all concepts were repeated multiple times without new concepts or themes emerging [40]. This process determined the final sample size [15]. Although all factors that play an essential role in choosing or rejecting carsharing were mentioned till the 42nd interview, an attempt was made to explore cases (participants) that might reconsider the initial conclusions. Finally, 52 semi-structured in-depth interviews were conducted.

This number meets the standards set forth in the best practice literature on qualitative research. For example, a study by Baker et al. [41] on sampling methodology in qualitative research attempted to determine the optimal number of interviews. They concluded that a sample size of six to twelve interviews can provide extremely valuable insights, especially when studying populations that are difficult to reach. Boddy [42] adds another perspective. He states that within a single market or country, or with a relatively uniform population, a qualitative sample size that includes 12 or more focus groups or exceeds 30 in-depth interviews is considered substantial. In the same direction, Marshall et al. [43] underlined that a sample of over 30 participants is more than enough. Therefore, the acquired sample (52 participants) is large enough, manifesting that this research can lead to trustworthy and representative results. Moreover, semi-structured interviews were employed as it has proved to be a versatile and flexible tool [44].

The sample consisted of 28 women (54%) and 24 men (46%), a fact that unveils relative gender balance, covering a wide range of age ($M = 43.36$ years, $SD = 14.59$) and marital status (unmarried 46%, married 46% and divorced 8%). In more detail, the age groups are as follows: 15–24: 10%, 25–34: 19%, 35–44: 21%, 45–54: 21%, 55–64: 17%, and 65+: 12%, signifying a well-dispersed sample. When it comes to the residence of the participants, 75% live in urban areas, while the rest 25% reside in rural areas. This is quite balanced, since roughly 80% of the residents in Greece live now in urban or suburban areas [45]. Furthermore, regarding the familiarity of participants with the concept of sharing economy, 37% mentioned that they have used similar services, whereas the rest 63% have not used such services before. These percentages include participants that have used carsharing services even abroad (and not necessarily in Greece, which is a "newcomer").

The research adopted a combinatorial approach of employing both convenience, snowballing, and purposive sampling (i.e., non-probabilistic sampling), which are widely used techniques in qualitative research [46]. These techniques enabled time and cost-effectiveness as well as easiness in obtaining the sample. Furthermore, they provided a quite diverse sample. When it comes to the actual process, the convenience sampling was used at the initial stage. More specifically, the first round of participants was recruited via

a wide range of coworkers' acquaintances (first 15 participants). The necessary condition was that the participants did not know the interviewer. This decision ensured a smooth beginning of the data collection process. To select the rest of the participants, snowballing and purposive sampling were utilized, with a range of opinions and degree of familiarity with carsharing economy emerging. The interviews were either face-to-face or on skype and averaged 49 min. The interviews were mainly audio recorded. In the cases that the participant did not want to audio record the conversation, the interviewer made notes during and after the interview. Apparently, the participants (Key Informants (KI)) chose the place and time of the interview to feel comfortable.

3.2. Interviews Process

The main body of the interview was formed as follows (Table 1): (a) exploration of the use or the intention to use carsharing services; (b) examination of the reasons for re-use or reasons for not using carsharing services so far; and (c) discussion about possible obstacles. After the first two interviews, which could be classified as trial tests, secondary issues were investigated: (d) the different roles of the user and of the provider and (e) the way each service operates (Business to Consumer (B2C) vs. Peer to Peer (P2P)). In B2C form, an "organization (operating for-profit or not-for-profit) owns a fleet of cars that the customers can use" [47], while P2P form is an "innovative approach to carsharing in which car owners temporarily rent their personal vehicles to others in their surrounding area" [48]. Beria et al. [49] complement that in P2P vehicles are shared in exchange for a monetary compensation. The research questions and the appropriate examination methodology are presented in Table 1. It should be noted that during the interviews notable attention was given to spatial parameters, since this is a considerable literature gap in terms of shared mobility services in urban environments. At the end of the interview process, participants were asked if they wanted to participate in other stages of this research with the aim to confirm the results drawn from this research activity. Strikingly, 69% of the participants responded positively.

Table 1. Research questions.

Topic	Research Question	Method
Use-Intention to use	Does the public know the existence of carsharing services?	Conversation about shared cars
	If they do, have they used them? Do they have the intention to use them (if they existed in Greece)?	Direct question
	What is public's attitude toward sharing cars?	Conversation based on the previous answer
	Do people understand how they work, in a country that has not actually implemented such practices?	Indirect question, through references to personal experience of the researcher or of other interviewees
Motives	What are the motives when using carsharing?	In-depth discussion of advantages in relation to other transportation modes
	Under what conditions would those in favor of carsharing, use it?	Direct question
Challenges-Obstacles	What is it that prevents people from using it?	Direct question about the reasons that prevent people from using carsharing
	Are there any obstacles related to specific parameters? (Characteristics of the person, place of residence, etc.)	In-depth discussion of parameters that contribute to not using/not intending to use sharing cars
	Is there a way to remove these obstacles?	In-depth discussion

The interviews were audio recorded, were transcribed in text, and then thoroughly analyzed. The first step was to go through the data and gain an initial understanding. Then, initial notes were made to start drawing patterns. The data was checked repetitively to examine and compare it. An inductive analysis was made. The first nine interviews were coded line-by-line to form a clear view on how the codes and concepts were structured. At first, in vivo codes were used and then they were formulated by the researchers for further analysis. After the 9th interview, the micro analysis (line-by-line) stopped, and the rest of the audio recorded interviews were analyzed based on the content of each answer. This means that the same procedure was followed but on a larger scale. The codes used were grouped in 17 parameters. Parameters were grouped in three categories. The interviews that were not recorded, were analyzed thematically. They were used to check the parameters formed from the recorded ones. After conducting data analysis and identifying the parameters that affect carsharing use, the results' accuracy was checked with 40% of the interviewees (21 participants). All the aforementioned steps followed were in light of securing validity of the research. When it comes to qualitative research, the tests and measures used to establish validity are different from the ones applied to quantitative research [50]. More specifically, the term validity has the meaning of "the precision in which the findings accurately reflect the data". According to Maxwell [51], there are five categories to assess validity of qualitative research: descriptive, interpretive, theoretical, generalizability, and evaluative. A comment on how this research addresses each of these categories will be displayed in the discussion section.

3.3. Study Area

As aforementioned, the semi-structured interviews were carried out in Greece since it is considered as a newcomer. The following is mentioned in regard to the status quo in Greece: The first company to operate in Greece was CarToGo in 2014, which introduced 300 Fiat 500 vehicles in the metropolitan area of Athens. However, it ceased operations after less than a year, making it a short-lived company in the Greek carsharing market. In 2016, Carky emerged as a P2P carsharing platform, although exact data on its user base is unknown. In 2018, Ridemind entered the scene, with more than 100 private vehicles listed in its platform and a user base of more than 2000 people. However, operations stalled in 2020, primarily due to travel restrictions imposed due to the COVID-19 pandemic. Today, there are several local carsharing initiatives on different Greek islands (small-scale operations mainly during touristic season). In addition, reputable companies such as Avis and Share Now are reportedly considering the introduction of electric vehicles for their potential operations in Greece.

4. Results

Through the data analysis process, three categories of parameters were identified that influence the decision to use carsharing. These categories were allocated to 17 parameters that favor or prevent the use of public cars. It should be noted that in many cases a statement of the interviewees could refer to two or more parameters, since the decision to choose one of these services is not affected or is affected by only one parameter as defined in Table 2. During the analysis of the interviews, it was realized that the choice of use of carsharing may be both due to the personality of the respondent, his/her place of residence, and his/her financial situation. Notably, this research particularly emphasized on spatial attributes. Another major point is that in most of the parameters, there is no estimation for positive or negative influences on carsharing. They are explored as elements that influence the choice of carsharing in general.

4.1. Personal Characteristics

Age: The relation between the intention to use carsharing and age lies in the ease/difficulty of using the carsharing platform. The interviews revealed that there is a group of people over 55 years old who are eager to use carsharing but hesitate to use the service plat-

form. This hesitation highlights the fact that age is often related to technological literacy, and older people might be technologically illiterate. In numerous cases, the researchers contemplate that it is mostly the fear of using an unknown platform than the actual knowledge/capability of using it.

Table 2. Parameters that promote or hinder carsharing use.

CATEGORIES	Personal Characteristics (Who?)	Place of Activities (Where?)	Emotional/Utilitarian Factors (Why?)
PARAMETERS	Age	Centrality	Facility–Convenience
	Gender	Public transportation	Everyday life (lifestyle)
	Marital Status	Parking provision	Savings (time, money)
	Responsibilities	Dominant land uses	Mindset–Mentality
	Place of residence/work	Fear of crime	Familiarity
	Vehicle ownership		Usability (usefulness, functionality)

Gender: Gender-related responses were identified in interviewees, which is consistent with the international literature on carsharing and transportation in general [52]. Everyday demands/habits and the fears expressed vary greatly in the responses of men and women. A very important factor that influenced the intention towards shared cars was the type of carsharing services to which they referred to each time. Regarding carsharing business, both genders expressed positive opinions in general, each gender for different reasons, e.g., P2 (Female, 35–44 years old): “I am a woman and so the fact that they undertake all the technical support of the car is a reason to use it, I am very comfortable with it. . .” (sic), while P6 (Male, 25–34 years old): “I would use it to visit places that I would not like to take my car. . .” (sic). Concerns about P2P carsharing were expressed by both genders. Those who were partly in favor of it mentioned that they would use it “. . . only if it was an absolute necessity and they (the owner) would bring it (the car) to my house” (sic), P38 (Male, 45–54). In summary, the reasons for not using carsharing were completely different between men and women. Men would not use it because they think that the car “must belong to them”. On the contrary, the rejection of women is related to the way carsharing works since they think they will be “fooled” or charged for damages for which they are not responsible.

Marital status and gender: Results related to gender and marital status were also found. During the discussion about carsharing, married men only thought of traveling to work, while married women, in addition to traveling to work, reported many other cases of travels that involved their children. For instance, P1 (Female, 35–44 years old) “When you have a family, it’s difficult (to use carsharing), because you carry so many things, that I would not do it. If you own the car, you can put inside what you want. You take the car seat, the food table, the baby wipes, the wipes for vomit, and if you have children, they will definitely vomit inside the car. Then, you will never be able to find someone to rent you a car anymore! You need you own car; cause children can be in trouble at any time and you will need a car at any time. But if I was single, I would use carsharing.” (sic).

Daily responsibilities: The place of work in relation to the interviewee’s residence, the working hours, the frequency of trips, and the overall duties during the day, influence the adoption of carsharing services. It is reasonable to have doubts about the use of carsharing since there is no experience of using it: “. . . and I will find a car as soon as I want it? Cause if I am delayed because of this, there is no point. . .” and “I think I will be very stressed if I have gone to an appointment and I do not find an available car at once. . .” (sic).

Car or motorbike ownership: Even though the “non-owners” were more positive about using a shared car, the “owners” did not reject the idea. They admitted that they

would like to subscribe to a carsharing company to use it for one-way routes, e.g., for leisure purposes or for shopping. Also, they would use it if finding parking is difficult at their destination or if their destination is poorly served by public transportation or if their destination is considered unsafe (criminality or fear of crime). This parameter strongly indicates that using sharing economy is related not only to ownership status but also to geography.

Place of residence/work/study: Choosing carsharing depends on the destination as mentioned above. In particular, public's intention to use carsharing is greater when the area visited is considered problematic due to unavailability of parking, lack of public transportation services, or crime rate, e.g., P7 (Female, 35–44 years) "... I go for shopping in Halandri after work, I take the metro and then walk, cause I go to work by train, I do not use my motorcycle, ... but afterwards, yes, I would get a car, especially if I could make a reservation before and I find it parked somewhere there cause I carry heavy bags..." (sic) and P25 (Male, 35–44) "... if I went somewhere and if I knew I would drink or a friend could give me a lift back home, I would definitely use it so that I do not have to worry about what to do with the car, how I will return it..." (sic). During the interviews, particular focus was given to the "place" parameter, since research works examining the link between geographic location and the use of carsharing schemes are still limited in the international literature [31].

4.2. Place of Activities

Living in the suburbs or in the center of a city was preliminary but thought to be a key determinant for using carsharing services; however, it was not defined in any case as a key factor. The interviewees frequently provided contradictory responses related to this parameter. Nevertheless, despite the contradiction, it is considered that further exploration through quantitative research is critical since it is likely to be related with the "distance decay" parameter, which affects social computing platforms and volunteer geographic information platforms [53].

Serving the residential, work, or educational area by adequate public transportation was a reason for also using carsharing services. However, it did not appear to be a focal point in the decision-making process. P9 (Female, 25–34 years old) "I live in (...) there is a bus and it's near the metro station. . . I do not have a car because I do not want to. Also, I do not need it because I work and go out in the center. I also can't afford it and there is a lack of parking spaces. . . so I would have a subscription for a carsharing service to use whenever I need it" (sic) and P18 (Male, 35–44 years old) "... it is difficult use public transportation, you must drive first and then take either a train or a bus, so it's preferable to go straight to your destination by car, that's why I would use it, but I don't know how often, but I would like to have this choice" (sic).

Parking provision: The level of availability of parking spaces, either around their residence or at various destinations, is a key factor in choosing carsharing. Many participants seem to appreciate this particular benefit of carsharing.

Dominant land uses: The dominant land uses in each area play an indirect role in choosing carsharing, since it is closely related to the purpose of each trip. For example, areas with recreational activities are likely to be accessed with carsharing: P6 (Male, 25–34 years old) "... if I intended to visit Gazi (in central Athens) with friends, I would prefer to use carsharing services rather than use my own car as I would be afraid that drunk people would crash it. . . also because I would like to drink so I would travel by taxi, carsharing or both" (sic).

Crime rate: This parameter was particularly noticeable in interviewees familiar with carsharing economy or in those that were interested in it. The crime rate of an area is a determining factor for someone to use carsharing services. This term refers to crime incidents (of various seriousness) taking place in an area. P6 (Male, 25–34): "I would use it to go to places that I would not like to take my own car. . . if I was afraid that drunk people would damage or break my own car..." (sic). P15 (55–64 Male) "... if I had to go to an area

that I knew it has high crime rate, I would probably not take my own car because I would be afraid of parking it there, but I would prefer a shared car. . . ” (sic).

4.3. Emotional/Utilitarian Factors

Convenience: An important factor influencing the adoption of carsharing schemes is to enhance comfort and relaxation. The factor, according to the participants, reflects the opportunity to relieve them of their responsibilities, to reduce the stress of everyday life, to help them create more free time, and to assist them in saving money.

Usability (usefulness, functionality): Another criterion for the use of carsharing is how useful a service is, meaning the easiness of use and its functionality: more specifically, if it is easy to make a booking, if there are always cars available, if the platform is understandable, etc. This parameter also includes the factor of whether the interviewees need carsharing. P2 (Female, 35–44 years old): “I have a driving license and I do not have a car. . . so It would be of great use to me to have such a service” (sic).

Savings (time, money): The concept of the “savings” did not appear directly from the participant” responses but mainly emerged from the questions they were asking the researcher about the economic cost aspect of using carsharing: “and is it cheaper than having your own car”, “how much does it cost, to be a member?”, and “ which of the car expenses do you pay” (sic). During the interviews, “savings” have often been linked to time. If the use of these services saved time, then the participants stated a clear preference for carsharing schemes.

Lifestyle: Daily routine has to do with everyday habits, obligations, and problems faced by everyone. In cases where it was reported that carsharing “matches/does not suit my lifestyle” (sic), the interviewees have clarified that lifestyle is understood as the obligations, the problems, the things they want to do, and the things they actually do. This parameter is both an emotional and utilitarian approach to carsharing, influencing the intention to adopt carsharing notably.

Familiarity: This parameter greatly influences the intention to use carsharing since participants who had either used carsharing or had feedback from relatives or friends were keener to use it: “My roommate in Berlin often rented one, cause we did not have a car. . . ” (sic). However, familiarity in some cases did not have to do with personal experience, but simply whether they had seen carsharing abroad “carsharing existed when I was studying in London. . . ” and “I have seen it in European cities, but I do not know how it works. . . there were special signs at the airport and in parking spaces. . . I have seen a lot of people entering shared cars, but I have never used them” (sic). P1 (Female, 35–44 years old) for P2 carsharing “In the UK, let’s say, I know there is a possibility of renting cars, but I do not think they are private. They belong to some offices. . . , they bring you a car, you go out in the evening and the next day you notify them where you left it. -If there was a possibility to do that with an individual. . . , yes, I would rent one” (sic). Hearing experiences from others or even just seeing shared cars passing by, helps people to understand that carsharing is a feasible option. Hence, people who are not familiar, begin to consider a possible participation in such services.

Mentality (way of thinking—mindset): The interviews highlighted the importance of participants’ personality when choosing between using carsharing or not. The way people think, their habits, and their values affect their decision. The “mentality” parameter emerged especially when carsharing was rejected without actual reason. In those cases, it was rejected because the interviewees did not accept the idea of borrowing something or because they considered that a car “should” only be used by its owner. Respectively, carsharing is accepted and is likely to be adopted by those who believe in borrowing/lending/renting or do not want to own a car, but simply use one: P2 (Female, 35–44): “—You have no hesitation in renting something for a short period of time or that you do not own that object? -No. It relieves me of the fact that I do not own it” (sic).

5. Discussion

This research offers a valuable insight in the motives and deterrents people face (influential factors) in countries without a carsharing culture. Although in some countries, carsharing is a well-established transportation option, in some other cases (like Greece), people are reluctant to use it. Thus, this research work functions as a first step towards fully understanding people's perception in terms of business and P2P carsharing respecting the cultural, sociodemographic, and geographic context (for similar studies see [54]). Notably, bearing upon the results of this qualitative study, it should be claimed that the main research hypothesis is verified. Therefore, the decision to choose a carsharing service depends on the personal characteristics, spatial attributes of the users' activities, and emotional/utilitarian factors.

It should be noted that the process of interviews was long and exhausting for the interviewers, but it also offered a unique opportunity for understanding people's thoughts, reactions, and stated opinion. It also offered some outcomes that cannot be grouped or classified, unveiling the power of qualitative methods [55]. After the end of the interview process, some interviewees started asking questions about carsharing (how it works, cost, etc.) showing interest in it. Strikingly, it is assumed that the process of the interview, in some cases, changed the degree of familiarity with carsharing. The line-by-line data analysis process was also long, but it provided valuable results as it enabled the creation of codes and concepts that were used and validated throughout the rest of the data analysis (codes creation is also appraised in [56]). The results (17 parameters) are grouped in three categories (Figure 1), which represent the main questions of this research: Who, Where, and Why.

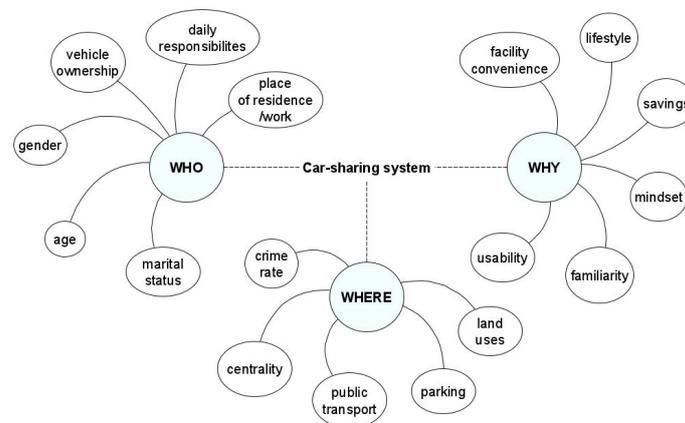


Figure 1. Key factors in a carsharing system.

The first category “who” includes the parameters that highlight the personal factors which are important to the process of choosing or rejecting carsharing: age, gender, marital status, daily responsibilities, place of residence/work, and ownership of a vehicle. The second category “where” sets light on the parameters that deal with place, such as centrality (indicated also as a factor by international literature), public transportation, parking provision, dominant land uses, and crime rate. The third category “why” addresses the emotional/utilitarian factors that affect the possibility to use carsharing services: facility-convenience, everyday life (lifestyle), savings (time, money), mindset–mentality, familiarity, and usability (usefulness, functionality). A summary of key results is presented in Table 3.

It is important to underline that the parameters are not assessed as positive or negative influences on carsharing, but rather as influential in general. Their influence in the choice of carsharing services should be further examined via quantitative research. To this end, future research shall utilize statistical methods like (multiple) linear or logistic regression. Furthermore, stated preference experiments could be worthwhile if one intends to explore future attitudes when different choices or scenarios emerge.

Table 3. Summary of the results.

Category	Factor	Key Insight	Studies with Same Outcomes
WHO	Age	The relation between the intention to use carsharing and age lies in the ease/difficulty of using the carsharing platform.	Burghard and Dutschke [16]; Ullah et al. [20]; Safdar et al. [21]; Hu et al. [23]; Ohta et al. [26]; Nikiforiadis et al. [37]
	Gender	The reasons for not using carsharing services were completely different between men and women, men due to stereotypical lifestyle reasons and women because of uncertainty about the reliability of the service.	Ullah et al. [20]; Hu et al. [23]; Acheampong and Siiba [25]; Ohta et al. [26]; Tao et al. [52]
	Marital status	Married couples are more favorable for using carsharing, especially if they have kids.	Burghard and Dutschke [16]
	Daily responsibilities	Many participants indicated their daily life as an influencing factor and demanded reliability of the services.	Wang et al. [19]; Hu et al. [23]; Ohta et al. [26]
	Place of residence/work	During the interviews, particular focus was given to the “place” parameter. Participants showed greater interest when they claim to live or work in areas lacking an adequate transportation system.	-
WHERE	Vehicle ownership	Even though the “non-owners” were more positive about using a shared car, the “owners” did not reject the idea. Tailored-made policy measures could attract both for using carsharing services.	Burghard and Dutschke [16]; Zhou and Kockelman [24]; Ohta et al. [26]
	Centrality	The interviewees frequently provided contradictory responses related to this parameter. Some participants mentioned that living in the suburbs affects carsharing adoption, however, others argued that is not a matter of centrality.	Ohta et al. [26]
	Public transportation	Serving the residential, work, or educational area by adequate public transportation was a reason for also using carsharing services. Participants showed interest to carsharing-public transportation cooperation.	Acheampong and Siiba [25]; Xie et al. [29]
	Parking provision	Carsharing benefit of liberating users from parking search, motivated respondents to express positive words about such services.	Xie et al. [29]
	Dominant land uses	Participants were found to emphasize on the dominant land uses; indirectly though	-
WHY	Convenience	The crime rate of an area is a determining factor for someone to use carsharing services. Many of the participants appraised carsharing when they thought about visiting areas with high crime rate.	Jain et al. [28]; Xie et al. [29]
	Usability	This factor, according to the participants, reflects the opportunity to relieve them of their responsibilities, to reduce the stress of everyday life and to help them create more free time.	Acheampong and Siiba [25]; Xie et al. [29]
	Savings	User-friendly environments were mentioned by almost all the participants. Easiness is a key for adopting carsharing.	Curtale et al. [17]; Ullah et al. [20]; Safdar et al. [21]; Hu et al. [23]; Jain et al. [28]; Xie et al. [29]
	Mindset	Savings are related to both money (cost) and time. Especially about time, participants claimed that time savings would be an attractor for choosing carsharing services.	Curtale et al. [17]; Jain et al. [17]; Xie et al. [29]; Efthymiou et al. [36]
	Lifestyle	The interviews highlighted the importance of participants’ personality when choosing between using carsharing or not. Some participants were reluctant to use carsharing due to unwillingness of sharing in general.	Curtale et al. [17]; Münzel et al. [18]; Chun et al. [22]; Acheampong and Siiba [25]
Familiarity	Lifestyle applies to the habits and attitudes of the users. It is also indirectly related to income. Participants feel that lifestyle directly affects the intention to use carsharing.	Wang et al. [19]; Acheampong and Siiba [25]; Ohta et al. [26]	
		This parameter greatly influences the intention to use carsharing since participants who had either used carsharing or had feedback from relatives or friends were keener to use it. Carsharing should invest on awareness campaigns.	

In an overview, it should be stressed that the findings of this work are mainly in line with other studies examining other contexts. Factors like age, gender, marital status, vehicle ownership, daily responsibilities, centrality, public transportation, parking provision, convenience, usability, savings (money and time), mindset, lifestyle, and familiarity were encountered in similar research works. Especially, age, gender, daily responsibilities, vehicle ownership, savings, mindset, lifestyle, and familiarity could be found in several relevant papers such as Jain et al. [28], Ullah et al. [20], Safdar et al. [21], Curtale et al. [17], Xie et al. [29], etc. This fact indicates that despite the differences found in the Greek context (e.g., lack of carsharing culture), the motives for adopting carsharing might have a “common” background.

However, there is not distinct evidence (to the authors’ knowledge) in relevant studies that clearly prove that the motives of users in different contexts are homogeneous. On the other hand, Parente et al. [57] claim that one should examine sharing economy concepts in different national settings due to heterogeneity reasons. In the same direction, Münzel et al. [18] underline that “national contexts are of importance as well given the large differences in the popularity of carsharing across countries (regulations, policies, tax regimes)”. Thereupon, local or national communities do play a role. Within this framework, it was important to explore the Greek case single handedly. Notably, the undertaken interviews revealed the significance of spatially related factors like place of residence/work, dominant land uses, and crime rate (specific aspect of safety). This is a new insight for the relevant literature. Therefore, spatial factors should be prioritized, especially in contexts similar to the Greek one. Nevertheless, there were also some factors indicated by international literature that were not mentioned in the interviews, like income, educational level, and safety (traffic crashes). These factors might not directly affect Greek community or they might be embedded into other factors (e.g., income is related to lifestyle).

Based on the outcomes of the interviews, there are some policy measures outlined that aim to enhance the use of carsharing tailored-made for the Mediterranean context. These policy measures endeavor to formulate a brief “roadmap” and can be found in the next Table (Table 4).

The main policy measures proposed are the development of a user-friendly platform accessible to anyone, awareness campaigns that will promote sharing-economy and carsharing (in particular mindset and culture is a great culture for adopting carsharing), integrated services for public transportation and carsharing under a MaaS context, and affordable pricing schemes that take into account the various needs of users. Additionally, constructing dedicated infrastructure like parking spaces and lanes and coupling with regulations where shared cars are allowed on streets instead of conventional ones will also be in favor of carsharing schemes. Finally, a key policy measure is to ensure safety in areas where fear of crime is high.

All these policy measures are not a full list of measures addressing the entire spectrum of issues when it comes to carsharing. Nevertheless, it is a well-suited policy roadmap for the Greek context, where carsharing is not popular yet. These policy suggestions are based on the interviews, and they do not dig into great detail. There are also in the same direction with a thorough work of Narayanan and Antoniou [58]. Noticeably, specifying the proposed measures in the future will bridge the gap between theory and practice.

Qualitative studies, enabling in-depth interviews, function as a strong tool towards the understanding of motives and challenges of a certain topic. In this context, this paper unveiled meaningful insights from the users’ perspective; however, there are some limitations that should be acknowledged. First, one considerable limitation pertains to the sample. Even if the size is substantial, it could be broader in terms of including users with different economic status, thus capturing full spectrum of perspectives within the carsharing community. In this research, a combinatorial approach using convenience, snowballing, and purposive sampling, i.e., non-probability sampling, was adopted because of cost- and time-effectiveness as well as ease of acquiring the sample. Nonetheless, this limited the comprehension in terms of factors related to carsharing, thus, restricting somehow the gen-

eralizability of the outcomes. Therefore, new studies shall examine this topic considering probabilistic sampling methods and compare their results to the present results.

Table 4. Policy suggestions for appraising carsharing in the Greek context.

Category	Factors	Policy
WHO	Age	User-friendly platform Employment of other alternative ways to foster people that are not familiar with technology
	Gender	Awareness campaign for men Enable trustworthiness in the scheme for women
	Marital status	Pricing adjusted to travel behavior, for instance, affordable prices enabling parents to take multiple trips
	Daily responsibilities	Efficient management ensuring car availability that will suit individuals' daily responsibilities (MaaS system)
	Place of residence/work	Adjust supply of shared cars in areas that are problematic in terms of walking and public transportation, but also in areas with intense traffic congestion. Ensure safety for areas with high fear of crime
	Ownership of a vehicle	Competitive pricing for car owners to shift their interest towards carsharing
WHERE	Centrality	Carsharing schemes should be prioritized in suburban and rural areas
	Public transportation	Integrated measures should be at the forefront (MaaS service). Partnerships between carsharing companies and public transportation authorities. Coordinated routes with public transportation lines. Integrated fare for both carsharing and public transportation system ("One fare-two systems")
	Parking	Dedicated carsharing parking spaces: these spaces should be located near public transportation hubs and residential and commercial areas Carsharing schemes should be enhanced in areas with parking difficulties
	Dominant land uses	Carsharing schemes should be promoted in recreational areas, especially during night hours Commercial areas should be prioritized as well (access to areas that conventional cars are excluded)
	Crime rate	Ensure safety for areas with high crime rate
WHY	Convenience	Cars involved in this scheme should be comfortable and clean
	Usability	User-friendly platform Employment of other alternative ways to foster people that are not familiar with technology
	Savings	Affordable schemes with special discounts Efficient management to achieve high accuracy in terms of time (e.g., dedicated lanes, access to streets that conventional cars are excluded)
	Mindset	Awareness campaign about sharing economy and carsharing in particular and its benefits
	Lifestyle	Awareness campaign about sharing economy and carsharing in particular and its benefits Efficient management ensuring car availability that will suit individuals' daily responsibilities
	Familiarity	Awareness campaign about carsharing schemes User-friendly platform to increase familiarity

Furthermore, policy suggestions were not prioritized in this set of interviews, therefore limiting the creativity of interviewees towards sharing ideas that could be useful for developing tailor-made planning schemes. Coupling with the previous comments, the analysis of the interviews was a challenging task, providing noteworthy intuitions, but it could be deeper, reflecting more aspects of the carsharing culture in Greece. Temporally, the study is a snapshot that captures the motivations and challenges of carsharing at a particular point in time; while Greece's socioeconomic and political dynamics change,

these findings could change as well. Finally, this study was conducted in a specific context (i.e., Greece) with specific characteristics. As such, outcomes might be influenced, and caution should be exercised in generalizing the results to different contexts. Researchers are encouraged to consider these limitations when interpreting the findings and exploring further research pathways.

Despite the limitations, bearing upon the methods used, it should be strongly underlined that this study secures validity in all terms. The different types of validity demonstrated with respect to this specific study are as follows:

- **Descriptive validity (fundamental importance):** this type of validity was ensured through carefully recording actual phrases from participants, demonstrating some of them in the text.
- **Interpretive validity:** During the interview attitudes or even body language were also noted. This fact contributed to interpreting the data collected comprehensively, since every aspect of the interview and not only phrases were carefully recorded.
- **Theoretical validity:** Data from interview must be explained adequately by theory. This research categorizes the responses based on the literature of Section 2; thus, successfully connecting theory and data.
- **Generalizability:** This is a difficult task, when it comes to qualitative research. The outcomes of this research do not address every context related to carsharing; nevertheless, they could be generalized for similar contexts such as other Mediterranean countries.
- **Evaluative validity:** Outcomes should be based on data. This research's results rely on the various data gathered. In other words, it follows a qualitative evidence-based approach. This enables a sufficient level of evaluative validity.

6. Conclusions

Notably, this research sheds light on one major aspect of sharing economy, i.e., carsharing in the Mediterranean concept and especially in Greece, where current literature is still limited. Hence, this study signifies considerable contribution towards academic purposes. It is indeed one of the few studies to date added to the great canvas of the sharing economy literature revealing motives and challenges in an unexplored area. Nonetheless, this research work does not only entail academic contribution, but has also practical implications related to the private or public sector. To be more precise, this study can be used by carsharing companies/operators to promote carsharing services. Factors related to place of activities as well as emotional or utilitarian factors can also be utilized to improve carsharing services substantially. For instance, operators can take into account the outcomes of this research work, in order to apply efficient management to the fleet or customize their pricing policies. Moreover, they can use the factors revealed for developing tailor-made solutions referring to the user platform or security issues. The results are also useful for local authorities that promote sustainable mobility schemes as carsharing lies at its core. To this end, policymakers and stakeholders can improve their urban mobility strategies, considering the benefits of carsharing schemes compared to private mobility. Moreover, they can build effective awareness campaigns that are expected to clarify the positive impact of carsharing services, thus increasing the acceptability of such schemes by the public. Finally, this research could provide significant help in planning carsharing systems in contexts with limited carsharing culture.

However, as transportation and mobility futures are uncertain [59,60], new research works should shed more light in how sharing economy can seriously influence the transportation sector in general. Several avenues of research can be explored to build on this study. A quantitative survey could provide a more general overview of the motivations and challenges of carsharing in Greece and complement the qualitative findings of this study (i.e., using inferential statistics, stated preference experiments, etc.). By focusing on specific populations such as young adults, the elderly, or people with disabilities, the unique challenges and motivations of these groups can be identified. Given the rapid technological advances in the field of mobility, especially in the field of electrification, a study

that focuses on technological aspects in the Greek or in the Mediterranean context would be enlightening. In this direction, another step would be to measure the acceptance of specific carsharing transportation schemes like autonomous carsharing. Finally, understanding the role of government policies and regulations in the adoption of carsharing in Greece could provide valuable information for both researchers and policymakers. In any case, the scientific debate on sharing economy should be an ongoing process, constantly revealing different angles and identifying new insights for building a sustainable future.

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