What drives corporate carsharing acceptance? A French case study

Sylvain Fleury *, Ariane Tom, Eric Jamet, Elsa Colas-Maheux

CRPCC, University of Rennes 2, Place du recteur Henri Le Moal, CS 24 307, 35043 Rennes, France

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ABSTRACT

Corporate carsharing allows employees to make use of a fleet of vehicles for their business travels. It offers a means of managing vehicle fleets more optimally, bringing both economic and environmental benefits. However, this kind of use can cause concerns, and even rejection in some cases. This paper describes an online survey of 259 people in France that assessed the psychological variables determining intentions to use a corporate carsharing service. The questionnaire instantiated the dimensions of the UTAUT acceptability model. Because of the specificities of carsharing as a means of transportation, we added a dimension referring to the service's perceived environmental friendliness. Results showed that effort expectancy (*i.e.*, degree of ease associated with use) is the most important dimension in determining behavioral intentions about corporate carsharing. Moreover, perceived environmental friendliness had only a small effect on behavioral intentions, mediated by performance expectancy (*i.e.*, the degree to which individuals believe that using the system will help them improve their job performance). Results are notably discussed in terms of practical recommendations to favor corporate carsharing.

1. Introduction

1.1. Carsharing

This paper deals with carsharing, where a single car is used by several individuals, at different times. This contrasts with carpooling, where several persons use the same car at the same time. As pointed out by Shaheen, Sperling, and Wagner (1998) and Shaheen, Wright, and Sperling (2002), carsharing allows individuals to benefit from a private car without all the usual constraints, and is therefore similar to a short-term rental. Little research has been conducted on carsharing worldwide. The few studies that have been undertaken are therefore a precious source of information on how people use this mode of transportation.

Concerning the savings to be made, some estimates (*e.g.,* Attali & Wilhite, 2001; Tuan Seik, 2000) indicate that, on average, carsharing is less expensive than the use of a personal car, although this difference varies according to the mean distances users travel. Moreover, with this transportation mode, users travel shorter distances than they would with a personal vehicle (Millard-Ball, 2005). Consequently, there is a dual economy effect of carsharing use.

* Corresponding author.
  E-mail address: sylvain.fleury@uhb.fr (S. Fleury).

Another advantage of carsharing is that it minimizes the overall number of vehicles needed. It has been estimated that a shared car can substitute between 1 and 6.5 personal vehicles, depending on the study (Millard-Ball, 2005). To Zheng et al. (2009), beyond the number of cars that it can replace, carsharing also diminishes the frequency of impulsive trips. These authors stressed that carsharing not only makes people more aware of the cost per journey but also requires each journey to be planned. In a study conducted in Singapore, Tuan Seik (2000) attempted to define carsharing users' profiles. This study revealed that the majority of them were middle-income married men, aged 30–39 years, living in a household containing 4.2 persons on average. The same indicators were evaluated in another survey in the USA (Millard-Ball, 2005), where the users of carsharing services were found to have a mean age of 37.7 years. The mean household size was 2.02 people. Unlike the sample from Singapore, the individuals who were surveyed were mainly women (55%). Finally, in another study conducted in Los Angeles with university staff, Zhou (2012) found that carsharers were middle-incomers with an average age of 37 years. Profiles were quite different, notably in terms of commuting distance (carsharers lived closer to or further away from university, compared with non-carsharers), and sex (women were more numerous among carsharers than among non-carsharers). Thus, concerning these basic demographic characteristics, only the age of the users seemed to be relatively stable across the two geographical areas considered here. Shaheen et al. (1998) revealed that about 30% of early carsharers gave up a private car because of carsharing, and that the distances they traveled decreased because of combined use of public transportation. Other studies have highlighted potential market niches for carsharing, namely commuters and university staff and students (e.g., Shaheen, 2001; Zhou, 2012). In addition to the benefits cited above, Shaheen (2001) considered other motives for commuters turning to carsharing. For instance, the latter can represent a substitute for the private car, obviating the need to buy a second car for the household. Further, it means added mobility for those who do not own a vehicle.

Only a handful of studies have attempted to describe the determinants of carsharing use by focusing on psychological aspects. Schaefers (2013) conducted a series of interviews with a sample of eight women and six men who were all customers of a carsharing service in the USA. This approach, which the author described as exploratory, allowed him to identify four main motives for using this service: value seeking (savings for the user), commodity (easiness and practicality of the service), lifestyle (pleasure linked to driving this particular kind of car, but also the community engagement of some users), and environment (how environmentally friendly the service was). Interviews, together with focus groups, pre- and post-questionnaires, and travel diaries, were also used to assess people's opinions about carsharing in the San Francisco Bay Area (Shaheen & Rodier, 2005). Two long-term studies featuring attitudinal scales revealed first that early carsharers had a tendency to try new experiences. Second, they did not consider their own vehicle to be a hassle. Third, they appeared to be environmentally aware. Carsharing also modified the modes of transport they used to commute: as driving alone decreased, using the train or walking both increased. Finally, the carsharers' level of stress either remained stable or decreased after a few weeks using this system.

Another study conducted by Efthymiou, Antoniou, and Waddell (2013) had two aims. The first was to assess the factors determining carsharing service use in Greece. The second was to investigate perceptions and attitudes regarding personal vehicle ownership. With respect to the first aim, the study showed that (1) taxi clients and public transportation users were the most likely to adopt a carsharing service, and (2) environmental concerns made people more likely to consider using this service in the future. Regarding the second aim, participants had been asked to rank the perceived pros and cons of being a car owner. The main perceived advantages were travel convenience and comfort. The most frequently cited disadvantage was difficulty parking, followed by pollution. The financial aspect was only moderately cited. Overall, according to this study, owning a personal car allows individuals to travel easily and comfortably, although parking the car is difficult, and it is a source of pollution. Nonetheless, carsharing could diminish the amount of pollution generated by car fleets, as well as the numbers of cars on the roads and attendant parking problems. In view of the above results, therefore, the second most important factor for the adoption of this solution is ease of use.

Among the nonpsychological factors for carsharing use, the most influential one highlighted by research is the distance between the location where the car is parked and the user's home or workplace. The second most important factor is the possibility of leaving the car in a different location from where it was picked up. Here again, adopting this service seems to be based mainly on criteria that fall within ease of use. For Shaheen (2001), flexibility is therefore key to commuters adopting carsharing. For example, it can replace shuttles with inconvenient schedules that do not operate at all outside peak hours. In order to reduce the cost of such a system, one strategy proposed by the author would be to use alternative-fuel cars for sharing and plough back the corresponding tax incentives. Zhou (2012) compared carsharers with other commuters at a university in Los Angeles. Commuters are not entitled to a parking permit, but are offered 8 h of free use of shared vehicles per month to drive within the campus boundaries. When compared with four other locations that were not university campuses, the carsharing rate was found to be significantly higher at the university.

Communicating about carsharing also seems to make commuters more likely to intend to use such a system, depending on the amount and type of exposure to the concept over time. In a longitudinal study (10 months), Shaheen and Novick (2006) found that final intention to use was 33% for surveyed participants who had only read a brochure, but 78% for those who had also watched a video and driven the vehicles. User satisfaction was measured in a further 12-month study. By the end of the program, 60% of users stated that they were (very) satisfied with vehicle access, 60% with refueling and 44% with the booking system. Finally, Shaheen, Mallery, and Kingsley (2012) reported that the main barrier to adopting carsharing was insurance coverage, followed by fear of sharing a car. According to their interviews, this fear can be reduced and trust can be established if user ratings and feedback are provided. Although these results applied to personal carsharing (i.e., peer-to-peer carsharing), the authors stressed that these hindrances were the same for corporate carsharing.

To our knowledge, no such study has been conducted on carsharing services in companies. Corporate or business carsharing refers to a fleet of vehicles belonging to a corporation that can be used by employees for business travel. According to Shaheen and Cohen (2012), this form of carsharing "[…] may offer shared-use vehicles where the client accesses the vehicles as part of a larger carsharing fleet (i.e., employees use the same vehicles that are shared by individuals and/or other business members)". Corporate carsharing should thus be paid more attention as the psychological determinants of carsharing use in a professional context may well differ to some extent from those observed for individuals. For instance, financial considerations (*e.g.*, insurance costs) cease to be relevant when users do not have to pay for such a service.

Given the apparent absence of a study describing the psychological factors determining the use of a corporate carsharing service, we do not have sufficient information about the main points that need to be improved in order to increase acceptance of this mode of transportation. As stated by Schröder and Wolf (in press), changing people's behaviors and attitudes regarding carsharing can be achieved by multiplying campaigns about it. Conversely, identifying *a priori* the essential determinants to use carsharing appears as an economical way to later stress on specific factors to change people's representations and mentalities about it. As a result, we focused in this paper on the psychological determinants of corporate carsharing use. Nonetheless, we added another variable (namely, environmental friendliness) as this one may trigger eco-friendly behaviors (Schröder & Wolf, in press). Further, even though the carsharing service already exists in the studied company, it was not used by all employees. Actually, these ones could use alternative solutions for their business travel. Hence, encouraging them to use the service *via* specific incentives appears to be an interesting challenge. Acceptability models therefore constitute an interesting basis for exploring the psychological dimensions that are likely to favor carsharing adoption within companies.

1.2. Models of acceptability and UTAUT

Several theoretical models have been developed to describe the acceptance of technology and its determining factors.

Actual use can be predicted by prior measures of *intention to use* (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989), as well as by measures of perceived usefulness and perceived ease of use (Henderson & Divett, 2003). The *Technology Acceptance Model* (TAM; Davis, 1989) summarizes the links between perceived usefulness, perceived ease of use, and intention to use. *Perceived usefulness* refers to the match between system features and potential users' needs and expectations. *Ease of use* refers to users' perceptions about the ease of using the system.

Though parsimonious, the TAM has been criticized because it does not take organizational and social variables into account (Legris, Ingham, & Collerette, 2003). In order to fully account for the determinants of acceptance, a more exhaustive model was therefore developed by Venkatesh, Morris, Davis, and Davis (2003), known as the *unified theory of acceptance and use of technology* (UTAUT). UTAUT was built on the basis of a survey conducted in a large organization (Venkatesh et al., 2003). As early as 2004, other authors applied it to a wireless network system that had been installed in small and medium enterprises (Anderson & Schwager, 2004). Since then, numerous papers have been published, looking at how UTAUT can be used either to enrich specific products or to assess the determinants for their use. The domains covered by these articles are quite wide ranging. The e-commerce field has been particularly intensively studied in relation to acceptability, with researchers focusing on online stores (Chiemeke & Evwiekpaefe, 2011; Yaprakli, Kalbakhani, & Rasouli, 2013), digital libraries (Orji, 2010; Rahman, Jamaludin, & Mahmud, 2011), and mobile commerce (Alkhunaizan & Love, 2012; Qingfei, Shaobo, & Gang, 2008). Lastly, several studies have sought to assess technologies used in the medical field (Hennington & Janz, 2007; Kijsanayotin, Pannarunothai, & Speedie, 2009), although more attention has been paid to cellphones (Carlsson, Carlsson, Hyvönen, Puhakainen, & Walden, 2006; Pitchayadejanant, 2011) and associated functionalities such as 3G (Kumar, 2013; Wu, Tao, & Yang, 2007).

First, in comparison with TAM, UTAUT contained two new dimensions: social influence and facilitating conditions. *Social influence* is the degree to which individuals think they can use the system while respecting their social group's norms and while giving a positive image of themselves. *Facilitating conditions* refers to the degree with which individuals think they are provided with a favorable context and the resources they need to help them use the system. Second, in contrast to TAM, UTAUT includes moderating factors relating to the individuals' features and their past experience, notably age, sex, experience, and voluntariness of use. Third, research has shown that TAM is not powerful enough to explain a significant part of the variance of intentions to use whereas UTAUT explains about 70% of this variance (Venkatesh et al., 2003). It should also be noted that this last figure exceeds the ones obtained by seven other models of technology acceptance, as reported in Venkatesh et al. (2003). As such, on the basis of its thorough structure and of its high explanatory power, UTAUT appears to be a solid theoretical framework to assess psychological determinants to use innovations, namely here corporate carsharing.

UTAUT has seldom been applied in the field of transportation. Nonetheless, a study conducted by Vlassenroot, Brookhuis, Marchau, and Witlox (2010) focused on the acceptability of car technology. One of the authors' goals was to clearly define the concepts of acceptability and acceptance of intelligent speed adaptation (ISA) within the UTAUT framework. Based on 14 indicators liable to influence these concepts, they found that a distinction could be made between the two in terms of time and the individual's experience.

More recently, Wolf and Seebauer (2014) sought to explain the use of e-bikes in Austria by applying concepts taken from technology acceptance and factors influencing mobility behaviors. As such, they based their research on the UTAUT model, combined with factors such as personal norms or attitudes toward physical activity. They aimed to characterize early adopters' profiles, their e-bike use and the reasons why they eventually adopted this new technology. The effects of determinants for e-bike use were revealed through structural equation modeling. The authors found in particular that the explained vari-

ance depended on the purpose of the trip (work, leisure or shopping), and that the UTAUT model benefited from the addition of factors taken from studies focusing on travel mode choice. Furthermore, age appeared to be a moderate predictor of use (*e.g.*, perceived usefulness), a result congruent with Venkatesh et al. (2003).

Although some studies have focused on uses and users' carsharing profiles (*e.g.*, Shaheen, 2001; Zhou, 2012), they were not based on an integrated model of acceptability. In all the above-mentioned studies using the UTAUT, the structure of the resulting model was virtually the same each time. The major difference was the weight of each factor explaining the uses. This changed depending on the country, as well as on the kind of product being assessed. For example, the use of a government website tested by Alshehri, Drew, Alhussain, and Alghamdi (2012) was determined by every classic factor in the UTAUT model except social influence. By contrast, social influence was the most important factor determining the use of online banking services (Yu, 2012). This sizable difference could be explained by the fact that online banking services require a degree of trust about security. This trust could be provided by the positive opinion of the significant relative. The scant research on corporate carsharing has not produced any clear answer about the psychological determinants for this type of service. Moreover, to our knowledge, the UTAUT has never been applied to corporate carsharing. Applying a tried and trusted model like UTAUT to this matter could yield some useful information. Knowing the weight of each factor determining the use of a given product is essential for making decisions about improving the product or devising the communication strategy, and makes it possible to focus on exactly what is needed to make more people adopt the product.

1.3. Goals of the present study

The present study was an empirical one. Its two main objectives were to analyze the regression weights of the UTAUT applied to corporate carsharing and to study the role of perceived environmental friendliness in determining intentions to use this service. Image of corporate carsharing was also investigated, mainly to verify if there was a match between mental representations of carsharing and the determinants to use it.

2. Material and method

2.1. Participants

The survey questionnaire was sent to 2504 employees of a telecommunication company that uses a carsharing service in France. This company was chosen because it was a large enterprise which could allow us surveying a quite large sample within the same structure. The fleet was composed of 100 vehicles spread on 5 sites located in Paris, Saint-Denis, Arcueil, Lannion and Rennes disseminated in two regions, Brittany and Ile de France. The survey was completed by 259 respondents (80% men and 20% women), representing a response rate of 10.3%. The youngest respondent was aged 21 years and the oldest 65 years. Their mean age was 47.5 years ($SD = 8.49$). A total of 228 respondents were users of the service. Respondents were recruited via email. No reminder was sent. Respondents were not financially rewarded for their participation in the survey. The employees of this company were not obliged to use the carsharing service. Several alternative solutions were available, including personal vehicle use with defrayal, or use of an assigned vehicle. Overall, they claimed to travel 3377.91 kilometers per year on average ($SD = 6548.38$) in professional context. The lowest value was 0, and the highest was 50000. Several incentives for using the service were provided. Employees could use these cars any day, at any time, and for unlimited miles. When the user is done with his travel, another user can make use of the same car.

2.2. Assessing variables

This survey was administered online. On its first page, participants were asked to provide some individual characteristics (sex, age) and information about their travel modes. On the second page, participants were asked to provide five words or expressions that they associated with carsharing. These ones and particularly the most frequent ones will serve as bases for assessing the image of corporate carsharing participants have built. Finally, participants were asked to rate 28 items on visual analog scales ranging from 0 to 100. These were used to measure five dimensions adapted from the UTAUT model (Venkatesh et al., 2003): behavioral intentions, performance expectancy, effort expectancy, social influence, and facilitating conditions. Moreover, based on Schaefers' results (2013), we decided to add a measure of perceived environmental friendliness. All items are presented in Table 1. The answers varied from *Strongly agree* to *Strongly disagree* for each of the 28 items. In addition to giving their responses, the participants could write comments about each item.
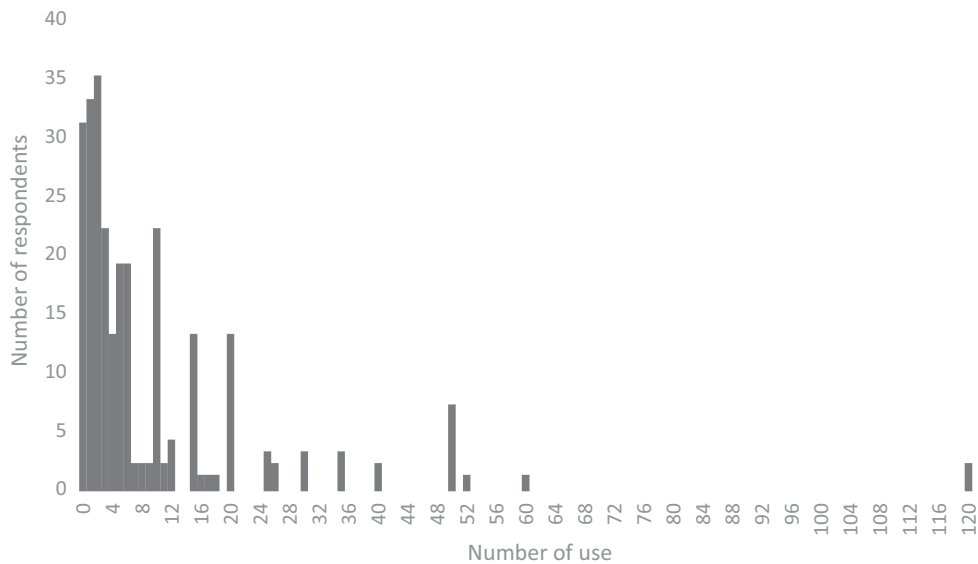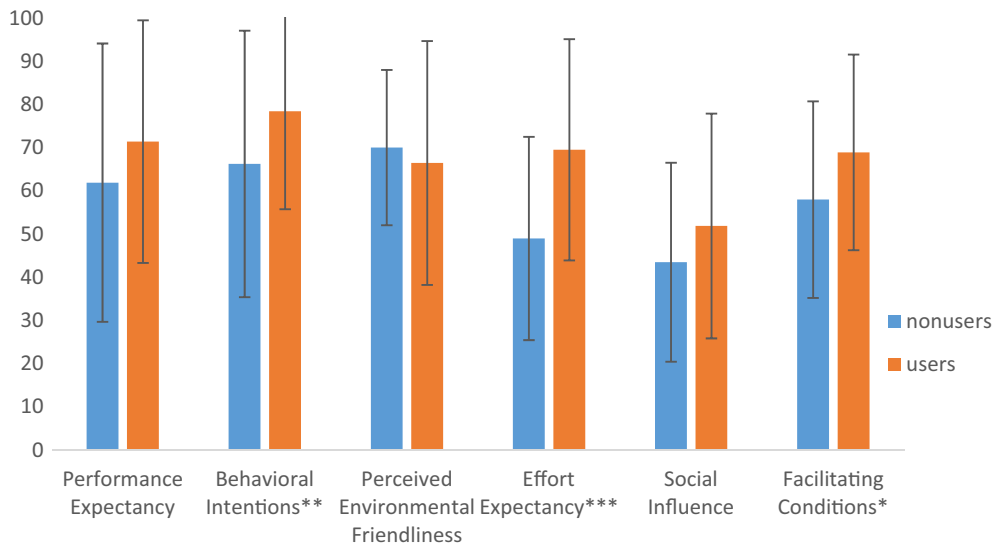
3. Results

3.1. Carsharing practice

The number of times each participant had used the carsharing service over the previous six months is shown in Fig. 1. There was considerable variability here ($M = 9.18$, $SD = 14.96$, $Mdn = 4$), as there was for the number of kilometers traveled for business purposes over the previous six months ($M = 3483.15$, $SD = 7123.90$, $Mdn = 1000$).

Table 1
List of items used; these items were translated from their French versions.

Performance expectancy
1   I would find the carsharing service useful for my business travel
2   I would find carsharing useful for my business travel
3   I would find the carsharing service useful in a professional context
4   Overall, using carsharing helps me saving time for my business travel

Effort expectancy
5   I would find simple to use the carsharing service for my business travel
6   The car-sharing service seems simple to use in a professional context
7   Practicing carsharing appears easy to me for my business travel
8   It seems easy to practice carsharing for my business travel

Social influence
9   People who influence my behavior think that I should use carsharing for my business travel
10   People who are important to me think that I should use carsharing in a professional context
11   My company encourages me to adopt an environmental friendly behavior by using a carsharing fleet of vehicles for my business travel
12   People who are important to me think that I should use carsharing for my business travel

Behavioral intention
13   I intend to use the carsharing service in the next 6 months for my business travel
14   I would recommend to use the carsharing service to my colleagues in a professional context
15   In a professional context, as soon I am able, I will use the carsharing service
16   I plan to use the carsharing service each time I need it for my business travel

Facilitating conditions
17   Carsharing is compatible with my job in a professional context
18   Carsharing is compatible with the way I like to work in a professional context
19   Cardriving with a shared vehicle makes changes in the way I organize work for my business travel
20   Cardriving with a shared vehicle is compatible with my habits for my business travel
21   I have the resources necessary to use the carsharing service for my business travel
22   Assistance is available in case of difficulties with the carsharing service for my business travel
23   I have the knowledge necessary to use the carsharing service for my business travel
24   Assistance is easy to obtain in case of difficulties with the carsharing service in a professional context

Perceived environmental friendliness
25   For my business travel, driving a shared vehicle matches my expectations in terms of ecology
26   I think carsharing is an ecological means of transportation in a professional context
27   Practicing carsharing is an environmental friendly behavior for my business travel
28   I think carsharing is a means of protecting the environment in a professional context

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Fig. 1. Headcount of participants according to the number of times they had used the carsharing service in the previous 6 months.

*p < .05 ; **p < .01 ; ***p < .001

Fig. 2. Means and standard deviations of the scores for the six assessed psychological dimensions.

3.2. Acceptability for users and nonusers

Descriptive statistics, including means and standard deviations for the constructs, are provided in Fig. 2. The sample was split according to use ($n = 228$) or nonuse ($n = 31$) of the carsharing fleet. The results were quite positive: all overall means were close to 70, except for the social influence dimension, where the score was close to the central value of 50. Overall, the carsharing service was quite well accepted ($M = 76.84$). Only 5.02% of participants rated their intentions to use below 50, which is slightly higher than the rating reported by Shaheen and Novick (2006). Overall, carsharing was positively assessed by participants, including non users.

Because homoscedasticity was too low for some of the measures, the comparisons between users and nonusers for each construct were run using the Wilcoxon signed-rank test. The latter revealed significant differences for behavioral intentions ($p = .008$), effort expectancy ($p < .001$), and facilitating conditions ($p = .012$). However, the difference was not significant for performance expectancy ($p = .052$), social influence ($p = .089$) or perceived environmental friendliness ($p = .49$).

3.3. Image of carsharing

All the words evoked by the participants for carsharing are shown in Fig. 3. The two most frequently mentioned ideas were *simplicity* and *complexity*. These two contrasting terms were linked to the same notion: effort expectancy. Not all participants agreed about the difficulty or simplicity of carsharing, but all of them thought that ease of use was a core dimension of this service. Environmental concerns, however, were very seldom mentioned.

3.4. Reliability test

This study used reliability analysis (Cronbach's alpha) with the aim of computing internal consistency for all dimensions. Only one item was dropped within the facilitating conditions dimension, because it was poorly correlated with the other items in this dimension (item#19).

Table 2 illustrates the reliability for each construct. The high Cronbach's value for all constructs indicates that they were internally consistent and measured the same content. All the alphas were close to a high value (.900), indicating that all the constructs were strongly consistent.

3.5. Structural equation modeling

The links between the constructs were analyzed using structural equation modeling (R package lavaan). The main objective was to observe the impact of the UTAUT constructs on behavioral intentions. In our model, social influence had no significant influence on behavioral intentions ($p = .45$), so we dropped this construct. The second step was to check for mediated effects (*i.e.*, whether some constructs had an indirect effect on behavioral intentions by influencing other dimensions). In the
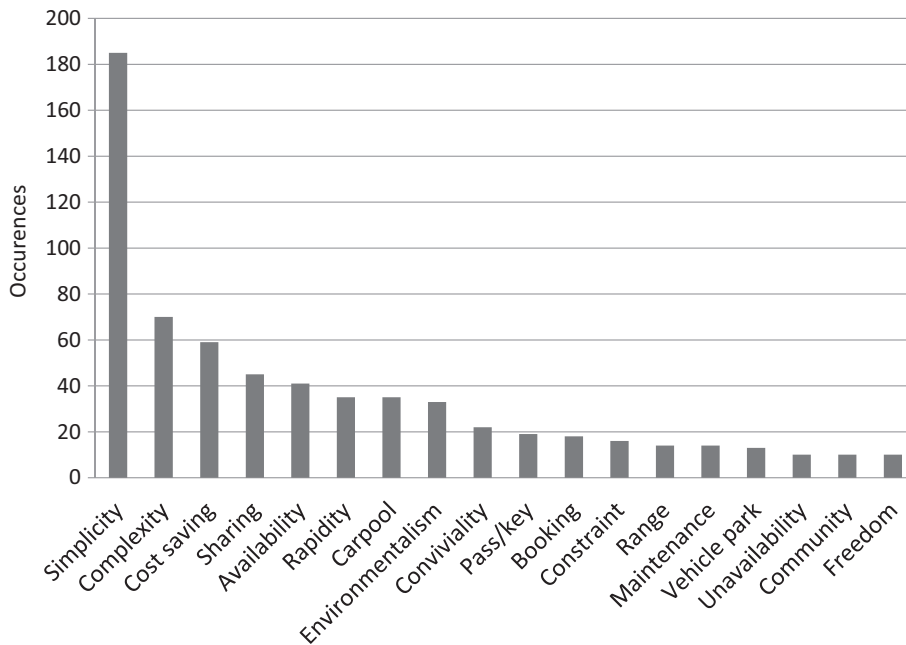
Fig. 3. Words associated with carsharing.

Table 2
Internal consistency of the six assessed psychological dimensions.

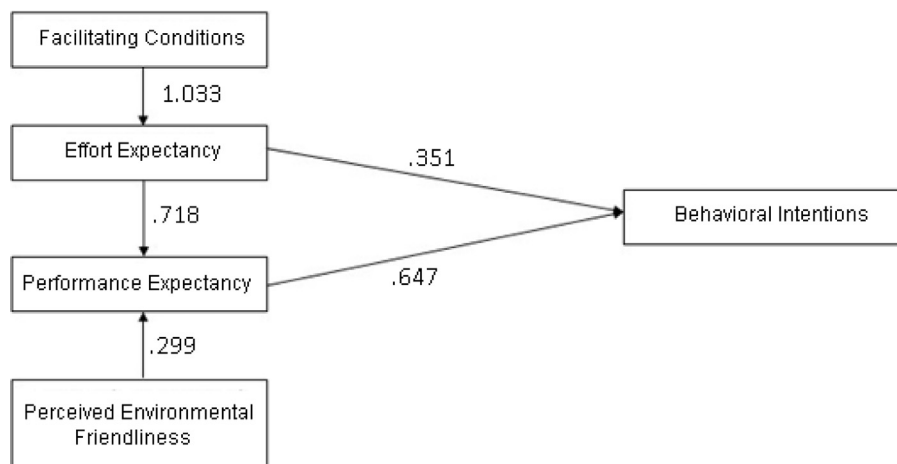| Constructs	Cronbach's alpha
Performance expectancy	.893
Effort expectancy	.952
Facilitating conditions	.888
Social influence	.842
Behavioral intentions	.898
Perceived environmental friendliness	.937

Fig. 4. The best model according to the AIC comparison (values are standardized beta, all regressions are significant; *p* < .001).

final step, we tested the impact of perceived environmental friendliness. Fig. 4 describes the final model ($\chi2(253)$ = 882.97, CFI = .915, RMSEA = .098, SRMR = .074).

All the regressions values are shown in Table 3. Facilitating conditions strongly influenced effort expectancy. The higher the facilitating conditions were, the more users thought the service was easy to use. The effect of facilitating conditions on behavioral intentions was mediated by effort expectancy. Regarding perceived environmental friendliness, analyses showed

Table 3
Results of testing the paths.

	Beta	SE	CR	p
Facilitating conditions → Effort expectancy	1.511	.125	12.087	<.001
Perceived environmental friendliness → Performance expectancy	.238	.034	6.973	<.001
Effort expectancy → Performance expectancy	.545	.042	12.958	<.001
Performance expectancy → Behavioral intentions	.492	.063	7.751	<.001
Effort expectancy → Behavioral intentions	.202	.038	5.282	<.001

Note. Estimate = path coefficient; *SE* = standard error of the regression weight estimation; *CR* = result of the path coefficient divided by *SE*; *p* = probability associated with the regression weight.

that its impact on behavioral intentions was mediated by performance expectancy. Finally, performance expectancy was significantly impacted by effort expectancy. In other words, participants tended to assess the service as useful as long as it was easy to use and, to a lesser extent, if it was an ecological means of transportation.

Analyses did not show any significant effect of sex or age, although the particular nature of the sample could explain this result: owing to the sex imbalance within the company, more men than women were surveyed, possibly accounting for the absence of a sex effect.

4. Discussion & conclusion

As mentioned above, very few studies have covered the topic of corporate carsharing, and none of them have sought to identify the psychological factors determining intentions to use this type of service. The main asset of the present study was therefore to fill this gap by analyzing the influence of each UTAUT dimension (Venkatesh et al., 2003) on intentions to use a corporate carsharing service, and by ascertaining whether perceived environmental friendliness had an impact on the latter.

Based on our results, we can conclude that all the UTAUT dimensions except social influence had an impact on behavioral intentions. Actually, according to Venkatesh et al. (2003), in voluntary contexts, social influence only has an impact on behavioral intentions after a period of use. Conversely, in mandatory contexts, social influence only has an impact on behavioral intentions at the very beginning of use. In the present study, the carsharing service had been introduced several months earlier in the company, which could explain the lack of impact of social influence. Moreover, in line with our own results, a number of studies using UTAUT have failed to find a significant regression of social influence on intentions to use (*e.g.*, Al Imarah, Zwain, & Al-Hakim, 2013; Al Qeisi & Al-Abdallah, 2014; Cohen, Bancilhon, & Jones, 2013; Yeow, Yuen, Tong, & Lim, 2008). Our first findings thus replicated the ones obtained in thoroughly different contexts, such as online banking service.

Second, interestingly, we found that facilitating conditions strongly impacted behavioral intentions through the mediation of effort expectancy. Participants tended to consider that a carsharing service is easy to use if conditions facilitate it. These could include being given help when using the service for the first time (tutorial, training course) and being able to contact a call center in case of difficulty.

Third, regarding perceived environmental friendliness, results revealed that this had only an indirect impact on behavioral intentions, mediated by performance expectancy. Carsharing was thus considered more useful if it was regarded as an environmentally friendly good practice. Moreover, the regression of effort expectancy on performance expectancy was statistically significant. This result was consistent with the TAM (Davis, 1989), and confirmed by spontaneous comments (*e.g.*, "It might be useful if it were easy"). Participants tended to consider that the carsharing service was useful if it was easy to use and environmentally friendly.

Fourth, it was found by the regression weights of the model that effort expectancy was the most important factor in both the direct and indirect determination of behavioral intentions. This result was supported by the words evoked by the participants in the first phase of the questionnaire. The most frequent words referred to the simplicity or complexity of the service. Moreover, many of the comments underlined the key role of this aspect. Participants spontaneously wrote that they would use it "when it works better" and that "there are too many logistical problems". Perceived environmental friendliness was less important in determining behavioral intentions, and words referring to environmental friendliness in the image questionnaire were less frequent. Furthermore, the participants who did use the carsharing service gave higher ratings for facilitating conditions, effort expectancy, and behavioral intentions. This supports the idea that these three constructs exert a powerful influence on use behavior.

Altogether, our results allow replicating some previous findings relative to interactions among constructs of general models of acceptability, namely UTAUT and TAM. Also and above all, they gave insights to determining weighted relationships between those constructs to *in fine*, know how to favor behavioral intentions to use a corporate carsharing service. Our study has thus also practical scope by providing recommendations to companies which would like to offer a carsharing service to their employees.

Actually, in order to enhance behavioral intentions, priority is usually given to improving effort expectancy. Yet, according to our results facilitating conditions strongly determine effort expectancy. One solution to enhance corporate carsharing use would therefore be to design a simple tutorial, as suggested by one of the participants: "A short video introducing the service

to first-time users would be appreciated". A prior training course might also be effective. In both cases, these information tools should first focus on the easiness of use of such a service, for instance by stressing the simplicity of the booking service. Furthermore, the possibility of contacting a call center when any difficulty occurs would provide reassuring potential support. Perceived environmental friendliness could also be improved, by communicating about the resources saved by this practice. This type of information could be included in the above-mentioned tutorial, or in courses. Beyond the enhancement of corporate carsharing within companies, some policy campaigns could also take our results into account to support this practice and introducing it more widely. This would notably have economical consequences (as the business travel costs will be reduced) and ecological benefits (*e.g.*, pollution reduction).

To conclude, this study showed how far each dimension determined behavioral intentions to use a corporate carsharing service. Effort expectancy was the most important dimension, while perceived environmental friendliness had a more limited impact. The main limitation of this work is that it was conducted in a single company. Thus, there is a possibility that some results stemmed from the specific nature of this organization. Moreover, participation in the survey was not compulsory. Consequently, we do not know how representative the sample was relative to all employees in the company. Finally, other non attitudinal variables could have been taken into account to explain further respondents' willingness to participate in the carsharing scheme. Further research is needed to replicate the results from this survey in other contexts, including other companies, and even other countries to take any cultural specificity into account.

Acknowledgments

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