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What drives corporate carsharing acceptance? A French case study

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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.

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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.