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Driving towards Sustainability with Shared Electric Mobility: A Case Study of Time-Sharing Electric Cars on University's Campus

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Abstract : Following the worldwide growing interest in the sharing economy, especially in China, innovations within the field are rapidly emerging. It is, therefore, appropriate to address the under-investigated sustainability issues related to the development of shared mobility. In 2019, Shanghai Jiao Tong University (SJTU) introduced one of the first on-campus Time-sharing Electric Cars (TEC) that counts now about 4000 users. The increasing popularity of this original initiative highlights the necessity to assess its sustainability and find ways to extend the performance and availability of this new transport option. This study used an online questionnaire survey on TEC usage and experience to collect answers among students and university staff. The study also conducted interviews with TEC's team in order to better understand its motivations and operating model. Data analysis underscores that TEC's usage frequency is positively associated with a lower carbon footprint, showing that this scheme contributes to improving the environmental sustainability of transportation on campus. This study also demonstrates that TEC provides a convenient solution to those not owning a car in situations where soft mobility cannot satisfy their needs, this contributing to a globally positive assessment of TEC in the social domains of sustainability. As SJTU's TEC project belongs to the non-profit sector and aims at serving current research, its economical sustainability is not among the main preoccupations, and TEC, along with similar projects, could greatly benefit from this study's findings to better evaluate the overall benefits and develop operation on a larger scale. This study suggests various ways to further improve the TEC users' experience and enhance its promotion. This research believably provides meaningful insights on the position of shared transportation within transport mode choice and how to assess the overall sustainability of such innovations.

Keywords : shared mobility, sharing economy, sustainability assessment, sustainable transportation, urban electric transportation
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