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28–30 April 2014, Split, Croatia

Road and Rail Infrastructure III

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TEN YEARS OF BIKE-SHARING IN VIENNA – AN EXPLORATION INTO SUBJECTIVE USER CHOICES

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Abstract

Bike-sharing is becoming increasingly popular nowadays in every corner of the world. Vienna has one of the longest traditions of bike-sharing. The current ICT-based system, Citybike Wien, has been in service since 2003. The scheme is becoming popular and it is reported that ridership has been increasing rapidly in recent years. We have carried out a survey on user responses to this bike-sharing scheme in Vienna in spring of 2013. The results show that approximately 90% of Viennese people are aware of the bike-sharing scheme. The paper shows an overview of the Viennese bike-sharing scheme including the details of the survey results. After that, we discuss how to make bike-sharing systems more attractive to a wider range of the population and summarize suggestions for new implementation in other places.

1 Introduction

The city of Vienna has a long tradition of operating a bike-sharing scheme (BSS). Citytbike in Vienna is one of the first ICT-based urban bike-sharing systems in the world. It is in service since 2003. Users check out and in at the fixed stations with a touch-panel terminal with payment function employing debit and credit cards. It is operated by an advertisement company Gewista (a subsidiary of JCDecaux) and it is the predecessor of well-known Vélo'v in Lyon and Vélib' in Paris, which employs the same concept. At the time of writing, Citybike Wien operates 116 stations with 1,400 bicycles [1]. In 2013 790,084 rents were made, resulting in an annual average of more than 2,000 per day. By the end of 2013 Citybike Wien had a total of 482,687 registered users.

2 Methodology of the case study

The data used for this case study was collected through a CATI (computer-assisted telephone interview) carried out in April and May 2013 within the COMPASS project (co-funded by the European Commission within the Seventh Framework Programme). The telephone survey was made with individuals over 15 year-old living in Vienna. The total number of respondents is 252 and they represent the actual population distribution of Vienna well in terms of age and sex.

3 Results of the survey

The survey reveals that 66% of the respondents own a bike in Vienna as shown in Fig. 1. The bicycle ownership is in line with other surveys carried out in recent years.

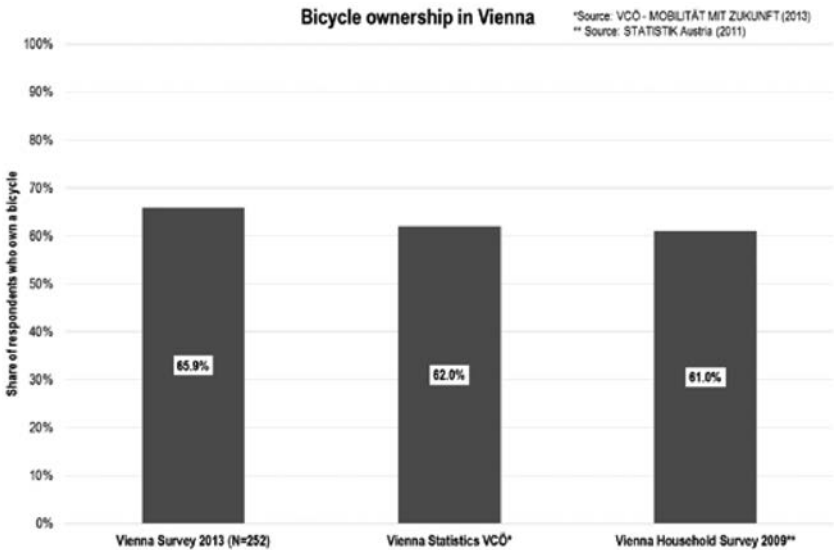

Figure 1 Bicycle ownership in Vienna among respondents and data from other surveys [2], [3].

The awareness of Citybike among Viennese people against other bike-sharing schemes (LEIHRADL nextbike, which is running in the surrounding regions of Vienna, Freiradl, which ceased operating and Call-a-bike, which is run by DB Bahn in many German cities) is already very high with 9 out of every 10 respondents being aware of it (Fig. 2). Furthermore, the high level of awareness is shown in all surveyed age bands.

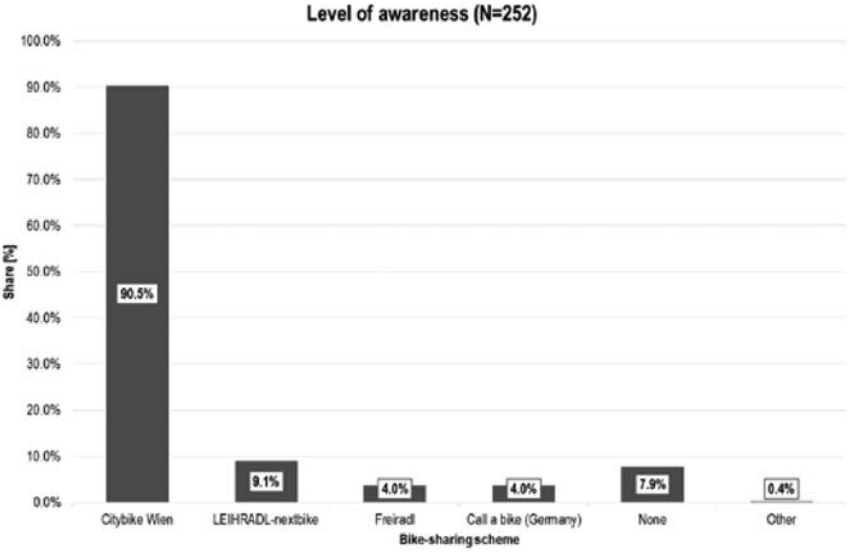

Figure 2 Level of awareness of bike-sharing schemes.

Visibility on the street plays the most important role to capture awareness of the population. 69% of the respondents in Vienna state that they learned about the BSS either by seeing the station or the bicycle in use on the street (Fig. 3).

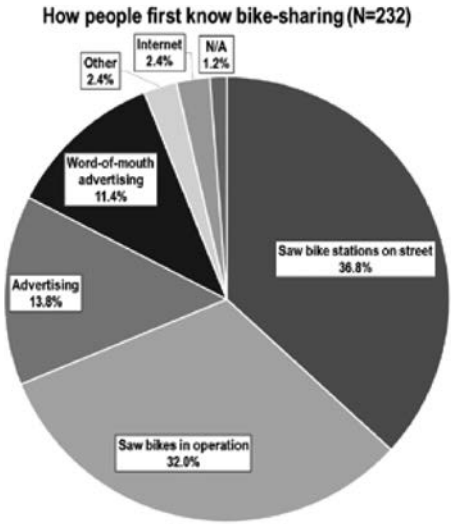

Figure 3 The way the respondents learned about bike-sharing.

Fig. 4 shows that most of the users do not use the BSS bikes often and they typically use it only once or twice a year. The shared bikes are mainly used for leisure trips. Despite such a large proportion of leisure trip usage, about 6% in Vienna have used the shared bike for commuting to and from work respectively. This implies that the BSS is used as an alternative transport mode for daily travel among some users.

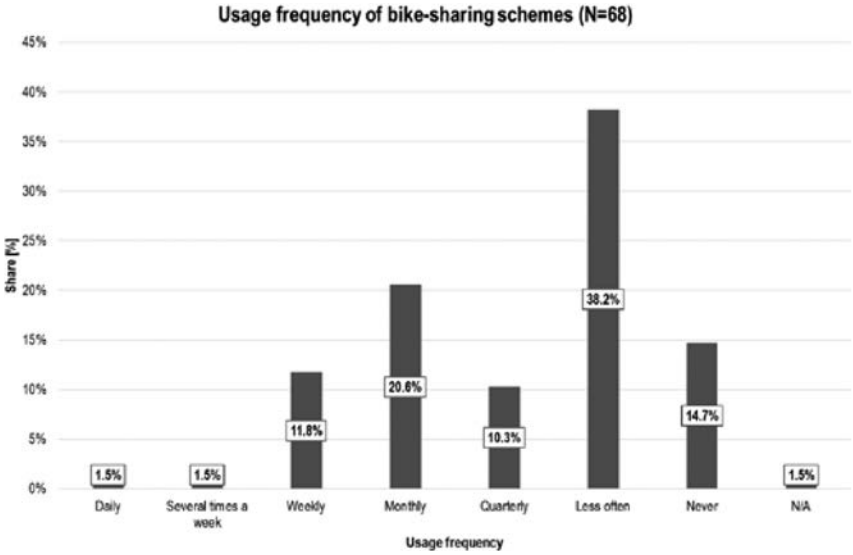

Figure 4 Usage frequency of bike-sharing schemes.

In the survey, the respondents were asked to indicate what they think as the advantages of bike-sharing. Convenience, favourable (cheap) price, and environmental friendliness are often selected as the advantage, while a certain number of respondents also point outs simplicity of usage, cycling being healthy, as well as speed advantages over other transport modes and fun (Fig. 5).

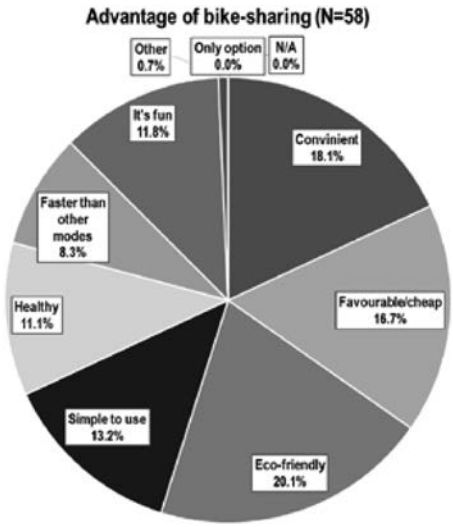

Figure 5 Advantages of bike-sharing identified by respondents.

The typical willingness to pay is around € 0.5 to € 1 per hour and thus the current pricing seems appropriate (Fig. 6 and Tab. 1).

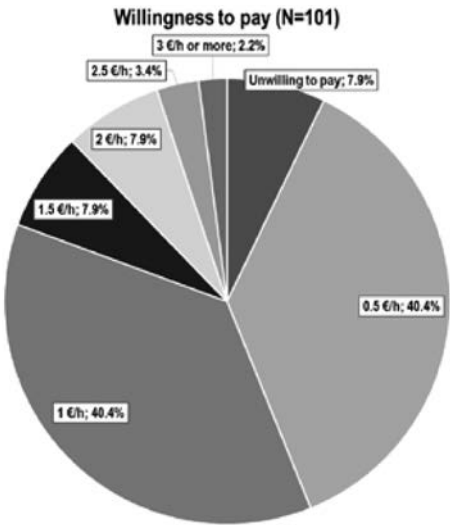

Figure 6 Willingness to pay for the shared bike.

Table 1 Rates of Citybike Wien [4].

Usage period	Tariff
First hour	Free of charge
Up to 2 hours	EUR 1 for the commenced hour
Up to 3 hours	EUR 2 for the commenced hour
Up to 4 hours	EUR 4 for the commenced hour
Longer use (up to 120 hours)	EUR 4 for each commenced hour

Many people will accept automated booking/identification methods. Especially, card-based (bike-sharing card, debit card) or phone-based identification is preferred (Fig. 7).

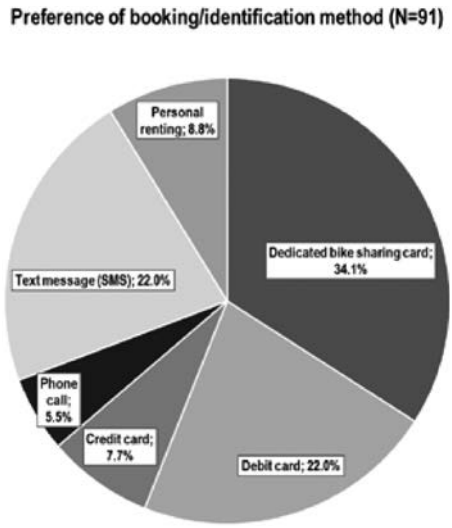

Figure 7 Preference on different booking/identification methods.

Further development of reporting broken bicycles by users (e.g. through mobile apps), mobile apps indicating general conditions of bicycles and short-term reservation (especially when there are only a few bikes available at the station) are found useful by the users. Among non-users, between one and two thirds find themselves as potential users of BSS. However, they require denser networks of the stations, easy booking system, and better bicycles to be shared (Fig. 9).

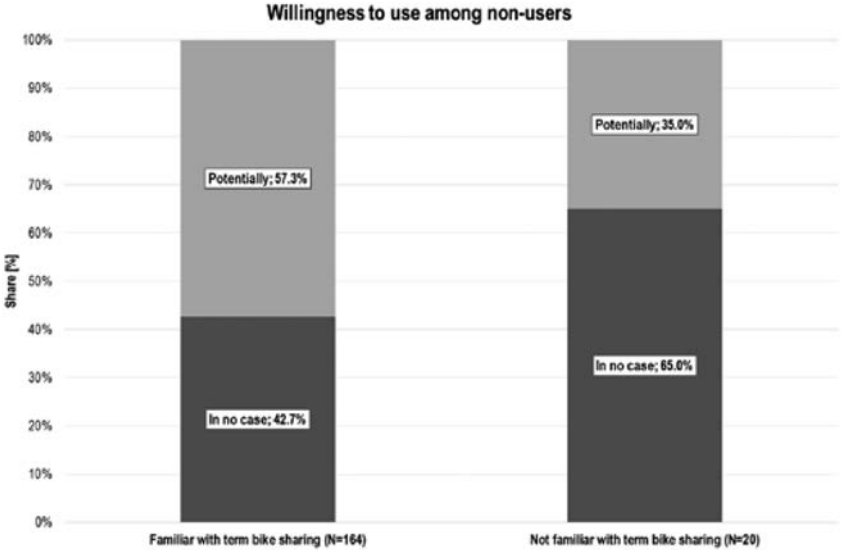

Figure 8 Willingness to use among non-users.

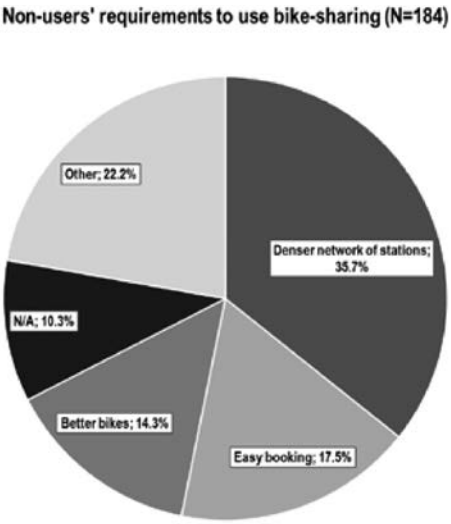

Figure 9 Non-users' requirements to use shared bikes.

4 Implementation costs and administrative burden

The OBIS handbook [5] on bike-sharing schemes quotes implementation costs for schemes from 2,500 Euro up to 3,000 Euro per shared bike. The investment costs for the construction of a new station in Vienna amount to about EUR 50,000 up to EUR 70,000 according to another source [6]. Austria's second largest city Graz (265,318 inhabitants), is planning to introduce the same BSS as in operation in Vienna in 2014 and the city estimates that between 500,000 and 1,000,000 Euro for 30 bike-sharing stations will be needed as the initial costs [7]. The information on operational costs of Citybike Wien is limited, but costs are estimated to EUR 25,000 per station. The handbook states running costs in this model per bike from EUR 1,500 to EUR 2,500. This BSS model including Citybike Wien is typically funded by the advertisement on the shared bikes as well as on other public surfaces. It should be noted that the size of the city and the metropolitan area does matter to make it feasible. The literature cited above mentions that this model is less applicable for communities smaller than 100,000 inhabitants as it tends to be difficult to achieve a critical mass of users as well as income from advertisement. Since the initial investment costs are high, decision making among the stakeholders (politicians, planners, municipalities, etc.) before the implementation can be a complex process. In dense urban areas, the arrangement of renting station locations may incur complicated negotiations with other stakeholders with right of use. This happens typically when on-street parking needs to be converted to rental stations. In addition, for successful implementation, coordination with other urban and regional transport networks is inevitable – this will require an administrative process related to transport planning. Besides minor legal aspects such as zoning of public space, and liability and contractual issues (for details, exit clause etc.) there are no legal obstacles to the implementation.

5 Conclusions and comments on transferability

The survey results show that bike-sharing is well-known among the population while those who actually use it appear to be limited. Among actual users, the leisure is dominant as trip purpose, while certain a proportion of the people in Vienna uses it as an alternative transport mode for daily trips. The current inexpensive pricing appears to be well accepted. As the certain proportion of the respondents still prefers, the cash payment system needs to be well considered to acquire more potential users although the current system using debit or credit card has to be kept to meet the needs for those who wish to use them. The preference for identification method is not uniform and there are two clear groups – one that prefer phone-based identification and another one that prefers card-based identification. This implies that providing several identification methods for the same system will meet the diversifying preference by the users.

Regarding the future development, there are two important development trends identified to capture more potential users. The first is to increase the stations density and/or extended the system so that more people can be covered within a reasonable catchment area. This will eventually help to increase the awareness through on-street visibility of the bicycles. Such enriched "hard" infrastructure for the bike-sharing will capture more potential users.

The second important future development should be based on ICT, namely short-term reservation, to make the users guaranteed with a bike available at a station nearby. Additional development is expected by diversifying identification methods especially with phone and cards (designated card/bank/credit), further easy booking/identification systems, as well as smartphone apps for showing availability and conditions of bicycles and to report broken bikes. Various BSS need to be integrated in regard to booking/identification, so that users with accounts at one BSS will be recognised automatically by other schemes.

Regarding transferability, it has to be mentioned first that similar bike-sharing schemes are already in operation in various cities including Paris, Lyon, Brussels, Dublin, Vilnius, Ljubljana, Brisbane (Australia), Kazan (Russia) and Toyama (Japan). Thus it appears that bike-sharing has good transferability for urban areas. There are several important framework conditions that should be achieved for a successful implementation of bike-sharing schemes: (1) good cycling infrastructure must exist, (2) the climate and topography must be suitable for the bicycle usage, (3) the BSS itself and bicycle-relevant traffic regulations are designed in a way so that users are identified quickly, and (4) the user interface is simple by means of card-based or phone-based identification. If these preconditions are not met, the transfer may fail.

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