Exploring the use and perception of shared bikes for commuting and business travel on the urban fringe

Dr Thomas Calvert

Research Fellow, Centre for Transport & Society

University of the West of England, Bristol

Dr Caroline Bartle

Senior Research Fellow, Centre for Transport & Society

University of the West of England, Bristol

Professor Graham Parkhurst

Director, Centre for Transport & Society

University of the West of England, Bristol

Background

Globally, bike-share schemes are in a state of flux; 1,977 public schemes are currently operating but another 835 have closed (Meddin et al., 2021), as new 'fifth generation' schemes (typically dockless) compete with each other and squeeze the more mature programmes (Si et al., 2019). Criticisms have been levelled at bike-share in general for failing to meet its assumed objectives such as increasing cycling mode share (de Chardon, 2019; Ricci, 2015). Factors contributing to scheme failures include the over-use of 'one size fits all' business models, whilst more carefully tailored schemes are more likely to succeed, especially those specifically intended to complement public transport (Nikitas, 2019).

In the light of the problems faced by some of the large, generic bike-share operations, the more bespoke schemes, tailored to specific uses and users, merit wider attention. One such example is that of large business parks, which are typically located outside urban centres to take advantage of the availability of large plots of land and good access to the strategic road network, but are often less accessible by public transport, walking and cycling. Whilst much research attention has been paid to the role of bike-share schemes within urban centres, little is known about their use at peripheral business parks, and even less about their actual and potential role for commuting and business travel at these locations.

Objective

The research aim was to explore the role of bike-share services (including e-bikes) as part of a multi-modal transport offer to encourage sustainable travel to, and within, a major focus of employment located on the urban periphery of Didcot, Oxfordshire, UK (the Milton Park business park).

Over 9,000 people work for 250 companies located at the Park. Approximately 63% commute by single occupancy car (2019). The bike-share scheme has 24 bikes, docked at eight, geo-fenced cycle hubs around the Park and at Didcot Parkway Station. The scheme differs from a typical urban bike-share scheme in that bikes are free to borrow for up to 48 hours by anyone who works at Milton Park.

Methods

An online survey (N=62) was conducted in March 2020 of scheme members' attitudes and behaviours, representing 21% of scheme users, followed by in-depth telephone/videocall interviews in 2021 with 19 people who were signed up to the Milton Park scheme.

Results

Commuting

Commuting accounted for substantial use of the shared bikes: 23 of the 48 survey respondents who had used a shared bike had used one to travel at least part of the way between Milton Park and their home. Neither gender nor age was an inhibiting factor here, with similar numbers of women and men, and people aged under and over 36 years, having used them for commuting.

However, interview participants highlighted some limitations of the shared bikes as a commute choice, including: the heavy bike frames (an obstacle for longer commutes); occasional technical faults; worries about how long an e-bike battery would last; and concerns about not being able to find a bike to commute home on, having arrived on one in the morning. Due to their workplace location, bikes could only be borrowed in evening-morning pairs, rather than morning-evening. Beyond the bikes themselves, substantial external deterrents to using the bikes for commuting were mentioned, particularly inhospitable local roads.

Of the 23 survey respondents who had used shared bikes for commuting, eight had used them for one leg of their trip only. Rail was the mode they were most often combined with. The bikes had encouraged some to opt for train/bike-share/bus combinations, by offering greater choice and flexibility, but were also competing with shuttle buses as a first/last mile solution mile solution to the nearby rail station.

Factors leading to a preference for shared bikes over the shuttles included the avoidance of ‘sweaty buses’, and in some cases Covid-19 discouraging bus use. Conversely, luggage and business attire could lead to use of the bus over shared bike. Despite this, by increasing the range of options available, the bikes were seen as contributing positively to an overall package of non-car options.

Relationship with private bike use

Shared-bikes were also used as an alternative to private cycling. Almost three-quarters of survey respondents owned bikes. Relationships between own and shared-bike use were varied. For some, shared bikes were more convenient than owned bikes. Others had only joined the scheme as a back-up in case their own bike failed. Interview participants tended to prefer their own bikes for regular commutes.

Shared bikes had offered the opportunity to ‘try before you buy’ for those considering whether to buy an e-bike. Some people had gone on to buy a conventional bike and had become regular cycle commuters. The shared bikes were seen as particularly useful for new starters at the Park, particularly those who had moved from another country and did not (yet) have a bike with them.

Business travel

A quarter of survey respondents had used a shared bike for business travel purposes. E-bikes were particularly favoured as they allowed longer trips with less sweating. Shared bikes were often used for attending meetings at other buildings in the Park itself, when the distance suggested an advantage over walking. The bikes were sometimes used to access the rail station for business trips. However, few of those who were subscribed to the bikeshare but who had never actually hired a bike thought it likely that they would use one for work purposes, suggesting that this is not a major draw for the scheme among non-users.

Exercise and leisure

Despite the workplace setting, frequent use of the bikes for non-work purposes was notable. More survey respondents had used the bikes for enjoyment or exercise during the working day than for attending meetings, indicating value for workplace wellbeing as well as utility travel. Differences between gender and age of those using or not using shared bike for either enjoyment or exercise were tested using Fisher’s exact test but not found to be statistically significant.

Discussion

The bike-share scheme was found to be popular among users, with bikes being used for a range of purposes, including as a first/last-mile link to the local station. However, less than 5% of employees at the Park are members of the scheme. Only a third of the members surveyed had used a shared bike as part of a commute, which suggests that considerable growth (in terms of supply as well as demand) will be needed if it is to make a noticeable contribution to levels of cycle commuting.

For commutes of more than a few miles, the findings pose questions about the suitability of a 'one bike fits all' offer for a range of different users. Should such schemes offer models of bikes that can be ridden comfortably by people of different heights? Possibly the app could save personal settings (e.g. seat height), with centimetre markings on the seat posts, to facilitate quick adjustment. Should lighter bikes, and frames of different sizes, also be offered? It was notable that 'range-anxiety', well-recognised amongst electric car users, emerged in the context of e-bikes. A specific question for the scheme was whether the batteries might be re-charged more efficiently, or simply have greater capacity. Such issues are more pertinent to an out-of-town rather than city centre setting, due to greater likely distances.

Findings suggested the scheme should partially be assessed and promoted as contributing to an integrated transport offer, including public transport, encouraging access to a business park by non-car means. Our interviews found, for example, that the mere presence of the shared bikes is an encouragement to use rail through offering an additional way of getting to and from the station (alongside the shuttle bus). Nor are shared bikes necessarily in a 'zero sum game' with privately owned bikes: in combination they can promote biking in general. In view of the diffuse range of purposes and motivations for use, the evidence suggests that promoting the scheme along the lines of 'What will you use yours for?' could be beneficial.

This also has implications for the business model of schemes such as this. The shared bikes are a selling point to help attract new companies to the Park, and may help individual businesses located there to attract staff. The opportunity to keep a bike for up to 48 hours makes them more attractive to users, but could mean that the use of the bikes will not be optimised if demand increases.

Conclusion

The Milton Park bike-share scheme serves as an example of how a bespoke scheme can successfully serve a range of purposes at a business park on the urban fringe. It is not a panacea to solve transport problems at employment centres that were designed to be accessed by car, but the research suggests that bike-share schemes do have potential as part of an integrated range of sustainable options, if tailored to a specific user base and its needs.

Acknowledgement

The research reported was supported by Centre for Connected and Autonomous Vehicles and Innovate UK-funded grant 'MultiCAV' (project reference number 104276).

References

de Chardon, C.M. (2019). The contradictions of bike-share benefits, purposes and outcomes. Transp. Res. Part A Policy Pract. 2019, 121, 401–419

Meddin, R., DeMaio, P., O'Brien, O., Rabello, R., Yu, C., Seamon, J., Benicchio, T., Han, D. (ITDP), and Mason, J. (ITDP). "The Meddin Bike-sharing World Map". Accessed [16/06/21] http://bikesharingworldmap.com/

Nikitas, A. (2019). How to save bike-sharing: An evidence-based survival toolkit for policy-makers and mobility providers. *Sustainability*, *11*(11), 3206.

Ricci, M., (2015). Bike sharing: A review of evidence on impacts and processes of implementation and operation. Research in Transportation Business & Management, 15, pp.28-38.

Si, H., Shi, J.G., Wu, G., Chen, J. and Zhao, X. (2019). Mapping the bike sharing research published from 2010 to 2018: A scientometric review. *Journal of cleaner production*, *213*, pp.415-427.