



nextbike

Bike Sharing: It's about the community



Bike sharing is spreading across the United Kingdom like a wildfire. We should celebrate that, as it promotes sustainable and clean transport mode for millions of hard working Brits. Not only that, but bike sharing supports local economy, especially smaller businesses, and improves the welfare and **liveability of people**. It **continues to be a** win-win-win situation.

This brief paper will undergo an overview of studies on the sustainability of a bike share schemes, and assess how they can improve the communities they serve.

Why bike sharing?

Whilst the phenomenon of bike sharing is now over 50 years old, the technological advancements and the integration of the Internet of Things (IoT) into our daily activities has made bike sharing more accessible and extremely desirable in recent years. As of June 2017, there are over 2 million bicycles across 1,200 cities worldwide with a bike share scheme.

There are various reasons for introduction of bike sharing schemes across the world, but they all centre around a few main issues:



To reduce single occupancy car journeys and ease traffic congestions;



To improve parking issues associated with overcrowded urban areas



To reduce CO2 emissions and to improve air quality by reducing other pollutant emissions from motorised traffic;



To improve public health and increase levels of physical activity;



To increase cycling levels, and help normalise and promote cycling



To improve accessibility and support flexible mobility, through enhanced transport choices and opportunities for multi-modality and inter-modality;



To improve road safety, particularly for cyclists



To enhance the image and liveability of cities and to support local economies and tourism

Bike sharing schemes can produce incredible results for councils in long term.



Statistics published by the Department for Transport claim that a person who picks up cycling can save up to £370 a year on health-related expenditure . A study by Rabl and de Nazelle suggested that **drivers who switch to cycling for a commute of 5km (each way) for 5 days a week and 46 weeks a year could benefit by €1,300 per year .**

Furthermore, **some £19,000 could be saved a year on the impact on road safety casualties** per Steer Davies Gleave's study. The same study suggests **annual savings of £33,000 on absenteeism benefits and £147,000 in health benefits for Brighton.** Other cities in the United Kingdom would see similar, if not greater, results. In Washington D.C., users of bike share scheme reported improved health following their membership of Capital Bikeshare . Hence, in long term the council would benefit greatly from such investment.

The more people cycle, the more the state and local councils can save on healthcare costs. Bike share acts as an active form of transport, and as such improves health of the user. Consequently, better health means lower NHS expenditure on preventable issues. Overall, the estimated health benefits of cycling were substantially larger than the risks , thus cycling should be promoted by local governments. Bike share schemes are the easiest way to do so, as people who use them are not the typical cyclists.

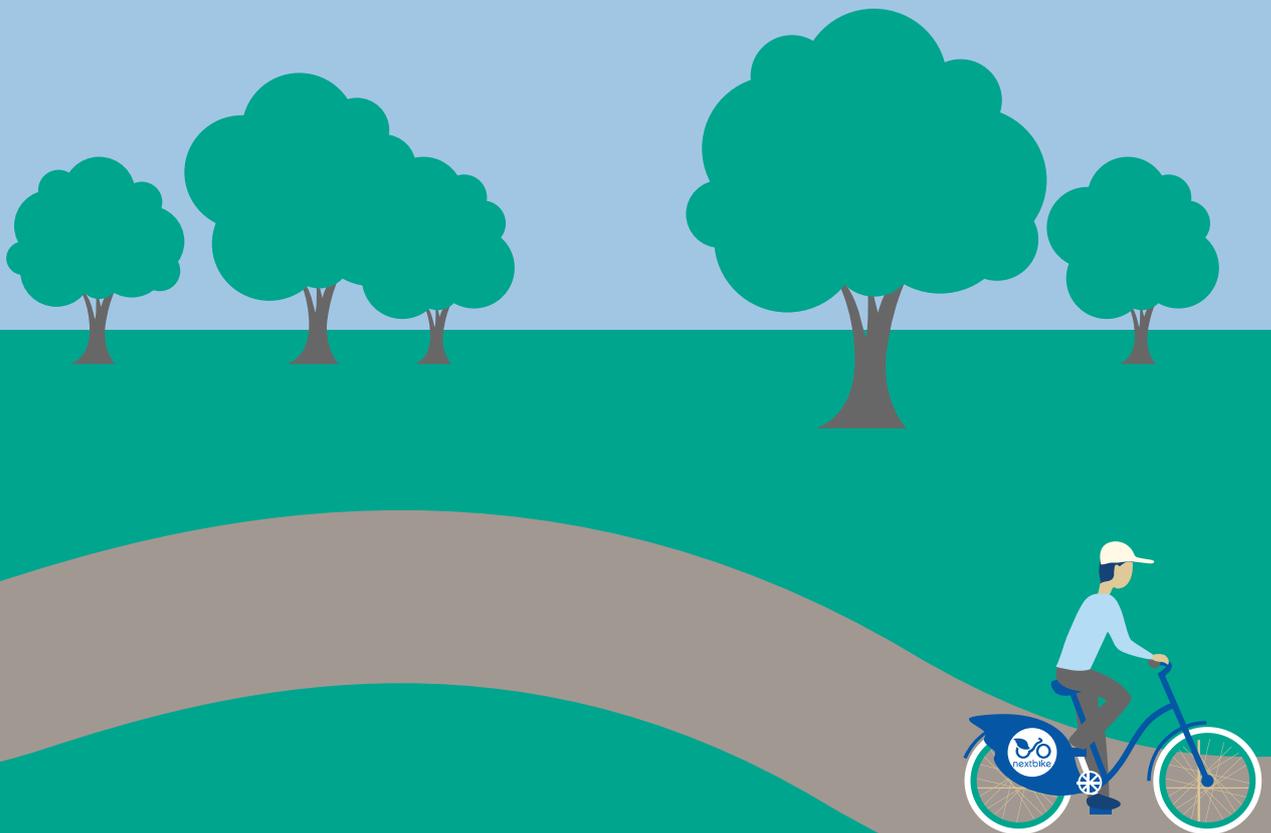


Research shows that bike share can reduce the usage of cars in cities where it is implemented.



An example of this can be seen in Lyon, France, where usage of cars dropped by 7% after the introduction of bike share scheme. Among regular users of bike share schemes, 40% said that they have reduced car usage – however, in cities such as Mexico City this figure stands at over 50%. Research also shows that bike share is less expensive and often faster over the 30 minutes or 4km range than other modes of transport. A study found that a 2.5km cycle journey is typically 18 minutes faster than walking and 5 minutes faster than the bus. Therefore, by making cycling more accessible people will benefit greatly.

Improved connectivity for customers mean that there is a substantial reduction of greenhouse gasses that negatively affect the environment, . As bike share is “non-polluting, healthy, cheap, and, in urban areas, a relatively quick mode of transportation”, many local governments have supported the establishment of bike share schemes .



Bike share has been found to positively contribute towards additional revenues for small and medium enterprises.



A study in Minnesota reported **an additional \$1.20 a week spent by customers after a bike share station was installed nearby**. Annually, this can amass to around \$62.40 extra spent per customer. **70% of businesses in Washington D.C. identified a positive impact of bike sharing on the neighbourhood, with 20% claiming there was direct positive impact on revenues.**

Furthermore, **61% of business owners would have either a positive or neutral attitude to replacing car parking in front of their business with a bike station – but were less favourable on converting the sidewalk**. It is therefore vital that councils do not allow sidewalks to be littered with bikes, but rather for bikes to be docked at official, and well placed, stations.

A study by Street Davies Gleave in 2015 found that the Benefit Cost Ratio for the Brighton and Hove Bike Share scheme would be 7.5:1, which means that for every £100 invested in bike sharing, £750 would be gained in benefits. In the report "The Value of Cycling" commissioned by the Department for Transport, the public benefits were calculated between 5:1 to 19:1, and in some cases 35.5:1 – these numbers are staggering and suggest the sheer importance of cycling in our communities. Based on DfT guidance, in 2015, UK bike share trips added £5.4 million to the economy.

Bike share schemes that are created for communities and are kept well-regulated can create significant benefits to the society. Higher revenues for small and medium enterprises, significant savings on healthcare expenditure by the local council, and a happier society would ensure that British cities would continue to attract investment.



Population



Bike sharing has been successfully implemented in cities such as Stirling, Bath, and other medium sized cities in the United Kingdom.

The success of a bike share scheme depends largely on how well it caters the customers, rather than the size of the city.



As many British cities are undergoing regeneration efforts, it is important that they're kept tidy and orderly, and as such local populations most appreciate the docking station style schemes, as they can be strategically placed by new and important developments.

Transport Hubs



Many bike share users use bikes to commute to and from train stations and their work office. As such it is clear why the largest station in London's TfL Cycle Hire scheme is by Waterloo Station. Across nextbike schemes in the UK, approximately 20-25% of rentals start or finish at a train station.

In some cities, such as Guildford, the annual rates for car parking spaces can consume up to 6% of annual income

. Through bike sharing schemes, cities can ensure that its residents save money and spend it on other things – such as restaurants, and thus improving the local economy.

A recent research involving nextbike in Pittsburg, PA, USA, shows that parking demand can be reduced by approximately 2% - with largest benefits noticed during morning rush hour and early afternoons . This signifies that cities could ease up traffic pressure when most needed. In addition, these small effects can have huge consequences on overall savings and benefits, especially in the long term.



Other research papers discover that per square metre, cycle parking delivers 5 times higher retail spend than the same area of car parking .

If at least 25% of the car parking spaces were removed, and transformed into public spaces, it is possible that additional value and revenue would be added to the area. The removal of parking spaces does not reduce economy activity, rather it increases it – and that is why so many business owners support bike sharing schemes. Furthermore, each square metre allocated to bike parking generated \$31 per hour, compared to \$6 generated for each square metre used for a car parking space .

Business Opportunities



Bike sharing schemes are actively used by institutions of further and higher education.

Considering that there are over 120 sizeable universities across the United Kingdom, we can up to 2.5 million students cycling.

The United Kingdom is incredibly attractive for international investment. There are hundreds of large companies across the country that would benefit greatly from their staff cycling. Furthermore, sponsorship opportunities for these companies could mean that cities would potentially improve their image in the media.

Topography & Population Density

Previous studies show that living within 200 metres of a bike sharing station, increases the likelihood of using bike sharing as the principle mode of transport. This is important because it keeps the city's bike sharing scheme well-regulated and beneficial for the society not just individual.

Furthermore, there is a direct correlation between the number of rentals and the station density. Therefore, by having more stations, we are ensuring that the town sees a highly utilised and successful bike share scheme. Dock-less bike sharing schemes are fantastic in idea, but at the end of the day a small group of individuals will destroy the overall experience for other users in the city, as bikes will be hid in apartments, or dumped on the streets, causing potential hazard and obstruction for the community.



RENT





According to a study by the Institute for Transportation & Development Policy in New York, there should be around 10-30 bikes per 1,000 residents, and 10-16 stations per square kilometre .

Each city, therefore will have a different size scheme serving different topography and population. Following the scheme expansion in Stirling (100 to 160 bikes) we noticed a remarkable growth in the number of rentals as they increased up to 800% compared to same period in previous year. This clearly indicated that for a successful and sustainable scheme, the councils should not shy away from more bikes.

Economic Benefits

The steadily growing flow of research on bike sharing has found positive effects of bike sharing on local businesses.

In Minneapolis, for example, small stores with a docking station outside, reported an additional \$1.20 was spent by customers a week . Annually this would equate to \$62.40 a year for each customer. **Looking at the nextbike users in Glasgow (15,000) spending an extra \$1.50 a week , equates to an additional \$46,800 a year for a small business. New residential developments with a bike share station near them saw their value increase by 3% .**

Using Depart for Transport data of the value of each bike share trip saving society £0.54 pa, and using Glasgow's 2016 rentals (~140,000), it can be estimated that the city saved £75,600 in 2016. Over the years, these numbers add up and constitute significant sums of money.

Looking at nextbike's own case studies throughout the United Kingdom, we are confident that our schemes, with low-infrastructure docking stations and the industry-leading innovation on our bikes, are best suited for Britain.



Summary



This brief paper has sought to illustrate the potential of bike share schemes in the United Kingdom. Nextbike's schemes can contribute significant economic and health improvements for people across the country and enable sustainable and long-term schemes.

In Minneapolis, for example, small stores with a docking station outside, reported an additional \$1.20 was spent by customers a week. Annually this would equate to \$62.40 a year for each customer. **Looking at the nextbike users in Glasgow (15,000) spending an extra \$1.50 a week, equates to an additional \$46,800 a year for a small business. New residential developments with a bike share station near them saw their value increase by 3%.**

Bike sharing should foremost serve the community in which it is based. It has to be able to reach the most number of people and produce the greatest benefit. It is about the community, not the individual. Innovation on our bikes, are best suited for Britain.

SUMMARY OF BENEFITS



ECONOMIC

1. Additional \$62.20 spent per customer a year in Minnesota;
2. Bike share trips added £5.4 million to the UK economy



SOCIETAL

1. More engaged community taking pride in their city
2. Incredible returns on investment (between 5:1 to 19:1)



HEALTH

1. New cyclists can save up to £370 on health related costs a year
2. £19,000 could be saved a year on the impact on road safety casualties



ENVIRONMENTAL

1. Cuts CO2 and other greenhouse gasses
2. Reduces congestions and noise pollution



Ricci, M. (2015) 'Bike sharing: A review of evidence on impacts and processes of implementation and operation', *Research in Transportation Business & Management*, . doi: 10.1016/j.rtbm.2015.03.003.

BikePlus (2015) Bikeplus: 'Access to bikes is essential to the cycling and walking strategy' [SMNJUN16]. Available at: <http://www.carplus.org.uk/bikeplus-access-to-bikes-is-essential-to-the-cycling-and-walking-strategy/> (Accessed: 12 December 2016).

Rabl, A. and de Nazelle, A. (2012) 'Benefits of shift from car to active transport', *Transport Policy*, 19(1), pp. 121–131. doi: 10.1016/j.tranpol.2011.09.008.

Steer Davies Gleave (2015) Brighton & Hove Bike Share Business Case and Business Plan. Available at: http://www.coast2capital.org.uk/storage/downloads/brighton_hove_bike_share_business_case_and_business_plan-1479213160.pdf (Accessed: 11 December 2016).

Alberts, B., Palumbo, J. and Pierce, E. (2012) 'Vehicle 4 Change: Health Implications of the Capital Bikeshare Program'

de Hartog, J.J., Boogaard, H., Nijland, H. and Hoek, G. (2010) 'Do the health benefits of cycling outweigh the risks?', *Environmental Health Perspectives*, 118(8), pp. 1109–1116. doi: 10.1289/ehp.0901747.

Bidordinova, A. (No Date) 'MOTIVATORS AND BARRIERS TO UTILITARIAN CYCLING IN DOWNTOWN TORONTO',

Steer Davies Gleave (2015) Brighton & Hove Bike Share Business Case and Business Plan. Available at: http://www.coast2capital.org.uk/storage/downloads/brighton_hove_bike_share_business_case_and_business_plan-1479213160.pdf (Accessed: 11 December 2016).

Yin, J., Qian, L. And Singhapakdi, A. (2016) 'Sharing Sustainability: How Values And Ethics Matter In Consumers' Adoption Of Public Bicycle-Sharing Scheme', *Journal Of Business Ethics*, . Doi: 10.1007/S10551-016-3043-8.

Nkurunziza, A., Zuidgeest, M., Brussel, M. And Van Maarseveen, M. (2012) 'Examining The Potential For Modal Change: Motivators And Barriers For Bicycle Commuting In Dar-Es-Salaam', *Transport Policy*, 24, Pp. 249–259. Doi: 10.1016/J.Tranpol.2012.09.002.

Heinen, E. And Handy, S. (2012) 'Similarities In Attitudes And Norms And The Effect On Bicycle Commuting: Evidence From The Bicycle Cities Davis And Delft', *International Journal Of Sustainable Transportation*, 6(5), Pp. 257–281. Doi: 10.1080/15568318.2011.593695.

Ricci, M. (2015) 'Bike sharing: A review of evidence on impacts and processes of implementation and operation', *Research in Transportation Business & Management*, . doi: 10.1016/j.rtbm.2015.03.003.

Steer Davies Gleave (2015) Brighton & Hove Bike Share Business Case and Business Plan. Available at: http://www.coast2capital.org.uk/storage/downloads/brighton_hove_bike_share_business_case_and_business_plan-1479213160.pdf (Accessed: 11 December 2016).

Rajé, F. and Saffrey, A. (2015) 'The value of cycling'. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/509587/value-of-cycling.pdf (Accessed: 12 December 2016).

BikePlus (2015) Bikeplus: 'Access to bikes is essential to the cycling and walking strategy' [SMNJUN16]. Available at: <http://www.carplus.org.uk/bikeplus-access-to-bikes-is-essential-to-the-cycling-and-walking-strategy/> (Accessed: 11 December 2016).

Anderson, E. (2014) The cities where you can earn the highest wages. Available at: <http://www.telegraph.co.uk/finance/jobs/11312096/The-cities-where-you-can-earn-the-highest-wages.html> (Accessed: 3 March 2017).

Small, A. (2016) Does bike share reduce the need for parking? Available at: <http://www.citylab.com/commute/2016/12/pittsburgh-bike-share-study/511769/> (Accessed: 3 March 2017).

Rajé, F. and Saffrey, A. (2015) 'The value of cycling'. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/509587/value-of-cycling.pdf (Accessed: 3 March 2017).

Rajé, F. and Saffrey, A. (2015) 'The value of cycling'. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/509587/value-of-cycling.pdf (Accessed: 3 March 2017).

Bidordinova, A. (No Date) 'MOTIVATORS AND BARRIERS TO UTILITARIAN CYCLING IN DOWNTOWN TORONTO'

Buck, D. And Buehler, R. (2011) 'Bike Lanes And Other Determinants Of Capital Bikeshare Trips', TRB 2012 Annual Meeting,

ITDP (2014) Bike share planning guide. Available at: https://www.itdp.org/wp-content/uploads/2014/07/ITDP_Bike_Share_Planning_Guide.pdf (Accessed: 5 January 2017).

Buehler, R & Hamre, A (2014). Economic Benefits of Capital Bikeshare: A Focus on Users and Businesses. Mid-Atlantic Universities Transportation Centre, U.S. (online)

Murphy E. & Usher J. (2015). The Role of Bicycle-sharing in the City: Analysis of the Irish Experience. *International Journal of Sustainable Transportation*, 9(2), 116-125.

El-Geneidy, A., van Lierop, D. and Wasfi, R. (2016) Bike sharing schemes can have a positive impact on nearby house prices. Available at: <http://blogs.lse.ac.uk/usappblog/2016/08/29/bike-sharing-schemes-can-have-a-positive-impact-on-nearby-house-prices/> (Accessed: 2 December 2016).