

Travel solutions for short distance journeys

The desire to reduce traffic congestion and cut polluting emissions from vehicles are concepts everyone can get behind. But will the pursuit of these goals mean we are shifting problems from the roads to the pavements? **Beate Kubitz** reports



ABOUT THE AUTHOR

Beate Kubitz is a writer, researcher and consultant in new mobility. She is the author of the *Annual Survey of Mobility as a Service in the UK*, as well as reports on car clubs, bike-share, open data and transport innovation. She is director of policy and communications for TravelSpirit and previously worked for CoMoUK.

Embracing micromobility requires sensitive planning and a dose of commonsense by city policymakers. Handle it poorly and the pavements could become cluttered and dangerous; handle it well and commuters will be able to take advantage of flexible, zero-emission vehicles to complete their car-free journeys.

Micromobility, at its very essence, is about travel solutions for covering short distances – usually the first or last mile.

The choice of vehicle that can perform these short hops has expanded from the original (and UK legal) micromobility vehicle, the bicycle and its electric-assisted cousin, the e-bike, to electric scooters and solutions for city centre deliveries such as cargo bikes, e-cargo bikes and trikes.

These solutions may appear attractive to cities trying to discourage cars and vans from entering central zones but changes to the law in the UK are necessary to allow some of the newer innovations to be tested and used.

LEARNING FROM BIKE-SHARE

The rise of bike-share in cities is instructive in the potential for micromobility. Bike-share in the UK has more than 650,000 users across 26 schemes, according to shared transport umbrella group CoMoUK. While the majority of bikes and users are in London (16,000 bikes), there are substantial and growing schemes in cities such as Glasgow and Cardiff which have 500-1,000 bikes each. In addition there are many smaller schemes of just 20-30 bikes in places like Exeter.

These bikes are used for flexible travel and convenience within city centres by commuters and visitors alike. Users are found across the age ranges, are fairly evenly split between men and women, and are drawn from all income groups, according to CoMoUK, which surveys bike-share users each year.

A total of 49% of respondents combined bike-share with other modes as part of a multimodal journey on their most recent trip – for instance taking a train and using bike-share for the last mile.

They mainly value bike-share as an

alternative to walking – 42% of respondents had switched from walking for their trip (which perhaps explains why 78% of users say they use bike-share to save time). In addition, 27% switched from bus or train, 7% from their own bike and 7% were making a new journey.

More than three-quarters of users did not, therefore, contribute to city objectives of reducing pollution and congestion.



More worrying still for city authorities was the fact that just 14% of respondents said they had switched from car or taxi to bike-share. However, on a more positive note, 33% did say they were using their car less.

Bike-share, itself, has evolved. Initially, all schemes were of the docked variety which requires robust (and expensive) on-street infrastructure of the kind used for the London Santander scheme.

Over the past two years, dockless schemes (where bikes can be left – almost – anywhere within the operating zone as opposed to being hired and returned to docks) have been introduced and withdrawn from several UK cities leaving just a few areas – principally London, Oxford and Milton Keynes – with an element of dockless operation. Electric bikes have been introduced in London (the dockless Lime bikes), Exeter and Derby.

Dockless bikes were initially welcomed as infrastructure-light options to enable more and faster deployment of bike-share schemes. However, they quickly attracted some of the criticisms levelled at electric

scooter fleets as they created street clutter which is both unattractive and dangerous for blind and disabled pedestrians.

Vandalised and broken bikes were regularly featured in media and social media. Although schemes tried to develop engagement and manage their fleets more closely, eventually the two major operators, Mobike and OFO, hit profitability issues and contracted rapidly.

MANCHESTER MOBIKE

One city which has experienced the rise and fall of Mobike is Manchester. In June 2017, around 1,000 dockless Mobikes were distributed across its city centre. Users found, booked and paid for the use of the bike with an app and, initially, there was absolutely no visible on-street infrastructure.

While they were popular with people who worked out how to use them and, according to Mobike, were being used up to 10 times per day, they were beset by vandalism and confusion. Only a month after the launch, reports were emerging in the media that the 'free for all' approach was leading to bikes being found in canals, bins and back gardens.

Mobike tried to manage the situation with in-app parking zones, then marked out parking zones and attempted to ensure more communication through the media and social media. The damage had been done, however, and the fleet was withdrawn just over a year after launch. Mobike complained that around 10% of its fleet was stolen or vandalised every month and it emerged that the police were dealing with at least one report of Mobike misuse per day.

Rafael Cuesta, head of innovation at Transport for Greater Manchester (TfGM), says: "The Mobike pilot provided TfGM with significant learnings for the next iteration of bike-share schemes in the area."

"The data exchange with the supplier allowed us to collect some interesting analytics and heat maps that will prove useful in the future network design to ensure it meets customer preferences. There was also positive collaboration on VR ►►



Case Study: Bird

There is only one scooter trial in the UK. It is taking place on private land so that it is within the law.

Bird scooters are available to hire in London's Queen Elizabeth Olympic park. The scheme is designed to enable travel along a specific mile-long route between Stratford station and the Here East technology campus.

The scooters only work within the geofenced route and between the hours of 7am and 9pm. Riders who try to ride 'off route' will experience beeping and the scooter will slow to a halt until it's wheeled back into the approved zone. The scooters are monitored using GPS and collected each night for recharging.

► development with new solutions being developed by avant garde start-ups. An innovative method for redistribution of bikes was also used taking advantage of eCargo bikes with a trailer for eight bikes.

"For future schemes we would like to see better geocoding to ensure the spread of bikes is appropriate as well as the introduction of debit and credit measures to encourage good customer behaviour. Bike-share schemes require very proactive management especially in the tracking and redistribution of bikes and this will have to be a must in the future."

His views on proactive management are supported by research into the Cardiff Nextbike scheme which now operates 1,000 bikes from 100 stations. From its April 2018 launch, bikes have been hired 4.27 times per day – more than twice the UK average for bike hire of 2.1 hires per day.

The scheme has been the subject of research which concluded that the close partnership developed by the council, the operator and Cardiff University – as well as other interested parties such as the police – helped ensure its success and the feeling of community ownership.

Plans for the scheme – including the siting of docks and involvement of the cycling community – were laid over an 18-month period. This included a longstanding communication policy for the scheme. The previous experience of bike-share was that the local media were looking to find a negative where it could – and the problems of the Mobike scheme which were unfolding at the same time as the launch could not be ignored.

All the partners agreed their messages and a communications plan for the scheme announced each stage so there was a continuous stream of stories about it as plans were made, right through to the launch and afterwards so the high usage and other stories were celebrated.

Bike losses were much less than that reported by Mobike – although not completely absent. It amounted to fewer than 1% of bikes per month in the study period.

As a docked scheme, the Cardiff one also benefits from on-street signage which

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Rafael Cuesta, Transport for Greater Manchester

explains how to book and use the bikes.

Before the introduction of dockless schemes, CoMoUK research tended to show that bike-share facilitated people starting to cycle or returning after a long break. However, University of Salford research into the user experience of the Manchester dockless bicycle scheme showed that it attracted people who were largely already cyclists – suggesting perhaps that the signage around docked schemes helps break down the barriers for people new to or returning to cycling.

The docked or dockless debate is not clear cut. The University of Salford research showed that the Mobike users liked the ability to leave bikes wherever they want – but also that they appreciated some degree of regularity in finding bikes.

While this 'have your cake and eat it' attitude may seem a little demanding, it also points to the potential for flexible schemes with some docks and other more flexible parking rules.

SCOOTER EXPERIENCES

Following in the footsteps of bike-share, scooter hire companies have introduced fleets of small, light electric stand-on scooters in urban centres. The electric motors have advertised top speeds of around 20mph. The handlebars steady the device, steer it and provide brake mounts.

Scooters are intended for short journeys – although their typical range per charge is 15-20 miles.

They were introduced in the US cities of Los Angeles and Salt Lake City, and have been introduced to Europe in the past year or so. The use of electric stand-on scooters and devices such as the Segway is limited in the UK – they cannot be ridden on pavements legally and they cannot meet the requirements to be licensed for use on the road.

At present the UK's only scooter-style fleets operate on private sites – generally as personal transport fleets for facilities and security staff at airports, theme parks and even beaches.

Interestingly, according to Ford, which is a partner in trials in cities and university campuses across the US, people are less worried about using scooters than they are bicycles in the city, from a safety point of view.

Designs for sit-on scooters are also emerging, from super-light folding ones to much sturdier trikes and motorcycle-style vehicles at the larger end of the scale. The latter are more likely to fall into vehicle categories that require driving licences and helmets (limiting their appeal and the size of their potential user group).

Electric scooters have the potential to save space and provide last mile solutions without requiring expensive infrastructure. However, the experiences of global cities where fleets have appeared has not been straightforward.

Complaints have centred on street litter and the behaviour of users. Large numbers of poorly parked scooters can make streets difficult to navigate for pedestrians or those in wheelchairs and are particularly dangerous for the blind and partially-sighted.

The speed of scooters – up to 20mph – can also lead to accidents and, significantly, to pedestrians feeling less safe walking. If

Case Study: New take on getting parcels to your door

A new "warehouse on wheels" with the potential to help cut traffic, reduce emissions and improve delivery times is being trialled in London.

The service, from Ford in partnership with Gnewt by Menzies Distribution, will, say the two, "efficiently coordinate multiple modes of transport including pedestrian and – one day – bicycle couriers".

The warehouse on wheels concept is designed to be compatible with any van.

The vans act as dynamic delivery hubs that collect orders from a depot and then briefly stop at strategic locations determined to be the most efficient for each batch of orders.

Ford's proprietary software platform MoDe:Link links with nearby foot couriers – or potentially with bicycle couriers, drones and autonomous robots – to fulfil the last leg of each delivery.

MoDe:Link manages all aspects of the delivery from depot to doorstep.

This could help couriers, fleet

managers, logistics and food delivery companies optimise processes and increase van utilisation, saving time and money while boosting capacity.

The service could also improve customer experience by offering improved delivery time windows and reducing costs, speeding time from order to delivery by enabling vans to make more frequent round trips back to the depot.

Ford estimates that one van and a team of four couriers on foot or bicycle could be used to deliver the

same number of parcels as five individual vans.

"Our goal is to keep larger vehicles like delivery vans operating in the high load, less congested environments in which they perform best," said Tom Thompson, project lead, Ford Mobility. "However, for the last mile of a journey into an urban area, where congestion and lack of parking can be a challenge, it makes sense to offload deliveries to more nimble, efficient and cost-effective modes of transport."

► Dockless electric Lime bikes have been introduced in London

widespread use of scooters discourages people from walking, their adoption could disadvantage already vulnerable groups and reduce their access to active travel.

In Madrid, three scooter companies, Lime, Wind and Voi launched in 2018 but by the end of the year, authorities had revoked their licenses to allow them to regulate the operations more closely. Scooters were banned from pavements early on, after an accident in August in which one person died. Since, the city has brought forward new regulations to manage scooters more closely. The use of electric scooters is now restricted to bike lanes and minor roads (those with speed limits of 30kph – 19mph – or below).

Brussels is also adopting a more regulated approach. Scooter operators must register with the city authorities, run their scooters on green energy and enforce rules so the scooters are not parked blocking entry to or exit from public transport.

As cities have pushed back at a 'free for all' attitude from some operators, other providers are working on ways to manage scooter use. Both light infrastructure – which has a tendency to provide information and use instructions that augments apps – and also technical control through geofencing has the potential to manage the behaviour of scooter users.

While early geofencing – such as that used by Mobike – would only manage behaviour after docking (for instance by fining people who parked out of the operational zone), newer, more sophisticated, geofencing can manage user behaviour while the scooters are in use. Their speed can be regulated according to their location so they can go faster in some areas and are limited in others – and they can be stopped if they stray beyond the operational area.

TfGM's Cuesta would like to see scooters trialled in UK but this does not mean that all controls should be lifted.



"We need to better understand how the city can benefit from electric scooters. I believe, if well managed, they can have a positive impact on cities but, if poorly managed, they can seriously affect the city, the urban space and its users," he says.

THE ROLE OF MICROMOBILITY IN DELIVERY

Bikes are increasingly playing a role in city centre deliveries. The original cycle courier bag, however, is being replaced with greater capacity adaptations such as cargo bikes, e-cargo bikes and trikes, effectively creating small, zero-emission delivery vehicles.

The UK Government issued a Call for Evidence on Last Mile Delivery in 2018. As a result, it quickly recognised the potential for electric cargo bikes and other electric-assisted micro vehicles to radically change last mile delivery.

In September 2018 the Government announced £2 million to support green last mile delivery vehicles – primarily e-cargo

bikes – offering grants of 20% of the purchase price of e-cargo bikes up to £1,000 per bike. Applications for the grant opened on April 1.

According to the Department for Transport (DT) these are intended to "pave the way for the nimble electric delivery vehicles to replace older, polluting vans".

This is becoming increasingly pressing as home delivery services increase year-on-year with van traffic increasing by 4.7% to 49.5 billion vehicle miles in 2016.

Logistics operators are already seeing the benefits of introducing pedal-powered, electric-assist micro-delivery vehicles into their fleets.

The Co-op food store chain is trialling e-cargo bike deliveries from its shop in Kings Road, Chelsea, as part of its new online delivery service, launched in March.

The e-cargo bikes can use cycle lanes, pass stationary traffic and park directly outside homes and offices unlike diesel or electric vans. This means customers ►



► From Nextbike's 2018 launch, bikes were hired 4.27 times per day – more than twice the UK average for bike hire of 2.1 per day

Case Study: Knot City

Knot City provides a docked scooter service in Strasbourg, France. It has 30 scooters parked at the exits of eight sites run by city parking operator Parcus. The scooters are used on bike lanes and are, at present, permitted in pedestrian areas. They are slightly larger, sturdier and more robust than scooters used more typically in other schemes. These scooters have bigger wheels intended to cope with a variety of surfaces.

The Knot City collaboration with Parcus works well. Parcus has access to city centre land and the scooters are provided as a service to people parking on the sites – they can use scooters for their last mile journey using their parking ticket. Of the total usage 15% is from Parcus car park users and 85% the general public.

Initially, the scheme had an uneasy relationship with city authorities. Co-founder Polina Mikhaylova says: "City authorities at first were very reticent and not willing to communicate on any kind of scooter sharing installations – partly because of the relatively high usage of bicycles (for France) and existing conflicts between bikes and pedestrians.

"After months of discussions, the situation is changing – although it is inevitable that there will be quotas limiting the number of scooters in coming months."

The station-based nature of the scheme reduces operational costs. Knot reckons its costs are around 0.5 cents per charge compared with an estimated €8 (£6.90) per dockless scooter. The Strasbourg scheme launched as an open network in September 2018 and in its first six months scooters were ridden four-six times per day and no scooters were broken or vandalised.



▼ Knot City supplies a scooter service in Strasbourg



UK figures

Source: CoMoUK

	2016	2017	2018
Bike-share locations	16	26	26
Bike-share cycles (total)	17,354	22,412	24,871
Bike-share users	456,425	626,136	653,701
Bike-share trips per day	29,437	47,710	52,321

► can have their shopping delivered within two hours within a two-and-a-half mile radius of the store.

TfGM, meanwhile, has been seeking solutions for logistics movement as part of its Triangulum project on the Oxford Road Corridor. Cargo bikes, provided duty of care obligations are met, are one solution as trials suggest they could be a more efficient delivery option than vans in congested city centres.

The DfT will look at the regulatory framework around micro vehicles.

The scope of this review could include more powerful e-cargo bikes over 250W, powered two-wheelers (PTW) such as mopeds and milk floats. It is also considering guidance on the regulations covering electric scooters and on the use of trailers towed behind cycles and e-bikes.

THE FUTURE OF MOBILITY?

The UK Government's Future Mobility Challenge has brought many of these issues to the surface, and provides an opportunity for legislation to be reviewed. Ministers have already spoken about at least clarifying the law around micro-delivery and micromobility vehicles and there is a strong push to review the legal frameworks.

While bikes and electric bikes have a clear legal position and demonstrable benefits, the legal framework around other powered micro transport makes it hard to properly research its potential.

Cities need the freedom to trial and learn in an agile way. On how this might be achieved, TfGM's Cuesta says: "I believe the establishment of special areas or living labs where these new micromobility solutions can be tested in a controlled environment is the best approach before a more comprehensive operation takes place in cities.

"It's a question of testing, evaluating and learning in an agile way to ensure we understand the benefits and shortcomings in a brief period."

In addition, cities will need to be able to place controls on micromobility to ensure that the positive aspects are harnessed and the negative elements controlled. Cuesta adds: "Regarding legislation, Madrid and Brussels have introduced interesting measures and bylaws to control the deployment of electric scooters and we need to learn from those experiences."

This debate is set to continue, but it might provide an interesting adjunct to the 20mph debate. If new micromobility vehicles are permitted on speed-limited streets, as they are in Madrid, the incentives to enforce car speed limits become much greater.

Other suggestions are for them to be allowed in bike lanes though this serves to highlight just how limited the UK's cycle infrastructure is.

Bike-share, however, has shown potential. Scooters are more accessible still and if they can be managed closely across appropriate areas – through technology, communication and culture – they could contribute to enabling people to make end-to-end journeys without driving into cities.

Learning from the existing research into the best way to manage bike-share could facilitate well-managed trials and robust research into the benefits.

Taking up the Future Mobility Challenge is an opportunity to explore the potential of micromobility and microdelivery in the UK. **STI**