

CoMoUK report on the shared e-scooter trials in England

April 2023



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Introduction

Shared e-scooter trials have been running in England since July 2020, with active schemes in 31 locations as of October 2022. This report looks at the lessons learned from the e-scooter trials so far – for operators, local authorities and policymakers.

The Queen’s speech of May 2022 saw the Government commit to the legalisation of e-scooters in a proposed new Transport Bill. The timings of this Bill have however slipped and, at the time of writing, are uncertain. In July 2022, e-scooter trials were given the option to extend until the end of May 2024.

CoMoUK (Collaborative Mobility UK) is the national charity dedicated to the social, economic and environmental benefits of shared transport. We have been convening with authorities, operators and DfT via individual and collective meetings since the launch of trials in the summer of 2020.

In the spring and summer of 2022, CoMoUK conducted interviews with a representative from each operator with an active shared e-scooter scheme in England: Beryl; Bird; Dott; Ginger; Lime; Neuron; Spin; Superpedestrian; Tier; Voi; Zipp; Zwings.

As well as offering their perspectives on the shared e-scooter schemes, each operator provided the data on e-scooter ridership from their trials.

We also spoke to representatives from two authorities (Liverpool City Region and the West of England combined authorities) that are overseeing shared e-scooter trials in their local areas after offering all authorities the opportunity to talk to us for this project. In addition we have synthesised insights from the regular CoMoUK / local authority meetings dedicated to e-scooters, regularly attended by circa 30 local authorities.

Additionally, this report draws on findings from the Department for Transport’s “National evaluation of e-scooter trials”, whose data covers July 2020 to December 2021.¹

After our executive summary, we pull together the crucial data points on the e-scooter trials. We then dive deeper into the transport, social and economic considerations of the trials before turning to the critical issue of safety. We then look at the governance, service design and procurement experiences of the schemes which are trialling this ground-breaking mode in the UK.



Lime

¹ www.gov.uk/government/publications/national-evaluation-of-e-scooter-trials-report

Executive summary

The shared e-scooter trials in England have been a success by any measure. Yet this is a success whose future still hangs in the balance pending any Government decision to end the situation in which the UK is the only developed nation without permanent legality for e-scooters. This should happen as soon as possible. In the meantime there should be a clear and consistent communication programme pointing out that the only lawful way to ride an e-scooter on the public highway is in a shared scheme.

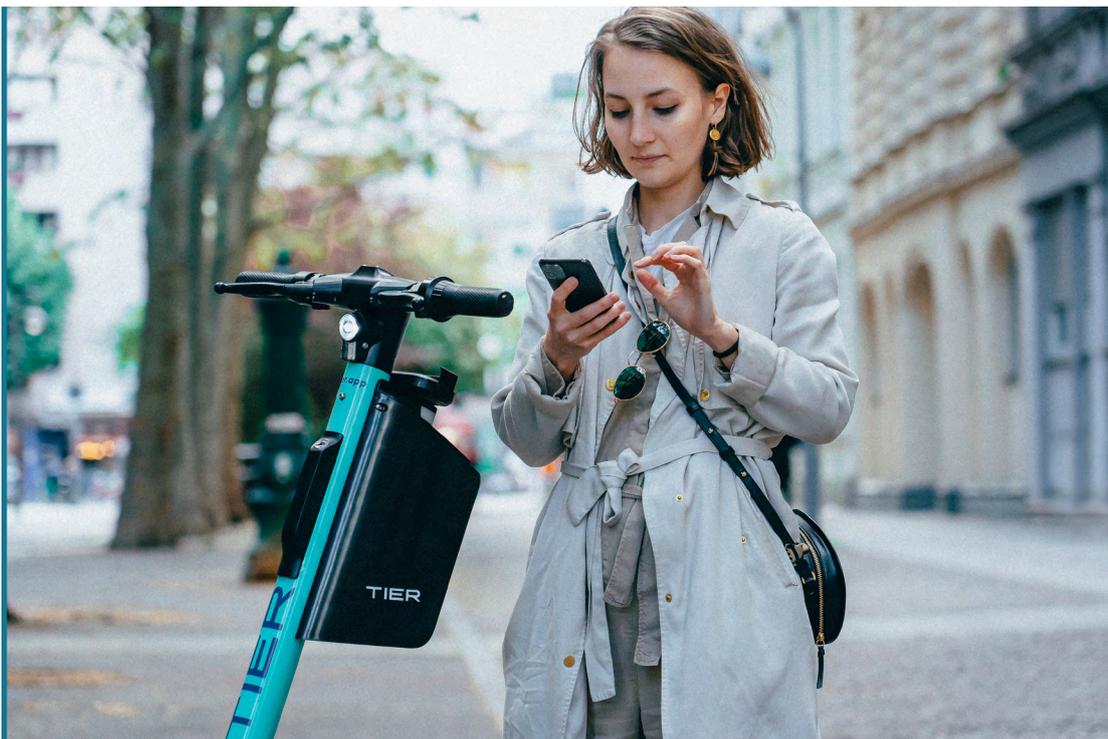
The trials have moved through several extensions from their introduction amid the lockdowns of summer 2020. They have proven to be far more than a flash in the pan, with sustained levels of use taking the number of rides to over 34 million. Safety has rightly been a focus throughout, but the numbers of serious incidents have remained low and the overall safety record good, noting that it is not fully possible to disentangle incidents on shared e-scooters from those on private e-scooters at a national level.

Shared e-scooters' modal shift credentials have proven to be strong, as have their ability to reach those on lower incomes

and from different ethnicities – despite the requirement for riders to have driving licences.

We find there are valuable lessons learned from how schemes are designed and procured, how they are operated – in particular how sufficient parking is provided – and how technology can best be harnessed. Our recommendations are throughout this report and also brought together in our conclusion.

E-scooters provide another user class for micromobility infrastructure such as cycle lanes. They also add another string to the bow of sustainable transport. We know from years of CoMoUK research that users of one form of shared transport also use other forms of shared transport more than before. Not just that – they take public transport more than previously, as well as walking and cycling more. These are precisely the behaviours we need to lean into at scale if the UK is to successfully tackle its transport emissions (the largest source of emissions, whose level have scarcely fallen since 1990) in ways that people from across society want to participate in.



Tier

The shared e-scooter trials in numbers

Users



2.3 million**
Total users since the start of the trial until the end of January 2023 across all locations

1.7 million** OUTSIDE LONDON	0.6 million** LONDON
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Rides



34.0 million**
Total rides since the start of the trial until the end of January 2023 across all locations

32.6 million** OUTSIDE LONDON	1.4 million** LONDON
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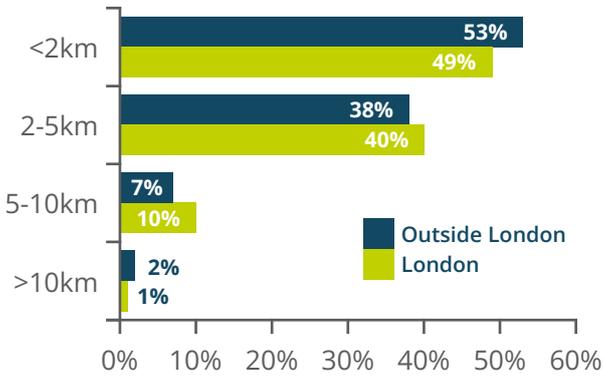
Fleet size



24,365**
Total e-scooters in operation at the end of January 2023 across all locations

19,940** OUTSIDE LONDON	4,425** LONDON
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Trip details

<p>Average ride time</p>  <p>15.5 mins* OUTSIDE LONDON</p> <p>18 mins* LONDON</p>	<p>Average trip distance</p>  <p>2.6km* OUTSIDE LONDON</p> <p>2.6km* LONDON</p>	<p>Trip distance breakdown*</p>  <table border="1"> <caption>Trip distance breakdown</caption> <thead> <tr> <th>Distance</th> <th>Outside London</th> <th>London</th> </tr> </thead> <tbody> <tr> <td><2km</td> <td>53%</td> <td>49%</td> </tr> <tr> <td>2-5km</td> <td>38%</td> <td>40%</td> </tr> <tr> <td>5-10km</td> <td>7%</td> <td>10%</td> </tr> <tr> <td>>10km</td> <td>2%</td> <td>1%</td> </tr> </tbody> </table>	Distance	Outside London	London	<2km	53%	49%	2-5km	38%	40%	5-10km	7%	10%	>10km	2%	1%
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* June 2022 data ** January 2023 data

Data and insights

Demographics

The percentage of men registered with trial schemes ranged between 60% and 81%, meaning that in some areas up to 40% of users were female. For the national average, DfT reports that 71% of e-scooter users are male (DfT, p.42).

The DfT also reports that almost three

quarters (74%) of e-scooter users are under the age of 35 (DfT, p.42).

Looking at four different operator data sets spanning multiple locations, gathered by CoMoUK, we see that the majority of users are over 25, although the single largest age cohort of users is 16-24.

	Data set 1	Data set 2	Data set 3	Data set 4	
Age	16-24	40%	23%	27%	27%
	25-34	25%	47%	30%	31%
	35-44	18%	29%	27%	21%
	45-54	14%		12%	14%
	55-64	0%		4%	6%
	65+	0%		0%	1%

Figure 1: Operator data on age of users (sample sizes vary)



Beryl

Communications support from other stakeholders such as local authorities and DfT as well as operators can play an important role in promoting schemes to everyone in the community.

According to the DfT demographic survey, which was conducted in two waves, 17%

of e-scooter users were from an ethnic minority group. This is somewhat ahead of the overall English adult population, 12% of whom are from an ethnic minority group.

The DfT data on income is reproduced below.

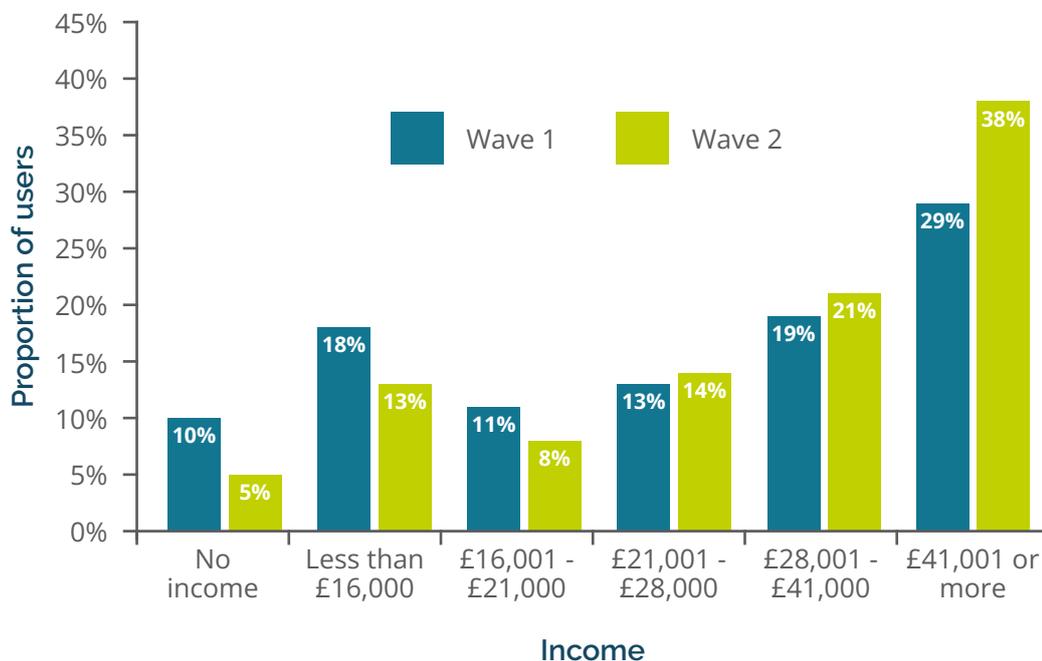


Figure 2: Income level, DfT report p44

Trip purpose

Data collected by CoMoUK from operators (Figure 3) shows that between 20% and 49% of users reported using e-scooters for travel to work or study. Typically around 20% of users carried out utility trips with the e-scooters. Leisure is a significant

journey purpose with between 49-63% of users choosing this option. Commuting is of course the journey type that has been most affected generally by the Covid-19 pandemic.

	Data set 1	Data set 2	Data set 3	Data set 4
Commuting & study & work trips	33%	49%	20%	20%
Errands & appointments	18%	39%	19%	19%
Leisure	49%	63%	58%	58%

Figure 3: Operator data on trip purpose (sample sizes vary)

Regular users were significantly more likely to use e-scooters for their commute than one-time users. As the “novelty factor” of e-scooters has worn off, they have become

an established part of the transport mix and increase their potential to replace less sustainable modes of transport.

The DfT data on this is reproduced below.

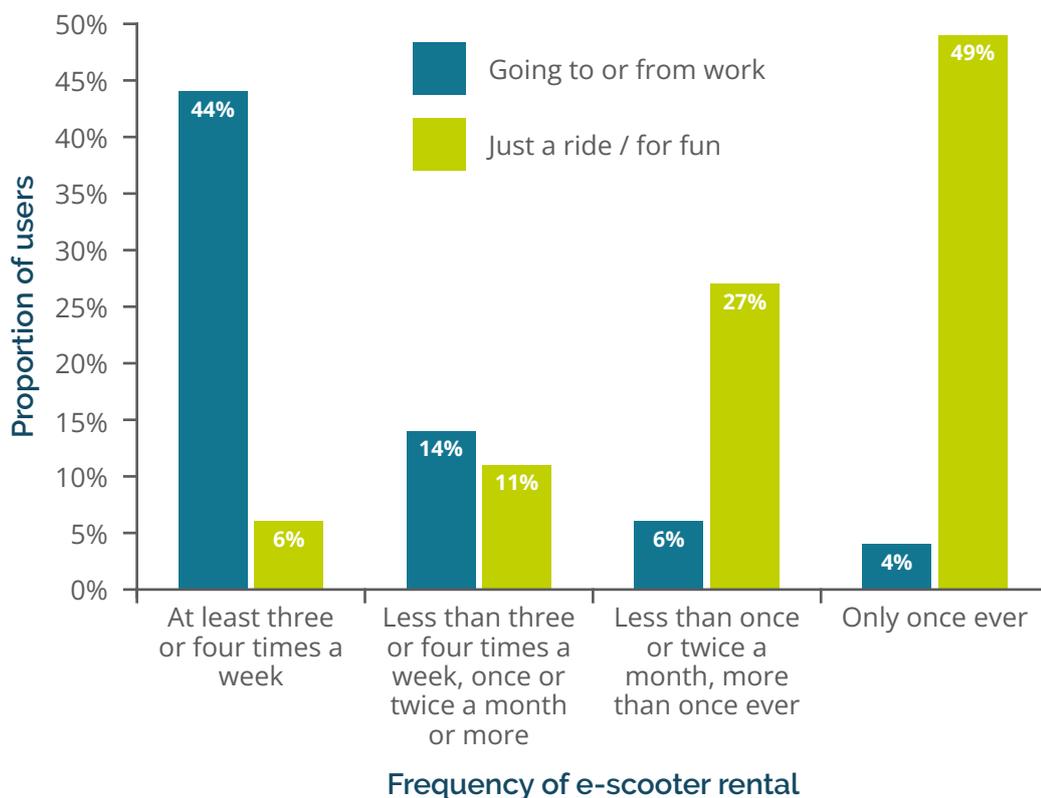


Figure 4: Reasons for most recent e-scooter rental, by frequency of e-scooter rental (source: user survey, wave 2), DfT p46

Base: All users of rental e-scooters in trial schemes, excluding London, at least three or four times a week (561), less than three or four times a week, more than once or twice a month (1,704), less than once or twice a month, more than once ever (1,009), only once ever (839).

Users from ethnic minority groups and users on low incomes are more likely to be frequent users and, hence, are also more likely to use e-scooters for functional purposes (DfT, p.109). The report proposes that e-scooters might have led to improved accessibility and connectivity for more deprived communities, especially as some users also reported that e-scooters had helped them access key services such as medical appointments.

The increase in functional e-scooter trips is also evidenced by the following findings.

Multiple operators have reported a reduction in ‘loop’ trips (starting and ending up at the same location), relative to the number of trips taken between two different points. This indicates that e-scooters are increasingly being viewed as a viable transport option and being built into journeys, rather being ridden primarily for fun or for an exploratory first ride.

Operators report that the majority of A to B trips are made for leisure purposes (such as seeing friends and family or going to the gym), rather than for commuting.

Multiple operators have reported seeing evidence of an increase in chain journeys: using an e-scooter to access another mode of transport or for the ‘last mile’ of a multi-modal journey. In Salford, for instance, Lime reported that the most popular bays are those located next to tram stops and railway stations. This suggests e-scooters are being incorporated into multi-modal trips. This would fit with the evidence from the 2022 annual bike share research report, which shows that 22% of users stated they used a bus and 32% stated that they used a train, tram or underground as part of their overall journey with bike share.

Mode shift

Across England, 21% of all e-scooter rides replaced a trip by private car or taxi by December 2021 (DfT, p.33). The share of e-scooter rides that replace car trips has grown over time (from 12% in March 2021).

This notable trend can be seen in Figure 5 below. DfT estimates that in the five trial areas they assessed in depth¹, the mode shift away from private cars and taxis reduced between 1.2 and 1.6 million

car kilometres from the beginning of the respective trials to the end of 2021 (DfT, p.93). This equates to an estimated reduction of 269-348 tonnes of CO₂ emissions (DfT, p.94). These findings are particularly significant, as a high percentage of users are on lower incomes and are therefore less likely to own a car in the first place, albeit the requirement for trial users to have a driving licence must also be kept in mind.

Had you not used an e-scooter for this journey, which mode of transport would you have been most likely to use, if any?

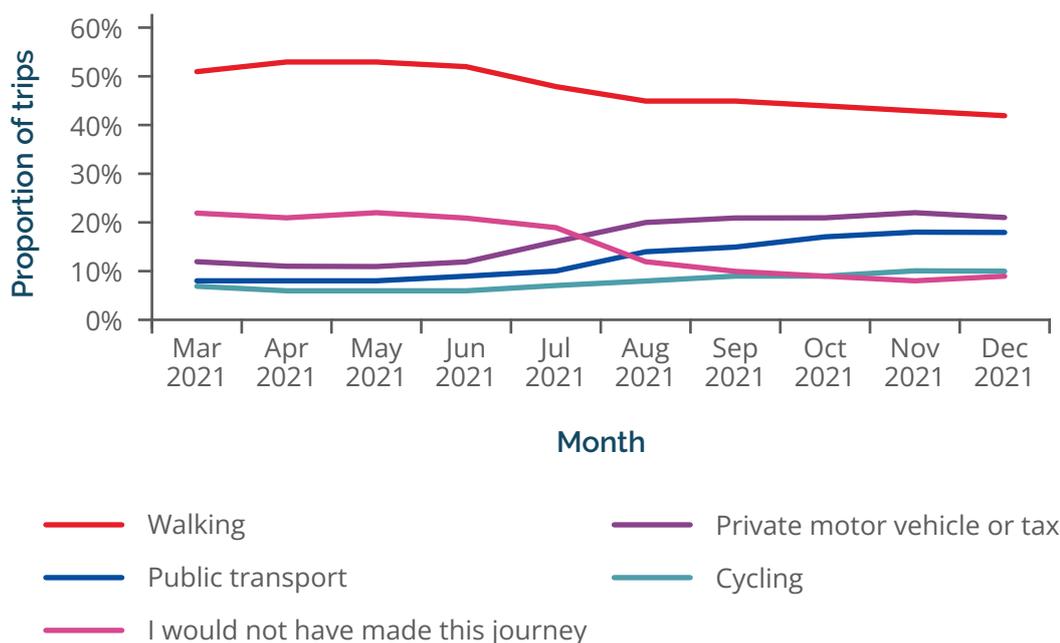


Figure 5: Mode shift to e-scooters, March to December 2021, DfT, p.33

Bases: 1,779,524 post-ride responses



"The scooters, to me, were a cheaper alternative, which I had more control over as...I knew how long the journey would take, pretty much, and, providing there was one available, I was in control of how I got there. Also, just getting a bit of air as well...I found it much more pleasant..."

Quote from University of Salford Trial Report²

1 West Midlands Combined Authority, West of England Combined Authority, Newcastle, Essex and London
 2 <https://blogs.salford.ac.uk/healthyactivecities/e-scooters-in-salford/>

Multiple sources show that shared e-scooters most commonly substituted a walking trip (see above). A Dott survey found that 32% of respondents used a scooter instead of walking for their last trip, while Voi found this number to be 30% in a similar survey.

It is important to understand walking trips in context. An e-scooter replacing a walk where someone feels vulnerable travelling in the dark or is under time pressure is an improvement in someone's quality of life. Walking journeys that are not desired by those doing them are ripe for switching to another mode – the question is which mode. If an e-scooter is used to enhance feelings of personal safety and reduce journey times as well as linking into other sustainable modes then this is a very valuable use case. The way schemes are designed, such as parking locations and promotions are important to try to maximise sustainable transport uptake alongside using an e-scooter scheme. There is a broader point here about the proven role of sustainable transport options in boosting local spending and High Street vitality.¹

For those with mobility difficulties, e-scooters replacing a walking trip may make journeys easier and more comfortable, and/or enable new trips. This brings significant benefits to the rider, as well as contributing to a wider set of benefits, including for the local economy.

It is usual with the introduction of any new mode to see some switch from walking. The 2022 CoMoUK annual bike share report shows that 15% of bike share users would have walked if bike share was not available for their trip. This is relatively low compared to 37% who would have used a car, or taxi instead illustrating overall environmental benefits of such modes. It is worth noting that customer satisfaction levels are consistently high with all aspects of bike share.



Lime e-bike and e-scooter

Widening participation

Rider statistics across operators show that younger people are the most common rider group, with the majority also being white, male and without a mobility impairment – fitting the typical profile of early adopters of new technologies. According to data from DfT, e-scooter users are predominantly male (71%) and under the age of 35 (74%) (DfT, p.42). The gender split is particularly pointed and has been the subject of considerable attention from operators. However, the fact that users on low incomes and from ethnic minority groups were more likely to be frequent e-scooter users indicates that e-scooters might also provide deprived communities with new opportunities for mobility and connectivity (DfT, p. 109).



Tier

1 <https://corporate.voi.com/media/i5gfiqqc/socio-economic-benefits-of-voi-s-shared-e-scooters.pdf>

Adapting services for women

Operators are keen to diversify their user bases, with multiple operators undertaking research on how to make e-scooters more accessible and inclusive for women. This research has identified some key themes:

- ensuring sufficient density of parking to reduce inconvenience and danger
- ensuring parking bays are in well-lit or in busy areas to help women feel safe accessing e-scooters
- ensuring bays are placed where they can facilitate using other sustainable transport modes
- suitable infrastructure on which to ride e-scooters. Data from Beryl indicated that female participation was higher during the pandemic when road traffic was reduced
- examining how the physical design of e-scooters can be optimised for women, with for example one operator updating their handlebar design so it is more comfortable for those with smaller hands



Voi

Adapting services for those on lower incomes

Other initiatives have also been trialled to broaden access, including discounts for those on low or no incomes, alternative methods of payment for those without a smartphone, and integrating their services with other mobility platforms and apps. In some other countries, requirements to serve low-income areas are included in licensing provisions that operators have to meet.

Lime Access gives 50% discounts to those on low/no income to provide a more accessible form of transport. Tier has launched their "UK Access Scheme" which provides 50% off all trips for 6 months for people in concessionary pricing schemes such as the national bus pass or Job Centre Plus travel discount card.

Building rider confidence

Operators have identified that a lack of confidence in riding e-scooters is a barrier to use, one that disproportionately affects women. To address this, online training platforms and in-person training events have been rolled out, often incentivised with discounted rides and rider credits. One operator providing in-person events (Tier) reported that these are primarily attended by women or older people. New service options have also been introduced to help riders feel safer, such as optional beginner modes, which reduces the maximum riding speed to help new riders build confidence.

63% of e-scooter users reported to have received some training from their operators. This predominantly took place online. Only 3% of those users who had received training had done so in-person (DfT, p.72).

Training needs identified by users covered three main areas: turning and handling of corners, training on road rules and awareness, and training on where e-scooters can be ridden (DfT, p. 73). Some operators have added indicators to e-scooters, which helps when turning.



Beryl e-scooter training



Tier e-scooter training

Anti-social conduct

Anti-social conduct is an issue with any form of transport. Based on CoMoUK's conversations with authorities and operators over the two and a half year period of the trials to date, a high percentage of such conduct relating to e-scooters comes from private rather than shared e-scooter users.

Many operators reported receiving complaints from the public concerning different forms of anti-social rider conduct, including drink-riding, pavement riding, twin-riding. According to residents surveyed as part of the DfT's e-scooter evaluation, pavement riding was the most frequently witnessed anti-social behaviour, followed by e-scooter users going too fast. However, these data come with the caveat that 18% of residents in trial areas stated that they were unable to tell the difference between shared and private e-scooters;

and 13% of residents claimed that they had only ever seen privately owned scooters (DfT, p. 78). All shared e-scooters are speed limited.

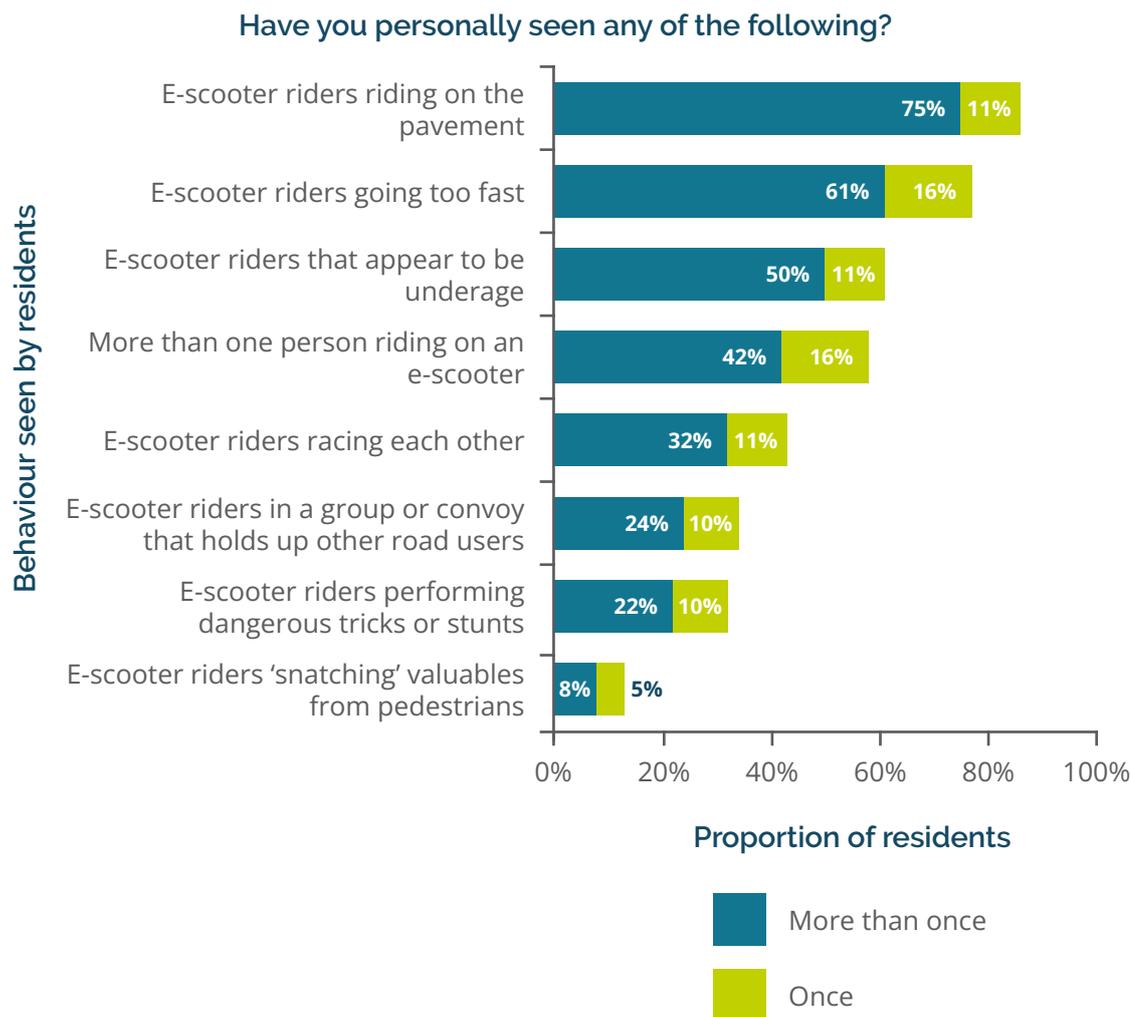


Figure 6: Anti-social behaviour witnessed by residents (source: residents survey), DfT report, p.79

Bases: all adult trials area residents who had seen an e-scooter (2,615)

There have been particular concerns around pavement riding and poor pavement parking from disability groups, especially those representing people with a visual impairment. However, DfT's e-scooter evaluation found that trial area residents with disabilities did not view e-scooters any more negatively than residents without disabilities. Rather, age was a powerful predictor for how residents would view e-scooters, with residents aged

55 and over holding the most negative attitudes (DfT, p. 85).

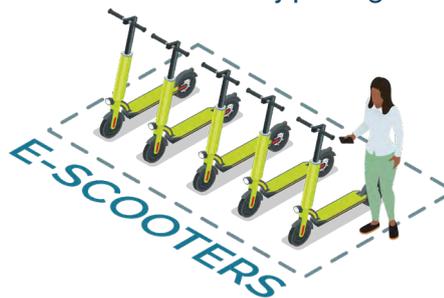
The trials have given opportunities to explore how anti-social behaviour can be combatted. Many regions have switched from a free-floating to a mandatory parking model to reduce the impact on pedestrians from hazardous street 'clutter' (the implications of which will be further discussed in the section on Scheme Design).

Free-floating



A free-floating model allows users to park their e-scooters wherever suits so long as it is safe to do so and in accordance with in-app guidance.

Mandatory parking in bays



A parking bay model requires users to park their e-scooters in designated parking places, including docks.

Parking explained

There are three types of shared e-scooter parking models in use in trial areas:

Hybrid

A hybrid model is a mix of both free-floating and parking bay models. This can mean mandatory parking in some places and free-floating in other places, or giving riders the option to park anywhere but incentivising parking in specific bays.

In Liverpool, this shift directly reduced the number of complaints about e-scooters' impact on pedestrians, while also reducing ridership. End of trip parking checklists are increasingly common in regions with a hybrid or free-floating parking system, which include a requirement to take a photo of the parked vehicle.

In Newcastle, this change brought in an absolute and relative drop in the number of complaints.

Both Tier and Voi have partnered with

Lazarillo¹, an accessible mobility company. Lazarillo's blind and visually impaired app users can be warned about where e-scooters are parked and report any that are poorly parked.

Several schemes, such as Liverpool, added in app drink-riding tests and / or introduced a curfew for use of e-scooters around the city centre bars later in the night. See the 'Innovation' section below for more.

1 <https://www.voi.com/blog/voi-partnership-lazarillo/>

Private vs shared e-scooters

Despite successfully limiting much anti-social behaviour in their schemes, perceptions of shared e-scooters are undoubtedly clouded by the conduct of riders of privately owned e-scooters, which, unlike share e-scooters in the trial schemes, are totally unregulated.

Unlike e-scooters in the shared trials, private e-scooters are not lawful on the public highway and are not defined by any vehicle standards or controls on rider behaviour. This means public perceptions of shared e-scooters are being impacted by e-scooters that have no restrictions on speed, braking, wheel size, lighting and can be held to no technical specification or safety standards, can offer no form of mandatory rider training or guidance

and cannot be subject to any parking or movement controls such as GPS-powered geo-fencing.

They remain legal to sell, however, and there are now significant numbers of them on UK streets.



Private e-scooters



Recommendation – Communication

Government should take the lead in working with operators and local authorities in clearly and consistently communicating that the e-scooter trials are the only lawful way to ride on the public highway.

Rider safety

We found the safety of the schemes to be the highest priority for authorities and operators.

Data collected on injuries during the trials is partial as there is no comprehensive data collection method on incidents outside London, even those that result in hospitalisation. Survey data suggests that 70% of users who suffered an injury as part of a collision with a shared e-scooter did not receive any medical attention (DfT, p. 62). Moreover, the large majority of collisions with shared e-scooters (82%) did not involve other road users (DfT, p. 57).

Where incidents are officially recorded as involving an e-scooter, there is no way of knowing whether it was a privately owned e-scooter or a shared one. Where this is sometimes recorded, it is possible that patients will have reported the incident as taking place on a shared e-scooter if they are aware that private e-scooter use on the public highway is unlawful.

From the data provided to CoMoUK by operators, 330 serious injuries involving shared e-scooter riders were reported between July 2021 and June 2022. This is from over 16 million rides, equating to approximately one incident per 500,000 trips. 'Serious injuries' refer to reported incidents resulting in inpatient hospitalisation. This does not include injuries involving private e-scooters, minor injuries and unreported injuries.

The PACTS report of March 2022 showed 82% of all collisions involving e-scooters involved private e-scooters, with 18% involving shared e-scooters.¹



Beryl

Infrastructure

A lack of suitable infrastructure – particularly car-free or spaces with very little traffic such as segregated cycling lanes or low traffic neighbourhoods – impacts safety and take up. The DfT's e-scooter evaluation also finds that there is a perceived "lack of appropriate infrastructure, such as cycle lanes" among e-scooter users (p. 34).

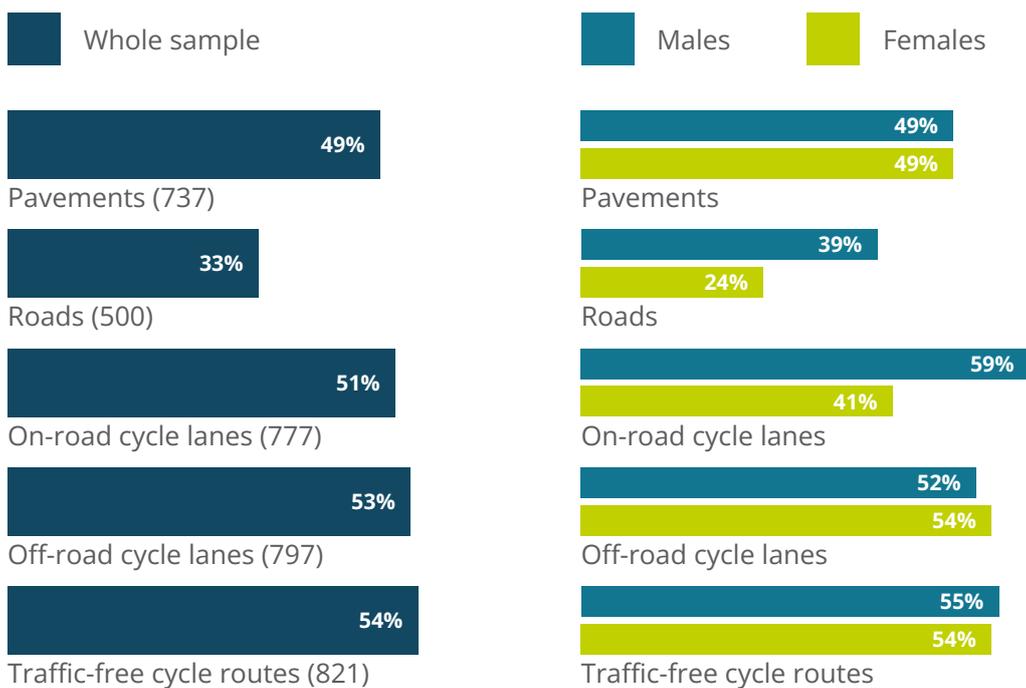
For example in Portsmouth, 89% of

users felt safe or very safe riding a rental e-scooter in a cycle lane separated from the road. These trial users consistently felt least safe riding rental e-scooters on the road with no cycle or bus lane (35% feel unsafe or very unsafe), as a result this could lead to an increase in pavement riding.

Similarly in Salford only 33% of users were happy to use the roads, see figure 7 below.

¹ <https://www.pacts.org.uk/wp-content/uploads/PACTS-The-safety-of-private-e-scooters-in-the-UK-Report-3.0.pdf>, p.4

Figure 7: Preference for different road space in University of Salford Trial Report



Legalisation and expansion of e-scooter schemes across the UK will require continued infrastructure development. Inclusion in active travel budgets – with shared micromobility including e-scooters being seen as a reason to increase those

budgets also – would help ensure shared e-scooters can flourish as part of an overall active travel and micromobility ecosystem: from cycle lanes and cycle parking to micromobility lanes and micromobility parking.

"I also feel as though the emergence of e-scooters has been good in flagging up the lack of active travel infrastructure within cities and how this urgently needs to be addressed (a 16-year-old on an e-scooter shouldn't have to choose between being a nuisance on the pavement and being vulnerable on the road, there should be more segregated infrastructure)."

Quote from University of Salford Trial Report



Recommendation – Infrastructure

The UK needs to continue and expand its investment in active travel infrastructure, which should be seen more broadly as micromobility infrastructure, with the needs of light powered zero emission vehicle users taken into account.

Governance and procurement

Governance

There is an urgent need for legislation to create a clear picture of how e-scooters can be used in the UK. Government are looking to create a new light zero emission vehicle class with zero tailpipe emission which is flexible and open to future innovations. This would apply across shared and privately owned e-scooters.

While we need this primary legislation – the UK being the only developed nation without either legal status and standards for e-scooters or committed plans to bring those in – we will also need the ability to have new vehicle types come on stream in the future via secondary legislation. The Government has been considering a regulatory framework for shared micromobility as part of its legislation and this is something we welcome in principle.

While only the UK Government can create primary legislation in this area, local authorities should make decisions on how schemes are procured and designed according to local conditions, with early and extensive engagement with operators and CoMoUK. Their remit would cover issues such as number of operators, controls on operating areas, pricing, parking models and service level agreements. Beyond the core areas requiring public sector input, the operator should be given the freedom to manage the scheme according to their experience. This is particularly the case under concession agreements where the financial risk sits with the operator.



Recommendation – Legislation

New legislation is urgently needed, in particular to:

- a. Create a new powered light zero emission vehicle class
- b. Define vehicle standards for e-scooters and therefore resolve safety and other issues with currently unregulated owned e-scooters

In the absence of primary legislative definition of an e-scooter, there was no choice but to treat e-scooters as to some extent being motor vehicles when the trials were set up in the summer of 2020. This was a means to an end but as we hopefully move to primary legislation will no longer be appropriate. Likewise, insurance requirements should then no longer be based around motor insurance, as they are currently.

Driving licence verification

It is compulsory for UK operators to run in-app verification of each user's provisional or full driving licence. This has been a means to an end to enable trials to take place at all under existing legislation. This disproportionately excludes people with

disabilities, people from areas of multiple deprivation, and non-white people. It is common for operators to have a granular monitoring system that detects when potential users stop using their app during the sign-up process. They see a significant drop-off when people need to validate their driving licence. The need to verify a driving license significantly extends sign-up time, which is particularly undesirable in some circumstances, for example a woman hiring an e-scooter outside daylight hours. The use of a provisional licence is meaningless in any case as it doesn't mean the user has had any driving lessons or passed their theory test.

Insurance

Because e-scooters have had to be treated as motor vehicles they have been required to have Motor Third Party Liability insurance. This is one of the largest operator overheads and is affecting the financial sustainability of some schemes.

We firmly support the requirement for schemes to have appropriate insurance. However, motor vehicle-based insurance requirements are not appropriate for

e-scooters. Their weight, speed and damage caused in any incident are all much lower than for motor vehicles. A much more appropriate comparison is with e-bikes. We therefore suggest that Rider's General Liability insurance is the appropriate type of insurance cover for e-scooter schemes, as seen in other markets for e-scooters and for the Santander Cycles TfL cycle hire scheme in London.



Recommendation – Stop treating e-scooters as cars

The requirement for users in shared e-scooter schemes to have driving licences should end and insurance requirements for the schemes should no longer be based around cars. Instead, insurance should be based on Rider's General Liability insurance, as commonly used in other e-scooter and e-bike schemes.

Financial sustainability in different procurement models

The way in which a scheme is procured and designed can make all the difference to its success. The trial schemes were all procured under concession agreements with no funding provided to the operator. In fact in many cases fees are being paid to the authority from the operator. Since the trials started, some bike share contracts, which may involve funding, have included a provision for e-scooters to be added in the future. This section of the report explores the funding considerations and the pros and cons of multi-modal and multi-operator models.

A key message for all authorities that comes from our research for this report as well as CoMoUK's many years of expertise in bike share is to avoid using onerous procurement documents designed for more complex service agreements and instead focus on outcomes in a way that recognises viability thresholds and the difficult fundraising and operating cost climate for operators.



Operator financial contributions

The worsened financial climate has put the finances of all organisations under greater strain, including shared e-scooter operators. In order to protect the financial sustainability of providers, it is important that requests for financial contributions from operators should be proportionate, reinvested into measures to support micromobility and kept under review.

Multi vs single operator

The trials have shown there is no easy way of determining how many e-scooter companies local authorities should procure to operate in a single region. Most operators support multi-operator models in suitably sized cities in theory. Indeed, internationally, most mature markets have successful multi-operator models. In Vienna, for instance, Superpedestrian, Tier and Lime work together to fund and control parking, sharing costs for the mutual benefit of each operator and collectively aligning with the local transport network.

TfL has reported that the operators are cooperating to ensure overall

schemes success by moving each other's scooters into parking bays as necessary. Nonetheless, operators warn that the present conditions of the UK market described above are slashing the profitability of operating in UK towns and cities.

Multiple and single operator models both carry advantages; the evidence generally points to a multiple operator model only being viable in larger schemes.

Authorities should consider population size, planned fleet size and size of the business area, as well as area demographics, transport links, and goals of the scheme.

Operator procurement: the advantages of each approach

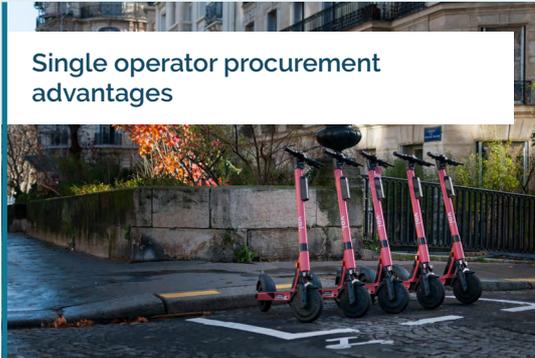
Multi-operator procurement advantages



These may include:

- + More competitive prices for users given the absence of monopolies
- + Bigger collective depth of resource to respond to demand
- + Overall more operators providing more investment
- + More choice of service for the rider
- + Stimulating technological innovation
- + Better accountability and compliance

Single operator procurement advantages



These may include:

- + Simplicity for the public
- + Lower administrative costs for the authority
- + Easier way to align with the objectives of the local authority
- + Easier to integrate into MaaS-type platforms
- + More financial security for the operator

Joint procurement with other modes

The trials have indicated that local transport provision benefits from the procurement of multiple modes of shared micromobility in a single area, including e-scooters, push and e-bikes and cargo bikes. Benefits include their different use cases, accessibility and price points. Beryl, who offer both e-scooters and e-bikes in a single area, reported that the majority of their regular users who began using their e-scooter service, went on to use an e-bike, bike or cargo bike, and that they swapped between modes depending on their journeys, showing different modes have different use cases. This fits with CoMoUK's 2022 bike share research which most recently found that 38% of respondents stated that they have also hired an e-scooter from a trial scheme, showing that multiple forms of shared transport and micro-mobility are mutually compatible for a substantial number of users.

Nonetheless, many operators highlighted that the economics of e-scooters and other forms of micromobility are different, with e-bikes requiring considerably more up-front cost, being more prone to damage and usually being used less.

Most e-bike shared schemes require some form of subsidy, be it from the local

authority, cross-subsidy from an e-scooter scheme, or both. The CoMoUK guidance on bike share goes into more detail about the needs and widespread benefits of this shared mode.¹

Given these financial challenges, most operators advocated for joint procurement of multiple shared micromobility modes from a single operator – but warned that a shared e-scooter scheme would have to be allowed to scale-up significantly in order to potentially cross-subsidise an extensive e-bike scheme. Procuring from a single operator would help bring similar benefits to the authorities as procuring just one e-scooter operator in a single area, including better user experience, easier integration with single ticketing and easier inclusion in a MaaS platform.

There is nonetheless a balance to be struck between these advantages and stifling competition and innovation. As a generalisation, larger cities will be able to sustain multiple operators. Whether choosing multiple operators and / or multiple modes, it is far preferable for schemes to be procured and operated in an integrated way.



Beryl e-scooter, bike and e-bike

¹ <https://www.como.org.uk/documents/bike-share-annual-report-gb-2021>

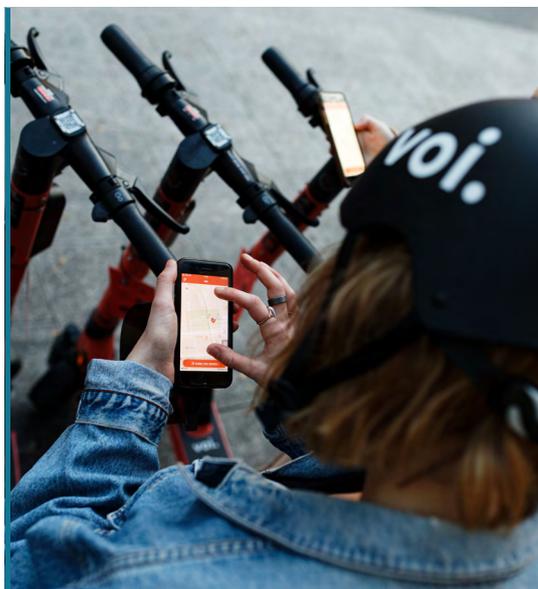
Procurement for smaller towns and cities

Smaller towns and cities are generally more likely to need subsidies from local authorities given lower ridership numbers being less likely to offset the acute financial pressures of operation in the UK at present. One example of a subsidy arrangement offered by an operator would be minimum utilisation guarantees with local authorities where they have to provide a subsidy if the scooters are not meeting a minimum threshold of number of rides per day.

There are other options in use elsewhere, for example in Austria where the rail company subsidises Tier in smaller towns to connect more people to rail service and discourage car use.

Regional subsidy can also happen across city regions. Working at scale in big cities can fund smaller, less densely populated areas, as has been demonstrated by Voi's profitable Bristol scheme allowing them to serve Bath. This cross-subsidy is made easier by both cities being under the West of England Combined Authority, but this is not to say similar cross-subsidies cannot

happen across regions that are not under the same umbrella through collaboration between different authorities and layers of government. There are several examples in the English trials of smaller schemes working well, for example the Zipp scheme covering Aylesbury, High Wycombe and Princes Risborough in Buckinghamshire.



Voi



Recommendation - Procurement

The emphasis in procurement should be on quality and outcomes rather than on price. The economic realities for all stakeholders need to be recognised. Integrated approaches across shared transport modes and across multiple operators, where that route is chosen, are best.

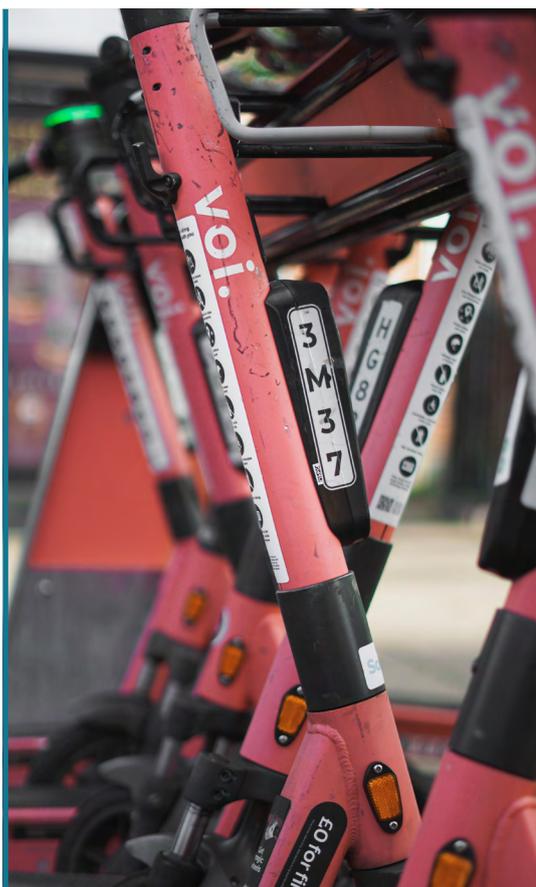
Scheme design

Local authorities are encouraged to consult the market as they design or adapt any scheme to blend their local knowledge with the expertise of the operators. There is not a one size fits all approach to successful e-scooter schemes but there are common pitfalls.

Parking

Parking has been one of the main challenges of the UK e-scooter trials. Achieving the density of parking required to offer users a credible scheme that works for their needs is all too often frustrated by issues of politics; difficulty in agreeing on parking locations and a lack of appropriate governance processes. Restricted density has limited operator revenues, number of riders and rides, the overall reach and impacts of schemes. It impairs authorities' and operators' understanding of the potential of their schemes. It can also lead to a poor user experience and pavement clutter if users cannot park easily.

Trials using free-floating models are now a rarity across England, having almost entirely fallen out of favour with local authorities and operators due to fears over the perceived adverse impact on non-users, in particular visually impaired and other vulnerable people. Free-floating models have only survived where they are palatable to local stakeholders. One of these areas is Milton Keynes, which can accommodate free-floating pavement parking due its unusually wide pavements.



Voi

Local processes and pressures

The legal process of getting local permissions for installing new shared e-scooter parking spaces, including through traffic regulation orders (TROs), can take a long time. Local bureaucratic processes are very convoluted and old fashioned, therefore cumbersome, resource-intensive, costly and slow to navigate for operators and authorities alike. They are also very idiosyncratic, meaning processes are not easily replicable between areas.

Operators and authorities are generally

keen to move away from pavement parking as it causes obstructions and encourages pavement riding. An obvious climate-friendly way of creating shared e-scooter parking bays is to repurpose an existing parking space for cars, which can accommodate up to 15 e-scooters. However, repurposing car parking and/or getting approval for carriageway space takes much longer and sometimes does not happen due to opposition, typically on grounds of revenue protection and/or perceived unpopularity.

Parking density case study: London

The process for getting new parking spaces in London can be time consuming, taking two or three months in some cases. Operators have to navigate the differing regulations that exist in each borough.

Consequently, just 4,000 out of the 18,000 e-scooters contracted to the three operators are in operation.



Recommendation – Parking

Government should work with operators and local authorities to set guidance on parking, prioritising taking space away from private cars, providing sufficient density of bays and including setting clear key performance indicators on efficiency of process and monitoring compliance.

Technological innovation

The advent of the e-scooter trial schemes has inspired a range of innovations. Sometimes innovations have intertwined with each other, as when geo-fencing was used to control downhill speeds pending a design upgrade with sufficient braking power to cope with those hills. Once that model came in, the geo-fencing could be removed. As a result, ridership went up significantly.

Geofencing is a useful tool, but needs nuanced use that is kept under review to be at its most effective. Lime have reported that the easing of geo-fencing restrictions in some areas has led to a noticeable increase in ridership, with no accompanying rise in the number of

reported incidents. Each application of it needs to be demonstrating its value and not inadvertently bringing in other safety risks, for example overly stringent speed restrictions on roads with relatively fast flowing or high levels of traffic.

This has helped address drink and twin-riding and has been done in partnership between the operator (Voi), police and local authorities. In Newcastle, people were only allowed to use the shared e-scooters after 9pm if they could successfully complete an in-app reactions test. More evaluation of these ground-breaking tests and their implications for different user groups will be needed before permanent adoption in a UK where e-scooters were legalised.



Recommendation – Technology

Any technologies used need to be assessed for user and non-user impacts and kept under review via ongoing evaluation and dialogue between operators and authorities.

Long-term hires

Several UK shared e-scooter trials included the option for people to hire scooters on a long-term basis. This provided the chance to take an e-scooter home to use whenever and wherever it is required as opposed to picking one up on street for individual trips. Overall, long-term renters use e-scooters more frequently and ride longer distances than users of short-term rentals (DfT, p. 29ff).



The success of long-term rentals depends on local particularities. West of England Combined Authority (WECA) have built long-term rentals into their renewed procurement specification as they believe it is an important option especially whilst private e-scooters remain illegal to use on public roads.

WECA allows long-term rental scooter to be used in a vast area, which has increased uptake of the scheme. In Essex, uptake was lower and areas for e-scooters use were more limited. Nottingham City Council decided not to continue long-term rentals after the initial trial period, as the use didn't offset the increased operational costs and risks. The e-scooters still needed to be checked regularly which is harder to arrange when they are not part of the on-street fleet. Instead they have launched a monthly commuting pass and made sure there are parking bays close to the homes of those who used the long-term hire.

Vandalism

Operators have to contend with the high day-to-day operating costs of running a trial scheme in the UK.

Vandalism rates

Vandalism of e-scooter fleets has been a problem reported by multiple operators in the UK, noting it is much more of an issue here compared to their schemes in Europe. Battery and scooter theft has been reported as an issue, along with difficulties retrieving vehicles from private residences. Nonetheless, some operators postulate

that vandalism and anti-social behaviour is only happening because scooters are new and that it will die down as they become normalised. Experience from bike share operations show it is effective for operators, authorities, police forces and other stakeholders to form partnership approaches to tackle any vandalism and anti-social behaviour with shared e-scooters.

Recommendations and conclusions

Here we pull together our recommendations in one place and close this report by concluding that shared e-scooters in the UK have proven themselves to have a strong contribution to make to decarbonisation, inclusion and enjoyment in transport in the two and a half years of their operation to date.

This momentum remains on risk until

Government moves to legislate. If it does, the UK has the chance, via detailed engagement between all stakeholders across public, private and third sectors, to get a new range of powered, light zero emission at tailpipe vehicles at its disposal. To meet the crisis levels of transport emissions within the wider climate crisis, it will need them.



Recommendation – Communication

Government should take the lead in working with operators and local authorities in clearly and consistently communicating that the e-scooter trials are the only lawful way to ride on the public highway.



Recommendation – Infrastructure

The UK needs to continue and expand its investment in active travel infrastructure, which should be seen more broadly as micromobility infrastructure, with the needs of light powered zero emission vehicle users taken into account.



Recommendation – Legislation

New legislation is urgently needed, in particular to:

- a. Create a new powered light zero emission vehicle class
- b. Define vehicle standards for e-scooters and therefore resolve safety and other issues with currently unregulated owned e-scooters



Recommendation – Stop treating e-scooters as cars

The requirement for users in shared e-scooter schemes to have driving licences should end and insurance requirements for the schemes should no longer be based around cars. Instead, insurance should be based on Rider's General Liability insurance, as commonly used in other e-scooter and e-bike schemes.



Recommendation – Procurement

The emphasis in procurement should be on quality and outcomes rather than on price. The economic realities for all stakeholders need to be recognised. Integrated approaches across shared transport modes and across multiple operators, where that route is chosen, are best.



Recommendation – Parking

Government should work with operators and local authorities to set guidance on parking, prioritising taking space away from private cars, providing sufficient density of bays and including setting clear key performance indicators on efficiency of process and monitoring compliance.



Recommendation – Technology

Any technologies used need to be assessed for user and non-user impacts and kept under review via ongoing evaluation and dialogue between operators and authorities.



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