

## **Interim Report for the Rees Jeffreys Road Fund**

### **The Regulation of Disruptive Innovations: The Case of Dockless Bicycle Hire**

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This Interim Report provides, firstly, a brief Executive Summary, followed by responses to each of the questions addressed in the original proposal. The third section gives brief details for the outputs so far, with their references, together with information on the project interviews. The interviews were preceded by a review of the primary and secondary sources on dockless bicycle hire and the three case studies.

It must be stressed that the Interim Report reflects our findings up to this stage of the project. This is based on the fact that dockless bicycle hire has proved to be an extremely fast moving and changing business, with little continuity and stability of operation. Our work on the project has therefore been adjusted to take account of these dynamics. For example, the interview programme is now being phased through the length of the project. This is to enable the essential need to take proper account of events as they develop throughout the time of the project, and to allow for re-interviewing some of the interviewees in order to gain an up-to-date picture. The responses to the study questions therefore indicate how things stand at the present time.

#### **1. Executive Summary**

Dockless bicycle hire in the UK has been shaped strongly by its economic and political contexts, which have determined the trajectory and character of the policy and operational processes. Specifically, the business model of the original operators has placed significant constraints on the development of the technological innovation. Dockless bicycle hire has its origins in China, and the two dominant operators, ofo and Mobike, both adopted a strategy of worldwide expansion at rapid speed, with rides subsidised from their extensive venture capital funds. However, this model proved financially unsustainable, with ofo now withdrawn from the UK, and Mobike opting to consolidate its position in its existing operational areas.

For their part, the local authorities were largely content to accept the dockless bicycle operators on the basis of being an apparently attractive technological innovation that made no demands on public funds. There were a variety of local regulatory frameworks, together with an accreditation scheme run by CoMoUK, the organisation that represents bicycle hire operators. However, none of these ad hoc frameworks was legally enforceable, and the government has so far declined to introduce an enforceable regulatory framework.

Each of the project case studies reflects these economic and political contexts, and we conclude that a national legal regulatory framework is required to enable local authorities to provide greater co-ordination and leadership to the sector. Although the

constraints imposed by government policies of austerity with regard to local government may limit the resources and expertise available. It may also be that the emerging concept of micro-mobility, that includes docked and dockless bicycle hire, together with electric bicycles and scooters, may provide a fresh context that reshapes the operational and regulatory framework for dockless bicycle hire. The needs and preferences of users is another neglected area in the development of dockless bicycle hire, with little consideration given to consultation with the public, so that frameworks of participatory exchange need to be developed, particularly during the implementation of schemes.

## **2. Responses to the Original Study Research Questions**

### **a. At what level, e.g. national or local, can dockless bicycle hire regulation be most effective; who should be given these responsibilities; and what detailed character should regulation take, e.g. quantitative, qualitative, environmental controls?**

The regulation of dockless bicycle hire has hitherto depended crucially on the economic and political contexts in which it operates. Thus the business model adopted by the principal dockless operators has shaped the environment in which development has taken place in important ways. From its outset in China, dockless bike hire has been subject to intense competition. From this environment, two companies, Mobike and ofo, emerged as the principal players. Both have received substantial investment, and adopted strategies of expanding at a rapid rate by offering subsidised rides, with the result that they have been making heavy losses. This has led to widespread criticisms that the companies are not operating a sustainable model, and in the past year both have been feeling the financial pressure. Consequently, ofo ceased its operations completely in the UK in 2019, while Mobike has now placed more emphasis on the need to make a profit, and has adopted a strategy of consolidating its existing areas of operation, rather than the previous strategy of expansion at all costs.

Existing regulatory frameworks have not been able to exert much control over the dynamics of this business model.

The lack of any national legal regulatory framework means that the sector has relied on experimentation with self-regulation, and with non-binding policy measures and frameworks by local authorities. For its part, national government does not want to intervene too soon, and so waits to see what is emerging organically at the local level. The local frameworks include a code of conduct for dockless bicycle hire in Oxford, and a code of practice operated by Transport for London. There is also an accreditation scheme run by CoMoUK (formerly Bikeplus), the representative body for bicycle hire operators.

To a large degree the dockless operators have been able to act autonomously, due to the political and economic environment. For the local authorities, there was considerable attraction in allowing an innovation that offered a relatively cheap and flexible means of transport, and that, crucially, placed no demands on the public purse. In any case, the public authorities had no legal authority to prevent dockless operation. It was only as the schemes developed that major problems began to emerge, including theft and vandalism of the bikes, and general misuse. As a result,

for economic reasons caused by the operational problems, and bikes left randomly in areas of low demand, over time the operators often reduced their areas of operation to city centres.

The government has so far chosen not to introduce a legal framework for dealing with the problems associated with dockless bikesharing, and instead has sought to apply existing legislation. For example, in 2018 it suggested that local authorities could use Section 235 of the 1972 Local Government Act to create specific byelaws to prevent the nuisance caused by dockless bikeshare, but so far the local authorities have not taken advantage of this.

The local authorities may not have been able to exert any authority over the original business models of the operators, but the more conciliatory approach now being offered since 2018 by Mobike (particularly after its adverse experiences in Greater Manchester) and other operators, together with lessons learned by the local authorities themselves, suggests the time could be right for the national government to assume leadership in the sector and introduce a legally enforceable regulatory framework (although there is a counter argument that such policy areas as dockless regulation are essentially local matters that need to be devolved to the local authorities). Nevertheless, a national regulatory framework could include quality standards for bicycles, and their conditions of operation, but also give the local authorities the legal power to control the numbers of operators and bicycles. It could also include provision for local authorities to negotiate with the operators on the areas in which they operate. In essence, there is a triangle of local authorities, users, and innovators, each with separate roles and having different objectives. The need is to bring these stakeholders together to provide the best possible service, at a reasonable cost to the user, and to be inclusive.

The acquisition and exchange of data is another area that could form part of a legal framework. Hitherto, there appears to have been little public use made of the data produced by dockless bicycles. Aggregated data may only have a limited use, but the more finely grained data, such as the detailed routes taken by dockless users, could assist public authorities in planning infrastructure, and integrating transport services.

**b. In the relationships between innovators and regulators, what structure should regulation take, e.g. voluntary codes of conduct, or statutory controls?**

As noted above, a statutory framework can give greater structure and clarity to dockless bicycle hire, with the proviso that local authorities should have the necessary capacity and leadership to guide the sector within its own area. Larger authorities, such as London and the Metropolitan areas, are likely to have greater capacity to operate a regulatory system compared with smaller cities and towns. It is also important to emphasise that there cannot be ‘one size fits all’ solutions to the regulatory problems, and local authorities will require the discretion to act on what can be complex problems. A particular challenge is to decide how dockless operations should be distributed across an area, and who the beneficiaries should be. For example, should greater consideration be given to those living outside the areas normally targeted by dockless operators?

In the context of local authority expertise, it is also important to note that ‘soft’ forms of regulation are also likely to be required, including benefits to users who use the bikes appropriately, and also negotiating with the operators in areas such as the acquisition of data.

**c. For each of the three case studies, what are the administrative and political merits and disadvantages for managing the tensions between innovation and regulation? Can any of these approaches, or a combination of them, be ‘scaled up’ for best practice regulation more generally? What are the implications for other UK cities and towns where dockless bicycle hire may be introduced?**

With regard to the three case studies, it is again important to emphasise that each was subject, either directly or indirectly, to the economic and political contexts and associated processes noted above. In the case of Greater Manchester, the combined authority and the executive body Transport for Greater Manchester (TfGM) were attracted by the novelty of dockless operation, and the lack of public funding required. Although TfGM stipulated a six-month trial of 1,000 bikes for the operator Mobike, the company was left to act autonomously, and as a result of persistent theft and vandalism of the bikes, eventually restricted its area of operation to the city centre. This was done without consulting TfGM, and caused considerable antagonism from users. Despite restricting its operation, Mobike continued to suffer theft and vandalism, and in 2018 terminated the scheme after fifteen months of operation. Mobike has acknowledged that it made mistakes in Manchester, and in future would place greater emphasis on working with the local authority. For its part, TfGM is now seeking to introduce a cycle hire scheme where the terms of the contract set out more clearly the responsibilities of operator and public authority.

In Oxford, the transport authority Oxfordshire County Council adopted a more facilitating role than Greater Manchester did, allowing four main dockless operators to enter the city in 2017, and each opted for a strategy of rapid expansion. This helped to create a demand for dockless use, but as in Manchester (although on a lesser scale) there was some misuse of the bikes. At their peak, the four operators were running around 2,000 bikes, but by January 2019 Obike and ofo had withdrawn altogether, and the other two companies, Mobike and Pony Bikes, had reduced their size and areas of operation. In addition, a docked bicycle hire company, Oxonbike, ceased to operate in 2018 blaming, at least partly, the numbers of dockless bikes. The Code of Conduct for the dockless operators included provision for the numbers of bikes, bicycle safety and maintenance, avoidance of obstruction, data, and a stipulation that the operator should pay staff at least the Oxford Living Wage (which is approximately £1 above the Living Wage for areas outside London, currently £10.02 vs £9.00). Enforcing the Code was always challenging because of its voluntary character, but the Code was generally enforced, although it became more difficult over time, when the operators reduced the numbers of staff available to collect and maintain the bikes.

In contrast to Greater Manchester and Oxford, the West Midlands Combined Authority resisted the introduction of dockless bikes when framing its major bike hire scheme for 5,000 bikes across the region. Instead, the scheme is intended to consist entirely of docked bikes. Significantly, the executive body Transport for the West Midlands (TfWM) acknowledges that the adverse experience in Manchester was a

key contributory factor to their decision to exclude dockless bikes. Implementation of the West Midlands scheme is slower than scheduled, chiefly because of the complex negotiations required on the land needed for the docking stations, and the agreements needed from the local authorities on the location of these stations. In this regard, it is significantly simpler to introduce a free-floating dockless scheme (although the free-floating character of dockless bikes makes them more vulnerable to misuse, while the control and redistribution of bikes is easier with a docked system). TfWM has not excluded a dockless element in their scheme in the future, with the possibility of a hybrid that combines docked and dockless operations. With regard to regulation, TfWM is relying on the terms of its contract with the operator, Nextbike, rather than a Code of Conduct.

It cannot be said that any one of the case studies, or a combination of them, in themselves offers an obvious case for 'scaling up.' More significantly, for each of the case studies, the economic and political contexts played a crucial role in framing decisions and influencing implementation. Although, as we have discussed, lessons can clearly be learned from the processes adopted in each case study area, addressing the problems caused by contexts and the associated processes are more likely to be important for other cities and towns seeking to introduce dockless operation, rather than copying other local authorities.

**d. Do the dynamics of empowerment in the relationships between local authorities and innovators entail the construction of new types of collaboration, rather than conflict? What are the underlying bases of these relationships, e.g. the desire to promote bicycle use for health and environmental reasons, combined with the need to maintain regulatory order?**

Rather than empowerment, the development of dockless bicycle hire has demonstrated the weaknesses on the part of both operators and local authorities. For the original operators, the limitations of the business model have severely restricted the scope for development. Evidence from the case studies suggests that operators such as Mobike are now modifying their strategy to seek greater operational stability over time, and also build firmer relationships with local authorities. For the public authorities, it has been the technological innovation in itself that was the attraction, rather than specifically identifying dockless bike hire as a key element in integrated transport strategies.

The weaknesses on both sides have created a vacuum in terms of ordered development and regulation. Dockless hire gives greater freedom to the user in terms of flexibility and cost, but on the other hand entails more detailed management and supervision in terms of the distribution, collection, and maintenance of the bikes. In turn, the impacts on the built environment of bicycle misuse intensify the need for collaboration between operators and public authorities.

**e. What are the wider implications of dockless bicycle hire for gaining a greater understanding of the evolving relationships between disruptive innovators, regulators, incumbent cycle and public transport operators, and users?**

Over the past year, dockless bicycle hire has become more likely to be defined in terms of wider systems of micro-mobility. This refers to personal transport for one or

two people, and in addition to docked and dockless bikes, also includes electric bikes and scooters. Consequently, dockless bicycle hire can be seen as both competing with these other forms of micro-mobility, but also offers the possibility of being integrated with them. For example, as we noted above, Transport for the West Midlands is considering the possibilities for a hybrid scheme that combines docked and dockless bikes, and so attempts to give users a choice. Currently, electric scooters are banned in the UK on public roads and footpaths, but they have spread rapidly across the world, led primarily by the United States based companies Lime and Bird. Significantly, Lime is operating dockless bikes in London, while in 2018 the ride-hailing app Uber purchased the electric dockless bicycle hire company Jump, and has recently commenced a service in London. Uber is emphasising that, for ‘first mile-last mile’ transport, the Jump bikes can be cheaper and more convenient than Uber’s car service. Thus electric dockless bikes can widen the scope of operation in terms of distances covered, and also those able to use them.

As we have noted, to a large degree dockless bicycle operations have developed autonomously, and largely separate from public transport operators. In the future, by providing ‘first mile-last mile’ transport dockless bikes can complement public transport. At the same time, it can also offer competition for customers, and potentially take people away from public transport use. There is little evidence at the moment concerning the displacement impact of dockless bikes on public transport, but it is in these sorts of areas that local authority leadership can play a key role in seeking to bring greater co-ordination.

With regard to users, their needs and preferences are largely missing links in the implementation of dockless bicycle hire. The operations have been producer led, with little consideration given to consulting the public. Paradoxically, it could be said that in cases such as Greater Manchester, it was the public in responding to the innovation after implementation that contained the disruptive force, rather than the innovator and the innovation itself. The public disrupted Mobike’s expectations for their technological innovation, and the company lacked the means to respond in an appropriate way. In essence, the company failed to work within any significant framework of participatory exchange, and this inability to recognise user power indicated the limitations of an innovator that relied on the novelty of technological innovation.

The physical presence of dockless bike technology offers a route to power, as it allows consumers to express their preferences and needs, and to do so visibly in the public domain. However, societal expectations of technological innovations are unlikely to be satisfied, such as in the case of the environmental and health benefits of cycling, if those responsible for the innovation are unwilling, or lack the means, to interpret these choices in a strategic way over time.

### **3. Project Outputs**

(i) The paper ‘The Dynamics of Public Participation in New Technology Transitions: The Case of Dockless Bicycle Hire in Manchester,’ was published in the major journal *Built Environment* in Spring 2019. The paper uses the project case study of the Mobike dockless bicycle hire scheme in Manchester to illustrate the reasons for failure of this disruptive innovation. This paper is at **Dockless a**.

(ii) The blog post 'The Sharing Economy and Blurring in Public-Private Relationships' was published on the *Built Environment Blog* web site in June 2019. The paper examines how the more direct effects of sharing are likely to result in a blurring of the public and private sectors where integrated service providers become dominant players. This blog is at **Dockless b**

(iii) As noted above, the interview programme is being phased through the length of the project. This is to enable the project to take account of the fast changing and evolving sector of dockless bicycle hire, while several of those interviewed will be re-interviewed in order to gain an up-to-date picture. Fourteen interviews have been conducted so far. The material contained in the interviews is an invaluable resource, both in gaining an understanding of events, and in the insights the interviews provide into the questions addressed in the project. Those interviewed included representatives of operators (3x), cycling and bikeshare sector representatives (4x), local policy makers and politicians (4x), and academic and other experts (3x).

In the remainder of the project we will seek to develop the themes of how the triangle of local authorities, users, and innovators evolve their relationships, together with how dockless bicycles fit into systems of micro-mobility. Outputs will include articles submitted to practitioner journals (including *Local Transport Today*), and an article to be submitted to a major academic journal.