"Bike Sharing Beyond the Norm"

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1. Introduction

Bike 'sharing' is now most often imagined as either rows of identical, branded, 'safety bicycles'[1] waiting in docking stations (that are placed or approved by local governments) sprinkled across cities, or the equally generic dockless bicycles provided by for-profit companies within geofenced, medium/high-density zones of cities. In both varieties, a particular kind of usage and user is designed or 'scripted' (Akrich, 1991) into the schemes' materiality and business models: use by an able-bodied, (reasonably) fit and skilled individual with a credit/debit card and/or smartphone as well as sufficient financial resources. Although perhaps the most economically efficient, this homogenous tailoring may exclude people who do not fit or cannot fulfil the script, such as those differently abled or from lower income backgrounds. These are also the schemes considered in transport and mobilities journals (Fishman, 2016; Spinney and Lin, 2018).

However, we argue that the dominance of the aforementioned varieties of bikeshare is contingent and that other, more inclusive and just modes that 'common' cycling (Nikolaeva et al., 2019) exist and could proliferate. Commoning is here understood as extending the right to mobility to a wider range of people, catering to heterogenous and spatially differentiated needs, and engaging in communal decision-making (*ibid*.; Gibson-Graham, 2005). Crucial to this, we suggest, is rethinking what 'sharing' means and what exactly a 'bike' is. In this Viewpoint we briefly outline a spectrum of (pre)existing bike sharing systems, and build on emerging criticisms of contemporary credit-based schemes, asking what lessons may be learned from

[1] "Safety bicycle" was the term first used to identify the now common cycle configuration consisting of an upright rider pushing, through pedals and a chain, two equally-sized in-line wheels along the direction of travel (Cox & Van de Walle 2007).

alternative, communal systems of bike sharing and provision. For this, we draw on examples from our research on community-led initiatives to improve cycling in London for which we interviewed 45 leaders, staff/volunteers and beneficiaries of organisations across the city in 2016-2017 (more details in author1 and author2, 2018; author2 and author1, 2019). We conclude that the sharing and provision of bicycles can be an economic practice outside the logics of profitability and capitalism (Gibson-Graham, 2005), without restrictions on loaning time frames, and open to a wider range of bodies and individuals.

2. The Bike Sharing Spectrum

Whereas bike sharing may be relatively recent to international markets, it is not a new form of cycle provision and has not always required information and communication technologies and a payment system (e.g. Shaheen et al., 2010). If bikeshare is understood as an arrangement of different technologies, institutions, economic logics and user scripts, then a wide range of actually existing arrangements can be identified in contemporary cities across the Global North and South. In Table 1, we order some of those arrangements in terms of their composition and complexity.

<Table 1 about here>

Free bikes occupy one end of the spectrum. These are most often donated bicycles collected by civil society organizations that are painted a recognisable colour, left out for anyone who is able to use them, and thus provided through non-market transactions. The first known system of their kind were the White Bikes of Amsterdam

in the late 1960s and there have been other experiments in places such as La Rochelle, France and Cambridge, UK in respectively the 1970s and 1990 (Shaheen et al., 2010). They currently exist as small-scale schemes such as the all-volunteer "Austin's Yellow Bike Project"[2]. Whereas the random distribution of free bikes is similar to the contemporary dockless variety, no money or smart phones is required for usage. The bikes are, however, prone to disrepair and vandalism. *Bike libraries* or *pool bikes* are also provided through non-market transactions. They tend to be free but are usually loaned, with a lock, for longer periods and returned to a central location, such as a community organization's workspace. These bikes usually benefit from more maintenance and suffer lower levels of vandalism than the free-roaming free bikes. Traditional *bike rentals* are similar to bike libraries with the exception of their cost and most often for-profit organizational model. *Coin deposit* systems were created in several European cities in the last two decades of the 20th century, some of which are still operational (for instance in Aarhus, Denmark). With their identical, branded bicycles and docking stations these systems appear similar to the contemporary city systems but differ in that they are essentially free.

At the other end of the continuum are the now numerically prevailing *automated stations* and *dockless bikes*. Both of these require payment through credit or debit systems, either at the docking stations or through a mobile app. Beyond payment, ICTs fulfil multiple functions: tracking bikes, providing information on bike/parking availability at stations, linking users to the nearest available dockless bike(s), disincentivising and disallowing the parking of dockless bikes in particular locations (financial penalties, geofencing). In political contexts of financial austerity paired with

[2] http://austinyellowbike.org/about/

devolvement of responsibility for sustainable transport to the city or metropolitan level, the economies of scale of these relatively large, homogenous systems, and the opportunities to partner with private organizations that fund much or all of the capital, are understandably attractive to politicians and planners. Not only do these systems offer seemingly irresistible value for money, they are widely assumed to increase demand for cycling and enhance public support for further investment in cycling infrastructure (Shaheen et al. 2010). The latter is particularly important in cities where investment in physical cycling infrastructure, such as separated cycle lanes, is contested and seen as politically risky. Our previous research has indicated that planners in Liverpool, UK have used their 'Citybike' scheme in a strategic manner to gain wide support for more comprehensive cycling infrastructure development (see author2, 2016). However, planners' and politicians' attitudes towards dockless schemes appear to be more diverse and ambivalent, particularly when local media and citizens complain about parking problems and vandalism (Dudley et al., 2019).

3. Exclusivity in Prevailing Bikeshare Systems

The profit-focused missions of private firms involved in bikeshare, together with government promises to taxpayers and banks that bikeshare loans will be paid down and self-sufficiency achieved quickly, lead to the prioritisation of a particular type of user who is scripted into the physical design and business model of the automated stations and dockless varieties. This user is capable of fast and regular payments and has a body that is average enough to facilitate the economies of scale achieved through mass production of homogenous design.

3.1 Payment Systems, Locations, and The Solvent Individual

For instance, a potential user needs access to finance to hire a bike, be it through a credit/debit card or through a smartphone app. However, in the UK 40% and 4% of the population do not have access to a credit or debit card, respectively, and the likelihood of holding a credit card is associated with full-time employment and wealth (UK Cards Association 2017). The costs to use these systems are not enormous to the average income earner but can be more challenging for those on smaller incomes, such as parents earning the UK National Living Wage who fall 11-20% short of the minimum disposable incomes for their respective family makeups (Davis et al. 2018; Hirsch 2018).

Similarly, the spatial distribution of the bicycles, particularly those docked in automated stations, may favour those areas where people have incomes, access to credit, and/or solvency. For London, Goodman and Cheshire (2014) demonstrated that the eastern extension of the automated system colloquially known as 'Boris Bikes' found more lower-income users (which may or may not have been students of otherwise higher-income backgrounds), but also that this very modest movement towards greater equity was curtailed by a price hike. This rise may have also impacted the gains in women riders found through the earlier allowance of casual use, versus just subscription, riders.

3.2. Bike Design and the Average Body

Affordability and distributional bias are not the only sources of potential exclusion that conventional automated stations and dockless bike sharing generates. Profit-oriented missions also manifest exclusionary materialities. Not only is there a

need for a credit/debit card and/or smartphone to access bikes, but the bicycles themselves are configured in a particular way that requires a rider of a certain size and strength, as well as possession of traffic knowledge and skill in balancing. Common across most bikeshare systems is the standard safety bicycle, and for automated station bikes the rationales of durability and theft protection tend to add bulk and weight to the bikes. Conversely, in dockless systems the rationale of low production costs (to minimize losses owed to theft/vandalism and reduce overhead costs for maintenance) renders a cycle that may feel flimsy and prone to breakage (Sherriff et al. 2018), particularly for larger riders. The homogeneity of bicycle design in docking and dockless sharing schemes suggests not only how the economy of scale trumps attunement to the differentiated needs and capabilities of diverse bodies, but also perhaps the tacit assumption that the safety bicycle is the evolutionarily superior terminus of progressive developments in cycle technologies (Cox and Van de Walle 2007).

4. Communal bike sharing and provision in London

The Boris Bikes may be the largest and most easily recognizable bikeshare scheme in London, but it is certainly not the only one. Here we discuss three different forms of community-led provision that not only challenge the homogeneity and exclusivity of the prevailing bikeshare systems but also demonstrate that enclosure of the common good through capitalist business models and design scripts that privilege certain bodies and individuals is not inevitable.

One organisation in our study provides a no-cost bike library to local children, youth and their parents in a peripheral low-income neighbourhood of Greater London.

The co-leader interviewed revealed detailed knowledge regarding their local context, particularly the low-income environment in which spaces to store bikes are limited by small, cramped accommodations, and cycles left out are susceptible to theft. As Boris Bikes do not operate in the area, the pool bikes provide an opportunity for people in the neighbourhood without the capacity to own a bike to use one for a few hours or days, temporal flexibility not seen with conventional bikeshare systems. The bikes on loan come in various sizes and some have baby seats attached. This demonstrates a deep attunement to the inherent heterogeneity and place specificity of cycling needs and ultimately confronts mobility inequality with respect to income, age, and some degree of body type.

The limited tuning of prevailing bike hire cycle design to differently-abled bodies is problematic. Two of the organisations we studied cater to people whose physical and mental capabilities differ from assumed norms. Their leaders responded to the common misconception that differently-abled people cannot cycle by arguing that many of them can, and cycling on streets with separation from automobiles reduces the feelings of interpersonal vulnerability normally felt on the pavement, improves fitness, and increases a sense of empowerment. The organisations each run a bike library with a fleet of specialized bikes scripted for differently-abled bodies and to be ridden during group cycling sessions, which are often held at neighbourhood sports centres, depending upon the physical and mental capabilities of targeted individuals. Many of those individuals require cycle technologies that are different from the omnipresent standard safety bicycle, such as three or four-wheeled bikes, hand-pedalled drives, and special seats (see also Andrews et al., 2018). For those needing accompaniment, in-line or ‘side-by-side’ tandems, and cargo trikes with platforms for wheelchairs, provide a

means to cycle (Figure 1). These cycles are often very expensive—as much as £7500 to purchase or £15-£20 per hour to rent—and thus otherwise unaffordable for the majority of differently-abled people. Non-market provision by making the heterogeneously scripted cycles available for free to end users is an integral part of how the organisations common cycling.

<Figure 1 here>

Finally, private and public organisations can deploy the term 'sharing' to conjure the 'warm and fuzzy' feelings associated with the term (Cockayne, 2016). However, some of the initiatives we explored question whether bike *sharing*, or in the case of prevailing schemes the "access economy" (Eckhardt and Bardhi 2015), is always the answer, particularly when imagined users have unique needs. For instance, a staff member of an organization in London that provides bikes and cycling training to refugees and asylum seekers argued that donating bicycles to displaced people who often own little, gives them a piece of property, cultivates a sense of solidarity and community and boosts their emotional wellbeing. They also suggested that beneficiaries of these bikes sometimes gift them back to the organisation or pass them on to other friends in need. If the focus is on refugees and asylum seekers, then donating bikes is far less complicated than sharing and likely a more frugal option with respect to space, opening hours, and/or expensive coordination and payment technologies. Bike ownership thus takes on new meanings in the context of displacement – meanings that arguably may not be found as easily through a bikeshare system. When beneficiaries do

sometimes pass the bikes on to friends in need, another form of bike ‘sharing’ may emerge.

5. Conclusion

If, as Gibson-Graham (2005) claims, to change understandings is to change the world, then we hope this Viewpoint helps to mobilise and proliferate modes of bikeshare that do not depend on market transactions and standardisation through scripting bikes and surrounding infrastructures for ‘normal’ bodies and individuals. One implication is that policymakers in often cash-strapped cities can and should facilitate and encourage the provision of heterogeneously scripted bikes and infrastructures for accessing those, if they are genuinely committed to ‘commoning’ cycling and the positive effects on individual and communal wellbeing this practice can provide.

Researchers can and should similarly change their practices to uncover “what is possible but obscured from view” (Gibson-Graham, 2005:xxxi). Rather than looking to hone an assumed evolution through the bikeshare spectrum with dockless bikes as the terminus so far, they can challenge linear models of evolution and place the now numerically dominant systems side-by-side with longer-lived and/or communal, needs-based approaches of bike provision, some of which may be longer-lived. This offers an effective tactic for questioning exclusionary infrastructures for everyday mobility in contemporary cities.

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Figure 1: An example of types of cycles built to fit a diverse range of bodies.



Ben Gold and Wheels for Wellbeing, 2018. Permission granted.

Table 1: Characteristics of bike sharing systems: categories listed reflect dimensions upon which social exclusion may be contingent.

	Cycle Type	**ICT Required**	**Cost**	**Payment Form**	**Temporal Constraints**	**Spatial Constraints**	**Mode of Provision**	**Examples**
Free Bikes	Sometimes Diverse	None	Free	n/a	None	None	Public/Formal or Community/Informal	Austin's Yellow Bike Project
Pool Bikes / Libraries	Sometimes Diverse	None	Usually Free	n/a	Days or Weeks	None	Community/Informal	Bicycle Innovation Lab (Copenhagen)
Bike Rentals	Sometimes Diverse	None	Fee for Duration	Cash or Credit	Days or Weeks	None Known	Private/Formal	The London Bicycle Tour Co.
Coin Deposit	Uniform	None	Deposit	Cash	None	None	Public/Formal or PPP/Formal	Aarhus City Bikes
Automated Stations	Uniform	GPS, Mobile	Fee for Duration	Credit Card	Cost of Duration	Distance/Time to Station	Public/Formal or PPP/Formal	Santander Cycles (London)
Dockless Bikes	Uniform	GPS, Mobile	Fee for Duration	Credit Card	Cost of Duration	Increasingly Geofenced	Private/Formal	Mobike (Meituanbike)