The Governance of Transitions in New Urban Mobility: The Case of Uber

Abstract

The governance of new urban mobility services highlights the need to understand better their impacts on existing political systems, and how they consequently can shift power balances. The capacity to govern innovation can not only vary significantly over space and time, the governance of innovation itself requires particular skills and techniques. For example, a recent concept that offers the potential for more effective integration of new urban mobility services, but also presents major challenges to governance, is that of Mobility as a Service (MaaS). The controversial ride-hailing app Uber is taken as a case study, in the context of socio-technical transitions, to examine the dynamics of how a distinctive niche developed powerful narratives to attain its primary objective of rapid growth. At the same time, the case of London illustrates the limits of these relatively enclosed narratives, and the paper concludes by analysing the potential for more inclusive narratives in the governance of an integrated MaaS system.

1. Innovation Governance

In recent years, a wide variety of new urban mobility services have been innovated or modernised through developments in information and communications technology (ICT). These include such types as peer-to-peer car sharing, car clubs, dockless bike hire, demand responsive transport, and ride-hailing apps. These innovations offer major consumer benefits, but also significant challenges not only in their technological and operational development, but also in evolving and modernising systems of regulation and governance to yield coherent policy direction and leadership. As Sheller argues, transitions in mobility might not come from established regimes such as policy networks and governing agencies, but instead emerge from new communications technologies that produce wider landscape-level culture shifts that rearrange key practices, networks and discourses that inform policy planning (Sheller, 2012, 199). The governance of these innovations therefore highlights the need to understand better their impacts on existing political systems, and how they consequently can shift power balances. As Schwanen observes, innovation has long remained a black box in transport and mobility studies, and that politics and power operate through and on space in innovation processes, whilst simultaneously being refracted and conditioned by space (Schwanen, 2016).

A complicating factor in governance processes is that many of the innovations in new urban mobility are introduced by private sector interests, and these are given political authority through holding financial resources, together with technological and commercial expertise, and also business leadership that includes the ability to define the terms of the policy debate. This can place governments and regulatory bodies in a reactive role. As Lovell, citing Smith (2003) comments, because governments tend to be deeply embedded within socio-economic systems, they face difficulties in bringing about radical changes, and policies are therefore typically aimed towards encouraging incremental or conservative innovations (Lovell, 2007, 37).

The governance of innovation can be problematic in terms of public authorities both absorbing new ideas, and proactively guiding and regulating their development.

Innovation itself can also take many forms. Schwanen describes how innovation can be a wide spectrum of heterogeneous elements that link together and reach out across space and time. These can include technical artefacts and infrastructure, cultural values and norms, standards, regulations and forms of knowledge as well as user practices (Schwanen, 2015, 7091). In turn, these heterogeneous phenomena must be shaped to produce impacts on urban mobility. Wakefield and Braun develop the concept of innovation governance by arguing that through each design, plan, or experiment is not just the same presupposition that cities are integrated and extended sociological networks – but also the same problem – how to *govern* this totality. Through what modes of arranging and ordering urban life might resilience be achieved? What is this life that is imagined, and how is it to be constructed? (Wakefield and Braun, 2014, 4, original emphasis). Nevertheless, the difficulties in understanding these processes are highlighted by Smith and Raven, who comment that ideas and conceptualisations of how path-breaking innovations escape their protective spaces and interact with wider regime change processes are still poorly developed (Smith and Raven, 2012, 1026).

However, one important insight in this context is that the dynamics of innovation governance may be heavily contingent on institutional time and place. For example, Schwanen describes how, in the case of bike sharing schemes in the UK, radical innovations are more likely to emerge and flourish in places offering 'institutional thickness' that includes a localised capacity to support innovation resulting from formal and informal institutions, such as grant schemes or knowledge brokers funded by local government, as well as space specific cultural norms, values, world views and networks (Schwanen, 2016). The implication of this insight is that the capacity (and perhaps need) to govern innovation can not only vary significantly over space and time, but also that the governance of innovation itself requires particular skills and techniques. For example, in areas where innovations in urban mobility require integration of services, this may necessitate both clear leadership by regulating bodies, but also a blurring of the distinctions between the public and private sectors. This may include power battles between private sector innovators who hold authority in terms of financial resources and distinctive expertise, and public sector bodies seeking to assert regulatory control and integrate innovators into wider transport and information networks.

2. Integration and the Governance of Mobility as a Service

A recent concept that offers the potential for more effective integration of new urban mobility systems, but also presents major challenges to governance, is that of Mobility as a Service (MaaS). The basic insight provided by MaaS is that, by integrating information and mobility and payment systems, the individual can be given a personal mobility package that is tailor made for their needs, and by implication reduces the need for personal vehicle ownership. As Kamargiani et al describe, the complexity of using a variety of transport modes discourages many people from taking advantage of them. As such, integrating different transport modes and providing seamless door-to-door mobility is one of the priorities of decision makers and transport authorities. Building on these shared modes and developments in ICT, Maas is one of the novel concepts that could assist in achieving seamless mobility. MaaS stands for buying mobility services based on consumer demand, instead of buying the means of mobility (Kamargiani et al, 2016, 3294-5). The

implementation of MaaS therefore places a premium on the development of appropriate systems of regulation and governance, which are able to bring about the high degree of integration of associated mobility services. Thus Kamargiani et al conclude that researchers and transport planners who deal with MaaS systems should pay attention on how to integrate different transport operators and provide their services as one product (Kamargiani et al, 2016, 3303).

The challenges to governance in the implementation of MaaS are highlighted by Exposito-Izquierdo et al, who argue that the success behind attaining smart transportation infrastructures and integrated services, together with the ability to generate true value for cities, and make improvements in the quality of life for citizens, depends on government agencies and companies involved in the field that collaborate efficiently. They believe that the exchange of information between the different actors should be given fluidity, and that this will be a key factor in the success of improving transportation infrastructure (Exposito-Izquierdo et al, 2017, 422-3). Yet these models of integration can be highly difficult to achieve politically. For example, regulators and operators can have a wide variety of contrasting interests, aims, and values, and not be amenable to sacrificing these for an apparent greater good. In this context, Spickerman et al envisage dominance by the private sector, and argue that the complexity of a future multi-modal transport chain can (and will) not be handled by general governments independently. Increasingly, they contend that the focus will be placed on private sector leadership to design efficient multi-modal mobility concepts that promise optimal operational success. In contrast, they envisage that the public sector will control regulatory actions, and will primarily moderate tasks and provide resources. Consequently, they conclude that the multi-modal mobility market will be controlled by corporations that provide and understand MaaS (Spickerman et al, 2014, 211-13).

A counter to this argument is provided by KPMG, who observe that local and regional transport authorities face increasing disruption and challenge from demand responsive private sector services, electric and autonomous vehicles, and integrated multi-modal journey planning and payment solutions (KPMG, 2017, 4). They conclude that the task is to hold private operators and authorities in tension with each other, establishing conditions in which the best outcomes for each player are achieved, while optimising the user experience (KPMG, 2017, 11).

However, these arguments again raise the question of how the implementation of integrated systems such as MaaS can achieve a power balance between the public and private sectors. KPMG propose that a variety of regulatory regimes can be developed, with a lighter touch in smaller urban areas with relatively simple systems of mobility, but that a stricter and more co-ordinated regime of regulation will be required in large urban areas with complex multi-modal systems (KPMG, 2017). At the same time, these regulatory distinctions in turn highlight the need for the necessary ‘institutional thickness’ in these large urban areas. In the development of integrated new systems of urban mobility, therefore, can a balance be achieved between the public and private sectors, and will regulatory authorities have the capacity to provide the necessary leadership to ensure not only the implementation of integrated systems such as MaaS, but also the achievement of wider policy goals?

A major emerging power that illustrates well the difficulties in integrating 'disruptive innovators' (Christensen, 1997) into established regulatory frameworks is the trans-national ride-hailing app Uber. The company has grown rapidly since its foundation in San Francisco in 2009, and by 2017 operates in over seventy countries, and has an estimated value of around $70 billion, making it the world's most valuable privately held technology company. Its operations are based on a deceptively simple use of modern technology, in which the initial bookings, the route to be taken, the calculation of fares and, finally, payment, are all made by means of a smart phone app. This technological base is combined with the economic concept of the 'sharing economy,' which aims to bring suppliers and consumers together by making use of spare capacity. The driver of a private car can therefore download the Uber app and be put in touch with customers who are using their own Uber smart phone app (Dudley et al, 2017).

The technology employed by Uber is far from unique, but what marks out the company is its relentless quest for worldwide expansion that has frequently placed it in major conflicts with regulators and incumbent operators. Uber has a business model that prides itself on its initiative and independence, and is the apparent antithesis to the development of integrated systems such as MaaS. In employing Uber as a case study, therefore, the chief aims of the article are to examine, firstly, how such a new system of urban mobility can apparently develop independently within existing regulatory regimes and networks, and secondly the implications for the implementation of integrated MaaS systems. The local case study is that of London, where Uber developed and grew rapidly from its inception in 2012, and took place largely unchecked by the regulator Transport for London (TfL). However, in 2017 TfL made a radical change when it revoked Uber's licence, arguing that it was not a fit and proper operator.

The following section will outline how the concept of socio-technical transitions can assist in analysing the dynamics of Uber's growth in London. This will be followed by an examination of how the construction of effective narratives can be influential in the dynamics of transition processes. After identifying the range of narratives adopted by Uber, the case study will examine how these were applied to the company's development in London. The concluding section will then analyse the implications of the case study for the implementation of MaaS systems, including the role of narratives.

3. Transitions and Niche Dynamics

The concept and analytical framework of socio-technical transitions can be of notable value in identifying and analysing the dynamics of how new systems of urban mobility may (or may not) absorb themselves into established governance regimes and networks. In this context, Geels describes how the multi-level perspective (MLP) understands transitions as arising from the interplay between multi-dimensional developments at three analytical levels: niches (the locus of radical innovations), socio-technical regimes (the locus of established practices and associated rules that enable and constrain incumbent actors in relation to existing systems), and an exogenous socio-technical landscape. The core logic is that niche-innovations build up internal momentum (through learning processes, price performance improvements, and support from powerful groups); changes at the landscape level create pressures on

the regime; and destabilization of the regime creates windows of opportunity for the diffusion of niche-innovations (Geeels, 2014, 23). At the heart of the framework, therefore, is the need to identify and trace how niches may find the means to break free from their original confines and become a core element of operational processes.

It might appear that the successful development of niches includes a corresponding undermining and restructuring of established regimes. As Geels observes, an important topic for future research is to better understand not just regime resistance, but also the destabilization and decline of existing regimes (Geels, 2014, 37). In analysing these types of transition processes, Geels also acknowledges that hitherto there has been a lack of explicit attention to the role of power and politics that underpins the development and implementation of specific policies (Geels, 2014, 23). As Genus and Coles argue with respect to the previous emphasis placed on technological factors in transitions research, adaptation to technological determinants has given rise to linear analysis in sympathy with ideas such as path dependency and technological trajectory, and under valuing the role of agency and politics (Genus and Coles, 2008, 1440). Given the emphasis on technological factors, Hodson and Marvin point out that transitions approaches have said little about cities, and what the multi-level perspective on systemic transitions can contribute to understanding *urban* social-technical transitions (Hodson and Marvin, 2010, 480, original emphasis).

A crucial missing link in the socio-technical transitions framework is therefore in identifying the dynamics whereby niches emerge from their original enclaves and are disseminated on a wide scale across space and time into cities. As Smith and Raven argue, it is unclear precisely how niches compete and transform incumbent regimes. They point out that empirical studies are highlighting the important (institutional and political) dynamics in the *empowering* of path-breaking innovations, without critical reflection on what empowerment entails (Smith and Raven, 2012, 1030, original emphasis). Smith and Raven supply a key insight when they state that some features of the niche space are institutionalised as new norms and routines in a transformed regime. Here, the niche is empowered by enabling it to change its selection environment, rather than be subordinated by it. They label this as stretch and transform empowerment, and define it as processes that re-structure mainstream selection environments in ways favourable to the niche. The process of stretching and transforming will not be entirely internal to the niche, but will rely upon other processes of change within the regime and in the broader society and economy (Smith and Raven, 2012, 1030).

By stretching and transforming, a niche can grow in an enclave that operationally and politically lies within the borders of a regime, yet will maintain a separate identity and carry out operating practices that shield it from being infiltrated and taken over by the existing regime. This enclave within a regime can be achieved in a number of ways, including new technologies, working practices, and distinctive norms and values. In sum, these enclaves can be identified as cognitive 'orders of comprehension.' As Dunsire explains, on any particular 'plane' one may expect to find a 'cognitive community' of people who talk the same language, understand the world in a mutually recognisable way, inhabit the same 'universe of discourse' and have heard of one another's concerns and interests. Conversely, if one moves to another 'plane,' one may find communication somewhat difficult (Dunsire, 1978, 158).

Niches are therefore aided in the process of stretch and transform empowerment by retaining an identity as a distinct cognitive 'order of comprehension.' Politically, this is important because the niche can be protected as it grows, provided it retains its separate identity, and does not suffer major internal disruptions. From the perspective of an established regime, the niche can prove to be an elusive target, unless it can find means to bridge and infiltrate the 'order of comprehension' and so assert its power. As Dewald and Bowen observe, managers of small incumbent firms show cognitive resilience when they form intentions based on their ability to notice, interpret, analyse and formulate responses to simultaneously high threat and high opportunity situations (Dewald and Bowen, 2010, 211).

By maintaining cognitive resilience, a niche can hold a significant degree of political empowerment. Avelino and Rotmans perceive the dynamics of this empowerment by describing how niches cluster outside the regime (although, as we have described, niches as 'orders of comprehension' can operate from enclaves within regimes) and form a so-called *niche-regime.* While this niche-regime becomes more powerful, the incumbent regime is weakening. Finally, this niche-regime 'attacks' and takes over the incumbent regime (Avelino and Rotmans, 2009, 545, original emphasis). It could be said, however, that while maintaining an identity as a separate 'order of comprehension' can be a political strength in terms of resisting invasion, it can also be a weakness in terms of invading established regimes. Thus Avelino and Rotmans themselves identify a type of power relations where A exercises a 'different' power than B, so that A exercises power in such a way that it disrupts or prevents power exercised by B, but this does not imply that A will necessarily overpower B (Avelino and Rotmans, 2009, 556). They conclude that because niches and regimes can exercise power in different ways, they can co-exist, each in their own 'territory,' with their own strengths and weaknesses (Avelino and Rotmans, 2009, 560).

The difficulty for systems of integration such as MaaS is that, by occupying separate 'orders of comprehension' niches and regimes find it difficult, or even impossible, to bridge the gaps that separate them. However, one important means in not only helping to shape separate identities, but also in bridging cognitive gaps, is that of narratives. As such, they can be key power resources.

4. Narratives as Power Resources

The construction of narratives can be a vital element in the development of niches as distinctive 'orders of comprehension.' As Smith and Raven describe, discursive processes underpin both the durability and change of institutions, and rest in actors strategically re-telling the past to make new sense of the present and envision alternative futures. In short, narratives are key political devices used by global actors to argue for niche-derived (yet contested) institutional reforms or claim present-day competitiveness within unchanged selection environments (Smith and Raven, 2012, 1032). An organisation such as Uber can therefore construct its own world where the norms and values may be ambiguous and idiosyncratic, but together form a picture of a singular and coherent system of mobility. As Bennett and Edelman argue, by means of narratives the contested issues in politics are quickly simplified and cast as mutually exclusive idealised terms. Consequently, the intimate tie between accounts of events whose meanings are ambiguous and the reinforcement of ideologies gives

narrative its psychological appeal and its central place in political communication (Bennett and Edelman, 1985, 158-9).

An effective narrative therefore offers a means to envision a future where the organisation can continually grow and prosper. In this context, Hodson and Marvin describe how visions, which are a central part of prospective transitions management approaches, offer the potential to both constitute and to present a shared understanding of territorial and regime interests. Thus the production of visions is an important participatory process used to engage, inspire, and mobilise a wide variety of different social actors, but involves negotiation and struggle (Hodson and Marvin, 2010, 482). However, the vision encapsulated in the narrative may offer a view of the world that is highly idiosyncratic and selective. As Throgmorton puts it, to tell a story is to lie, and that, in most planning-related cases, the facts matter far less than their interpretation (Throgmorton, 2003, 9). Nevertheless, the interpretation through narrative, when put into operational practice through organisational performance, can be a potent source of power. Throgmorton argues that stories cannot tell themselves, they must be transformed into narratives and then told. That act of construction is necessarily selective and purposeful, that is, necessarily political (Throgmorton, 2003, 9). Throgmorton also makes the important point that the construction of a vision requires a number of narratives, and that multiple stories are being told simultaneously, which means that planners act in a contextual web of relationships and partial, contestable truths (Throgmorton, 2003, 6-7).

The major strength of such niche derived, and enclosed, narratives is that they can develop independently of regimes, and be difficult to bring under regulatory control. At the same time, the weakness is that the transition they envisage can be related to their own emergence as a dominant regime, and pay little regard or attention to incumbent interests and regulatory regimes. In these circumstances, the narrative can be susceptible to the development of internal tensions and retaliatory reaction by established regimes.

As the niche grows, therefore, it must adapt itself to local circumstances. As Schwanen describes, policies do not move unscathed from A to B, but mutate when they are first de-territorialised through processes of abstraction – and then re-territorialised and made to fit historically emerged places elsewhere. The implication is that cities as well as innovations become ‘assemblages’ – continuously emergent yet history-dependent (re) aligning ‘bits-and-bobs’ that transcend and defy conventional binaries (global/local, mobile/fixed etc) and wider classifications (culture, economy, politics etc) (Schwanen, 2016).

Although cities might become ‘assemblages’ this does not mean that they cannot be defined by narratives. For the emergent niche, this may involve adapting its formerly enclosed narrative to take account of new realities. For regulatory regimes, it can also offer the opportunity to construct narratives of their own that redefine issues and assist in the construction of networks. In these circumstances, narratives can become important sources of power through their capacity to define the policy debate.

Goldstein et al outline these processes when they describe how cities can be understood as part of dynamic social-biological systems, rather than as bounded and stable entities. Consequently, communities can engage in collaborative construction

of shared narratives that bridge different ways of knowing and bind people together within a shared understanding of their social and natural world. They conclude that, change the story and you change the city (Goldstein et al, 2015, 1286-9). Nevertheless, as Wakefield and Braun point out, no city acts in isolation, and that perhaps more important than any one design, event, or plan, has been the pervasive imagining of cities as *integrated sociological networks,* intimately tied to global systems in a recursive process in which cities are understood as at once transformative agents and vulnerable subjects (Wakefield and Braun, 2014, 4, original emphasis). Throgmorton reinforces this point when he argues that local planning takes place in the context of a global-scale web of relationships (Throgmorton, 2013, 13).

The implementation of an integrated MaaS system can therefore be dependent on these global/local relationships in terms of disseminating a policy idea by means of narratives. However, as the presence of a niche as a separate 'order of comprehension' indicates, the vision of a transition held by a niche and by a regulatory regime can carry major differences, and be reflected in divisive power struggles. The consequence is that, although an operational interest may apparently become integrated into a type of MaaS system, there can be considerable uncertainty concerning the type of transition at work. For example, the niche as a separate 'order of comprehension' may apparently become integrated into wider planning and operational systems, but the ambiguity of its narratives can allow it to maintain control over the policy debate. For its part, a regulatory authority can construct inclusive narratives that allow it to maintain control over the system, but can also find itself outflanked by operational interests subtly able to leverage the system to their benefit.

The dynamics of these processes will inevitably be dependent on local circumstances, but it is important to emphasise that battles for power between operational interests, and also with regulators, will be an integral element in the implementation of Maas systems, and that narratives will act as important instruments in the contest to define the policy debate. In this context, the MaaS system itself is a valuable resource that can be a lucrative prize to control.

5. The Uber Narratives

The construction of narratives has been crucial in the development of Uber and in forming its business model. In this context, it is important to note that, although Uber has employed innovative technology, it is by no means unique in this respect. Consequently, Uber has been compelled to compete with a variety of regional companies employing similar technology, including Lyft in the United States, Grab in South East Asia, Gett in Israel, and Ola in India. In China, despite pouring billions of dollars into its venture there, in 2016 it was compelled to withdraw in the face of fierce competition from China's own Didi Chuxing (Dudley et al, 2017). The real distinctive element of Uber has been its relentless worldwide expansionary strategy, built on heavy investment of $16 billion. This has enabled Uber to subsidise fares, with the result being that it continues to make significant losses. The overriding aim is therefore to achieve eventual profitability through capturing a dominant market share that allows it to return a surplus. It could be said that this market dominance goes beyond taxi operations, and includes both the private car and other modes of public transport. For example, in their comparative survey of taxis, transit, and ridesourcing

(the category that includes Uber) services in San Francisco, Rayle et al found that, of the respondents who owned a car, 40 per cent said that they drove less as a result of using ridesourcing services that included Uber. Similarly, non-car owners were more inclined than car owners toward public transit, and they seemed to consider ridesourcing a replacement for transit as much as a replacement for taxis (Rayle et al, 2016, 174-5). They conclude that the survey provides evidence that ridesourcing both complements and competes with public transit, at least with respect to individual trips, and also that ridesourcing allows car owners to drive less. They argue therefore that, in particular, researchers and policy makers should pay more attention to ridesourcing impacts on transit use (Rayle et al, 2016, 177). From the perspective of regulators, it also indicates that the scope of Uber's ambitions go well beyond its own sector.

This expansionary business model is encapsulated in three complementary and intersecting narratives propounded by Uber's co-founder and former chief executive, Travis Kalanick. Until his resignation in June 2017, it was Kalanick who formed and drove the Uber business model, and so acted as a decisive business and policy entrepreneur (Kingdon, 1995, Dudley, 2013, Schwanen, 2016). The three central narratives are, firstly, 'it is easier to ask for forgiveness than permission.'; secondly, that Uber should 'provide transportation as reliable as running water, available everywhere to everyone'; and thirdly that Uber should promote the virtues of the 'sharing economy.' It is these narratives that, collectively, played a key role in Uber developing as a relatively enclosed 'order of comprehension.' In examining briefly each of these narratives in turn we can see both their strengths in giving Uber its distinctive identity, but also their weaknesses that over time threatened Uber's ability to act independently.

a. 'It is easier to ask for forgiveness than permission' – This narrative could be employed to drive both the quest for growth as a priority, and as a method to achieve it by means of 'invading' a large number of territories regardless of the financial cost or the local rules. The result is that Uber has been thrown into conflict with regulators and incumbent operators around the world, including in Europe major regulatory battles in France, Germany, Belgium, and Italy, while it has been banned in both Hungary and Denmark. In Asia, Uber has been banned in Taiwan and encountered regulatory conflicts in Hong Kong, while it has also been opposed in major United States cities, including New York, Chicago, and Portland. Uber has generally considered these conflicts a price worth paying for its continued growth, but over time the pressures in terms of legal costs and operational inconvenience can take its toll, and cause a shift in adapting to regulation.

b. 'Transportation as reliable as running water, available everywhere to everyone' – As we noted above, this narrative also drives Uber's relentless growth through offering a vision not only of Uber providing transport in its own sector, but in challenging both vehicle ownership and other public transport modes. It is this narrative which strikes particularly at the heart of MaaS systems, in that it places Uber as pursuing an independent strategy, with the ultimate aim of dominating urban mobility and the systems set up to supply it. There is also a significant ambiguity in the narrative in that it suggests at least a willingness to become part of integrated systems, but with the ultimate aim of leading them. This places it in a power battle with public sector regulators and designers of MaaS systems seeking to integrate operators such as Uber into their domain. At the same time, for Uber itself the act of

making itself available for integrated systems increases the possibility of adapting to local regulatory conditions.

c. 'The sharing economy' – This aims to bring suppliers and consumers together by making use of spare capacity (see Hamari et al, 2016). This means that, given that a motor vehicle is typically idle for over ninety per cent of the time (Harms, 2008), the driver of a private car can download the Uber app and be put in touch with customers who are using their own smart phone app. Uber claims that these drivers are not employees, but registered partners, who have the benefits of flexible working (Uber typically takes 25 per cent commission for each ride). However, this narrative also has internal vulnerabilities in terms of drivers campaigning for employee status with the attendant benefits, and this has occurred in a number of locations. It also runs the risk of over capacity, if no controls are placed on the numbers of drivers recruited.

Each of the narratives therefore has played a major role in the construction of the Uber business model as a distinct and relatively enclosed niche as an 'order of comprehension.' Nevertheless, each also contains elements that, over time, make Uber more vulnerable to impacts from established regimes and wider landscapes, as well as internal conflicts. These internal tensions were exacerbated in 2017 with a series of crises that undermined Uber's distinctive business model. These included claims of sexual harassment by former employees, an embarrassing recorded altercation between Travis Kalanick and an Uber driver over employment conditions, and a number of high profile resignations by senior members of staff. Significantly, the key entrepreneur Kalanick was replaced by Dara Khosrowshahi, who pledged to learn from the mistakes made by the company, and adopt a less confrontational approach.

In his study of Uber, Schneider argues that Uber is a disruptive innovator (Christensen, 1997) and an agent of creative destruction (Schumpeter 1942). This is because the disruptive innovation launched by Uber was to turn every underused capacity into a potential for-profit taxi. The creative destruction it entails – but does not fully unleash – is the end of regulated taxis and therefore the end of regulated taxi companies, or, the end of the regulated taxi market (Schneider, 2017, 83-4). Nevertheless, Schneider also concludes that regulators must be in dialogue with regulated industries, otherwise regulation will not be efficient. This assists companies with the most lobbying power, so that, despite the good intentions of regulators, the 'level playing field' becomes uneven. In this context, Schneider asks the basic question: How can regulators know more about the market than the market knows?' (Schneider, 2017, 92-109). However, Schneider also believes that Uber is generally in the process of adapting itself to regulatory regimes. Consequently, Uber will become less innovative, and so destroy some of its own capacity for creative destruction. This leaves Uber vulnerable to new innovative business models that will continue to appear. He concludes, therefore, that by destroying creative destruction, Uber risks being destroyed itself (Schneider, 2017, 121-6).

It could also be said, however, that as Uber adapts itself to regulatory regimes, it also increases its potential to influence those regimes. Thus although Uber may become less of a separate niche and 'order of comprehension,' its size and lobbying power can place it in a strategic position to construct (or reconstruct) narratives and to define the policy debate. This has important implications for vehicle ownership, incumbent

operators, regulatory regimes, and designers of MaaS systems. This can make the type of transition to new systems of urban mobility taking place both uncertain and difficult to define. By examining the case study of London, we can identify the dynamics of these processes at work as they affect a city that has, until recently, been one of Uber's strongholds.

6. Case Study and Methods

The case study of London was selected for the principal reason that Uber established itself in the city from a relatively early date (2012), and from the outset its standard UberX service was licensed by the regulator Transport for London (TfL). There has been therefore a sufficient period of time in which to assess the impact of Uber in a setting in which the company was able to develop extensively its business model, defined by its key narratives. There has also been time for the regulator and the incumbent operators to react to the presence of Uber, and for the dynamics of these processes to be evaluated.

The study identified and examined relevant official and group publications, together with key secondary sources, including all published material on Uber since 2012 for the *Financial Times*, *The Guardian*, and the practitioner journal *Local Transport Today*. Eleven interviews were conducted with major stakeholders. The interviews were semi-structured, not only to give interviewees the opportunity to expand on aspects which seemed important to them, but also to place their experience in a wider personal, institutional, and narrative context.

7. The Application of the Uber Narratives in London

In this section, we will examine each of the main Uber narratives in turn to analyse their dynamics in the context of a city where the regulator TfL was basically accepting of their presence for five years (2012-2017), but then made a decision to revoke their licence on the grounds that the company was not a fit and proper operator. In each case, after significant success it could be said that the narrative became undermined by either internal pressures, or by reaction from the incumbent regulatory and operational regime. In each case, therefore, narrative dynamics entailed a reduction in the degree to which Uber could perceive itself, or be perceived, as a distinct 'order of comprehension.'

a. 'It is easier to ask for forgiveness than permission'

As we noted above, although Uber acted as a disruptive innovator in London, until 2017 it was given official sanction by TfL. This enabled it to apply its expansionary strategy, so that by 2017 it was by far the largest taxi operator in London, with 40,000 drivers and 3.5 million customers who used the app at least once every 30 days. In itself, this rise made Uber a powerful political presence that neither the regulator nor competitors could ignore, and Uber was able to skilfully employ its character as a disruptive innovator to both accentuate its distinctive qualities, and place the regulator and incumbent operators on the back foot. As Hickman comments, governmental intervention may only have a limited impact on individual and societal behaviours, and effectiveness against long-term goals is dependent on the type of policy measures developed, the governmental framework and mechanisms employed, the level of

funding, and applications applied (Hickman, 2014, 249). Ben Bell, Uber public policy manager for the UK and Ireland, explains how the company exploited its position:

"TfL was caught on the hop by the speed of our rise and popularity. They may not have appreciated how much the seed of development operates through the power of technology."

(Interview, Ben Bell).

Uber's chief opposition came from the established and iconic black cabs. The black cabs belong to the plying for hire category, which allows them to be hailed from the street by customers, and also to pick up from cab ranks. In contrast, private hire vehicles, the category to which Uber belongs, must be pre-booked. From 2014, the black cab drivers staged successive mass demonstrations where they blocked the streets of London for several hours. The drivers were particularly critical of TfL, who they claimed had accepted passively the growth of Uber. In response to this criticism, Daniel Moylan, a former deputy chair of TfL (2008-12 and 2016) argues that the regulator was compelled to operate within its legal framework:

"TfL is a public authority, and it can only act within the statutory powers given it, so how TfL approached the job of regulating Uber was primarily driven by what are understood to be its legal powers and obligations."

(Interview, Daniel Moylan).

When TfL did take action against Uber, it illustrated how the latter occupied a distinctive technological and operational 'order of comprehension.' In 2015, in response to pressure from the black cab drivers, TfL brought a High Court case that claimed the Uber app contravened section eleven of the 1998 Private Hire Vehicles (London) Act. This stipulates that no private hire vehicle should be equipped with a taximeter, and that the Uber app constituted a taximeter. In terms of the Act, only a plying for hire cab is legally entitled to carry a taximeter, which gives a running price for the ride based on time and distance. However, the High Court ruled that the app was legal, and could not be classed as a taximeter.

In 2016, TfL again challenged the Uber technology when, amongst a number of proposals it sent out for consultation, it included a requirement that private hire vehicles would have to wait five minutes after a booking before picking up a customer. In this case, the black cab drivers claimed that the Uber app blurred the distinction between plying for hire and private hire, in that the ability of Uber cars to provide an almost instant response to customers placed it in the plying for hire category. Uber's response was to launch a public lobbying campaign against the proposal that included a petition, signed by 200,000 people. Ben Bell of Uber explains the importance of this popular support:

"I think there is nothing more important than having the public on your side. When TfL proposed to introduce a mandatory five minute wait for private hire vehicles, when a car might be two minutes away, was a consumer measure about raising regulatory barriers, when it should have been more about how we lower barriers to

enable competition…I think it's always compelling when a large petition is saying this is a bad idea and will make our lives worse."

(Interview, Ben Bell).

In the event, TfL dropped this proposal, so that once again the Uber technology consolidated the company's ability to operate as an innovative niche within an out manoeuvred regime unable to impose regulatory control over a politically astute 'order of comprehension.' However, in 2017 TfL made the decision to revoke Uber's licence, chiefly on the grounds of safety and security issues. This included failure to report serious criminal offences appropriately, and questioning how the company conducted background check on drivers.

The regulator also expressed doubts about Uber's 'Greyball' software. Earlier in 2017, Greyball had been revealed as a means whereby Uber could identify users who might be rivals or enforcement officials, and show them a fake version of its app whenever they tried to order a car, thereby frustrating any official action. Uber denied that it had ever employed Greyball in London, but the company's culture of single minded expansion made it vulnerable to the charges made by TfL. Uber's new chief executive, Dara Khosrowshahi, was now anxious to apply the 'forgiveness' element of the narrative, and apologised for mistakes made, and pledged to "make things right in this great city" (*Financial Times,* 03:10:17).

Uber was allowed to continue operating in London pending an appeal, and the company launched a petition that was signed by 800,000 people. However, the degree of opposition that Uber continues to face from the established regime is illustrated by Steve Wright, chair of the Licensed Private Hire Car Association, the body that represents operators that include Uber:

"We refused twice Uber applications for membership. We don't like cheating, lying, tax avoiding people. They undermine the industry with their sharp practices."

(Interview, Steve Wright).

b. 'Transportation as reliable as running water, available everywhere to everyone'

This narrative also builds on Uber's expansionary strategy, but in transport planning terms implies an ambition that goes beyond its own sector, with implications for other modes of transport and also the culture of vehicle ownership. In this context, Ben Foulser, head of transport and infrastructure technology at consultants KPMG (and author of the KPMG report: *Reimagine Places: Mobility as a Service),* claims that Uber has had a significant impact on bus demand in London:

"Uber has cannibalised the bus market in London. The result is a vicious circle, for the more private hire vehicles there are on the road, they increase congestion, which further reduces bus passenger numbers".

(Interview, Ben Foulser).

After many years of increasing demand, between 2015-16 and 2016-17 the number of bus passengers on TfL services reduced by 2.3 per cent (Department for Transport, 2017). Although there were no official statistics on the extent to which this decrease could be attributed to Uber and other private hire vehicles (road works and the construction of bicycle lanes were also blamed for the decrease), politically it was important that Uber was perceived to be a factor in the decline, as this contributed to the critique that the increase in private hire vehicles was contributing to congestion problems. In this context, the number of private hire vehicles increased from 50,000 in 2013-14, to 87,000 in 2016-17, while the number of private hire drivers increased from 65,000 to 117,000 in the same period.

James Farrar, an Uber driver in London who, as we will see below, brought a successful employment tribunal case against Uber, argues that over supply is an endemic element in the Uber business model:

"Uber enjoys the network effects of many drivers sitting around. In that way, they can guarantee an instant response. This means that, for every driver winning a job, three or four are also waiting to get that job. The drivers aren't paid for waiting, so have to be on hand to try and win the next job."

(Interview, James Farrar).

For his part, Ben Bell of Uber argues that its services do not undermine public transport:

"I think Uber services are being used to complement public transport, such as first-mile, last-mile connections to the underground and buses. We should not see Uber as competing with buses, but actually competing with private cars and the culture of car ownership."

(Interview, Ben Bell).

Nevertheless, the increase in the numbers of Uber and other private hire vehicles has led TfL to place pressure on central government, which holds the responsibility in this case, to be given the authority to cap numbers (London Mayor's Office, 2017, Proposal 73). There has also been pressure for private hire vehicles to lose their exemption from paying the central London congestion charge. The narrative has therefore been effective in fuelling the expansion of Uber vehicles, but appears to have limits in terms of political perceptions that the company is having adverse impacts on congestion and demand for other public transport modes.

c. 'The sharing economy'

The application of technology in the form of the Uber app allows almost anyone with the right assets, such as a motor vehicle, to make a hire service available outside of the formal taxi industry (Wallsten, 2015). Uber has therefore been able to apply the 'sharing economy' narrative to the extent that the word 'Uberisation' has entered the language as a shorthand expression for a disruptive mix of operational and working practices. Ben Bell of Uber summarises the perceived advantages of the Uber 'sharing economy' model:

"We are offering not just to traditional cab drivers, but to anyone who wants to earn extra income. It is very flexible, and people can work as many hours as they want, not just full-time, but also people who may be studying and setting up their own business…Our drivers are not employees, they are independent contractors, and for the large majority of them the reason they signed up is because of that total freedom and flexibility."

(Interview, Ben Bell).

A 2016 survey suggested that more than half of Uber's London drivers made money through other jobs, and that Uber was not the biggest source of pay for one in five drivers (*The Times,* 03:06:16). This type of multiple employment has become known as the 'gig economy' with increasing numbers of people less reliant on a single job and employer. However, although the 'gig economy' might open up new employment opportunities, there is increasing political concern about its consequences in terms of pay and conditions (Dudley et al, 2017).

The Uber 'sharing economy' narrative in London was severely undermined internally in 2016 when two of its drivers took their case to the Central London Employment Tribunal, claiming that they should be treated as employees of Uber and given associated benefits such as sicknes and holiday pay. The Tribunal ruled in favour of the drivers, and in its judgement stated that the notion that Uber in London was a mosaic of 30,000 small businesses, linked to a common 'platform' was, to their minds, faintly ridiculous. Uber appealed the decision in 2017, but the appeal tribunal found in favour of the drivers, although Uber is again appealing the decision.

One of the drivers who brought the case, James Farrar, perceives their success in terms of undermining the 'sharing economy and Uberisation' narrative:

"Not long ago, every business review had references to the 'Uberisation of this and that,' and their model was widely admired. It still is in some respects, in terms of being exempt from paying benefits to so-called contingent labour. If we had lost, then many other employers could choose to go down that road."

(Interview, James Farrar).

The internal undermining of the narrative illustrated that, although a niche can exist within a regime as a distinct 'order of comprehension,' it can be disrupted internally by those who refuse to accept the key narratives that define it.

8. The Construction of Inclusive MaaS Narratives

Each of the three main Uber narratives was undermined and destabilised politically in London over time, but nevertheless enabled Uber to achieve its goal of rapid expansion over a relatively short period of time. In contrast, TfL as regulator was placed generally in a reactive position, and had no equivalent coherent narratives that would have enabled it to act in a proactive way towards Uber, and so assert its authority. Overall, Uber and TfL occupied separate 'orders of comprehension' that enabled Uber to grow and assert its power politically by gathering public and legal

support. It was only when TfL made the major decision to revoke Uber's licence that Uber felt compelled to act in a more conciliatory way. Even here, this process was assisted by internal crises within Uber that saw the resignation of the narrative entrepreneur Kalanick, and an expressed willingness to change its culture as a disruptive innovator. Similarly, internal tensions within the Uber business model in terms of capacity and employment practices created opportunities to undermine Uber as an 'order of comprehension.'

Uber as a disruptive innovator is an acute illustration of the difficulties politically for MaaS systems in not only integrating interests within common information, ticketing and payment operations, but also allowing a regulator to hold authority over that system. At the same time, the undermining in London of the Uber narratives indicates that, as Schneider argues, there might be inherent limitations to the extent to which, over time, the disruptive innovator has the ability or will to retain that position. In the case of London, Uber itself appears to be recognising these limitations. For example, Ben Bell expresses the hope that Uber can build a more constructive relationship with TfL:

"We want to rebuild our relationship with TfL, but primarily want to continue to do what we think is the right thing for Londoners, our passengers, and drivers. I think historically, and arguably, Uber's posture and tone has maybe been a little bit too aggressive and forthright dealing with some regulators in some parts of the world. We want to prove to them we can be part of the solution on congestion and air quality, and be a positive contributor to London's transport network. We are confident we can get better at that over time."

(Interview, Ben Bell).

The construction by Uber of a new narrative as an urban transport problem solver could be interpreted as a conciliatory gesture, or as the company seeking to assert its power by fresh means. Significantly in this context, in the United States Uber has established partnerships with a range of municipalities to offer privately run services to replace former public transport operators. As part of these partnerships, local authorities offer discounts to citizens who use Uber. In taking on these partnerships, companies such as Uber can blur the distinctions between public and private sectors, while making themselves indispensable to local authorities and communities. If Uber develops these more inclusive narratives as an urban transport problem solver, then this offers scope for its integration into MaaS systems.

For its part, TfL operates a type of MaaS system in the form of its Oyster card, that integrates a range of public transport services including bus, underground, bicycle and car sharing (Kamargiani et al, 2016, 3296). In evidence to the London Assembly transport committee in October 2017, TfL director of transport innovation Michael Hurwitz expresses the aspiration for the regulator to widen the range of services within a Maas system:

"The really interesting question, which is both a policy one and a commercial one, is at what point and under what circumstances would you extend the range of services that could be included (within the Oyster card)? …To get access to the London Transport roundel, or the TfL brand, to provide that level of consumer trust that would

justify someone being part of that service, what would you demand of an additional service to be part of the overall family?…This is a really important lever that we have because essentially people want to be part of the integrated offer and that is a lever for us where we can exert some influence on the services as they evolve. That is one way we can control and shape the future market"

(Michael Hurwitz, evidence to London Assembly Transport Committee).

In seeking to assert its authority over a MaaS system, a regulator such as TfL would require a narrative that could both bring disruptive innovators such as Uber within its ambit, and also enable it to guide policy over time. Ben Foulser of KPMG believes that, within a Maas system, Uber would be compelled to accept the authority of TfL, and that the regulator could develop its methods of regulation:

"Uber might have 1000 trips at a particular period, but TfL would say you can only fulfil 500 of those in order to avoid congestion and over capacity. The regulator could be a lot more dynamic about what they allow."

(Interview, Ben Foulser)

However, Foulser goes on to argue that an overarching narrative of advancing the public good could provide the means to construct an inclusive Maas narrative:

"What we need to do is for everyone to focus on the same local objectives for transport. These include the promotion of active transport such as walking and cycling, reducing congestion, and improving pedestrian mobility. Get people to agree on these, and we take things up a level. MaaS isn't just about reducing car ownership, although this can be a factor. No one wants people to be unfit, everyone wants these higher objectives."

(Interview, Ben Foulser).

A narrative of improving the public good could be one means to construct an inclusive Maas system and provide an effective regulatory framework. Within this framework, an operator such as Uber could be better integrated with other modes, such as in providing first-mile, last-mile connections, while continuing to maintain its position as a convenient ride-hailing app. In this way, it could contribute to an overall policy aim of reducing car ownership through the promotion of an integrated Maas system. Power struggles would be likely to continue within the MaaS system, but by identifying common objectives a fundamental stability could be maintained.

As Schneider argues, it might be inevitable that Uber loses its status as a disruptive innovator over time, but this does not necessarily entail its destruction. By constructing fresh narratives that promote local policy objectives, it can have the potential to maintain, or even enhance, its operational and political power. At the same time, by constructing inclusive narratives that promote the public good, a regulator such as TfL can maintain a basic regulatory control.

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