Article

The Sustainability of Shared Mobility in London: The Dilemma for Governance

Nihan Akyelken [1],*, David Banister [2] and Moshe Givoni [3]

[1] Sustainable Urban Development Programme, Department for Continuing Education, University of Oxford, Oxford OX1 2JA, UK

[2] Transport Studies Unit, School of Geography and the Environment, University of Oxford, Oxford OX1 3QY, UK; david.banister@ouce.ox.ac.uk

[3] Transport Research Unit, Department of Geography and the Human Environment, Tel Aviv University, Tel Aviv 6997801, Israel; givonim@post.tau.ac.il

* Correspondence: nihan.akyelken@conted.ox.ac.uk; Tel.: +44-1865-286-949

Abstract: The role of governments in the regulation of potentially beneficial low carbon practices, such as car sharing, has proved difficult, as there are many different actors involved and as existing practices can be undermined. The mobility sector provides clear evidence of these dilemmas, as a wide range of users need to be engaged in the discourse over the innovations, and as existing governance structures may be unsuitable for addressing both the opportunities and limitations of innovation. This paper focuses on the sustainability implications of shared mobility and the need for new approaches to governance. A qualitative study of car sharing in London is used to examine the ideas, incentives, and institutions of the key actors involved in this sharing sector. The elements of change and continuity in the emerging sharing economy indicate the different possibilities for enhancing sustainable mobility. Any search for an alternative governance regime should take account of the ideational factors that would require an understanding of the different incentives needed to accommodate the full range of actors involved with the sharing economy.

Keywords: sharing economy; car sharing; urban mobility; governance; London

1. Introduction

The increased efficiency in the transport system in London has played a key role in reducing the environmental emissions per capita in the city [1]. One of the key drivers of the transport efficiency in London has been the stability in car ownership and use over the past ten years, and this has become known as the 'peak car argument' [2–4]. Yet, while car ownership is reducing, the alternatives to car use and car ownership are increasing (e.g., car sharing, bike sharing, and ride sharing services). Amongst these services, the market for car sharing (i.e., car clubs as defined in the UK) has become one of the largest in Europe since they were introduced into the London transport strategy in 2003. The local authorities consider car sharing as playing an enabling role in achieving the Mayor's target of reduction in car use and car ownership in London [5,6].

Car sharing services have been instrumental to the initial understanding of the sustainability implications of the sharing economy [7]. Most of the evidence on the impacts of car sharing services pertains to the role of car sharing practices on car ownership and use, together with their impacts on environmental emissions and congestion (e.g., [8–10]). Only very few studies have considered the overall impacts or the rebound effects [11]. The recent studies have focused more on the free-floating schemes, electrical vehicle sharing, and autonomous vehicles (e.g., [12,13]) in line with the changing policy interest towards autonomous vehicles. The lack of consideration of the actual observations over time, or focusing only on the early adopters, are the key limitations of these studies [11,13]. The local

policy contexts also seem to have a major role, as evidenced by the impacts of parking policy on the car sharing systems [14], and this outcome calls for a more holistic and integrated analysis of car sharing systems, and their links to policy environments.

However, the governance and policy aspects of car sharing have remained as a separate research topic. Studies have emphasised its interdependencies with the existing transport planning process [15,16]. Evidence from specific cases have revealed naturally-emerging governance regimes; for example, the 'Big-Brother governance model' shows how surveillance-based governance imposed by a car sharing operator can act a regulatory control mechanism [17]. It is also widely recognised that shared mobility involved a series of negotiations between private and public sectors [16], and the implications of this for the decision-making process are unclear [18]. Very recently, some scholars have demonstrated the need to investigate the implications of the 'imagined public' (i.e., how the public is perceived) in the eyes of providers and regulators of urban mobility, giving examples from the car sharing sector in the UK [19]. The evidence shows the significance of understanding the perceived futures for new practices (e.g., sharing), and for realising the sustainability potential of sharing schemes.

Given that the perceptions of the key actors have the potential to influence the users, the drivers, and the impacts of systems, we presume that the understanding of the sustainability implications and the governance aspects of shared mobility systems should not remain disconnected. We, therefore, investigate the prevailing perceptions and incentives of the key actors in relation to the existing institutions in London since 2013. The main question we are concerned with is how the key actors have perceived the emerging sector and challenges (such as the uptake of the practice), and how this addresses the broad sustainable urban transport agenda. In doing so, we shed light on the elements of continuity and changes in the business models and discourse, institutions, and policy. Revealing what is changing and what stays the same can also provide a solid base for understanding better the governance challenges and opportunities if shared-mobility practices are to bring sustainability benefits.

Drawing on the ideational analysis [20], which examines ideas (e.g., perceptions, worldviews, beliefs, etc.) in terms of their impacts on incentives and institutions and eventually how they inform policy changes, we assess the implications of the perceptions from 2013 for the policy discourse in 2017 in London. We discuss that while the normative ideal of a reduction of car ownership has been shared by the key actors in the urban mobility strategy, their cognitive ideas on the role of government, the nature of the market, and the potential users all result in different potential policy solutions. The future of car sharing (and shared urban mobility in general) and its sustainability implications depend on where the sharing systems are perceived to be in the urban transport agenda, which we argue is a transport governance matter.

A shared vehicle is mainly defined as a vehicle at a designated car parking space, which can be used on a temporary basis in return for a fee depending on the duration of use. Within this broad definition, there are two different business models, the back-to-base scheme, whereby the users return the vehicle to the pick-up point and the fully flexible scheme (i.e., free-floating scheme), which gives users the option of leaving the car anywhere (within the zone) without having to go back to the pick-up point. The focus of the empirical investigation in the paper is on the former. In the UK, car clubs are defined as formal car sharing schemes provided by a third party operator (for-profit or not-for-profit). Car sharing in this paper refers to the UK definition of car clubs unless stated otherwise. By analysing the interactions between the key actors in shared mobility in London in terms of perceptions, incentives, and institutions, we also address the calls for bringing theoretical tools to the analysis of the policy and governance context in which shared-mobility practices take place [18].

2. Theoretical Framework

The culture of private motorised transport has been usefully conceptualised through the theory of 'automobility' that examines the broader implications of attaching values and meanings to car

ownership and driving [21]. The discourses pertaining to personal cars and personal driving have resulted in certain pathways that have led to increased motorised transport. Alternatives to car ownership, including car sharing, have only started to gain attention recently and, therefore, the discourses, perceptions and paradigms around alternative mobilities need to be reviewed.

An exploratory investigation into the complex and dynamic web of unclear relationships between the public and private actors, as was observed in the car sharing sector, requires a loose and flexible approach that would reveal the perceptions and incentives of the key actors and the prevailing paradigms. Ideational analysis that explores the role of ideas in policy changes is particularly helpful in the face of uncertainty and in understanding the governance process that blurs the boundaries between public and private [20]. Rethinking the actors' incentives and the existing local institutions in terms of ideas provides a useful framing tool to shed light on the causalities in political processes, and a better understanding of the beliefs on which the actions are based [19,20].

The identification of interests, ideas, and institutions has long been used in studies on policy processes, divergence and changes (e.g., [22]). While it is possible to indicate ideas (perceptions and discourses, in general) by looking at the patterns of problem framing and policy narratives, interests (or incentives) can be analysed through evaluating individual actors' motivations and behaviour [23,24]. Blyth particularly mentions the relationship between ideas and interests by pointing out the misleading implications of conceiving the actors' interests as material interests, and suggests that they are generally a reflection of their own perceptions and their material interests [25]. Institutions can be identified as organising frameworks for generally accepted rules, which influence the behaviour of actors [22]. When combined with ideas, the institutions provide the structure through which policy ideas can be observed in terms of their emergence, evolution, and development [22,26]. Ideas in this context can be generally defined as (normative and cognitive) 'paradigms', indicated by theories, conceptual models, worldviews, frames, and principled beliefs [24,27]. Cognitive paradigms are taken-for-granted paradigms, such as gendered division of labour, which are descriptions that specify cause-effect relationship, while normative frameworks are defined as collectively-shared expectations, values, attitudes, and identities [20,27].

Framed within discursive institutionalism, the discursive localism approach proposed by Bradford brings ideas together with an understanding of the urban governance process, and it provides the means to frame the empirical findings of this research [20]. Bradford suggests that the differences between cognitive and normative paradigms in the policy discourse should be revealed in relation to the agents of change and governance structures [20]. The distinction between cognitive and normative paradigms, and how they reflect on the agents and governance regimes is particularly helpful in analysing different urban futures involving sharing. This theoretical approach enables us to shed light on the complex dynamics and tensions between the different objectives of the key actors.

In this paper, incentives are defined as what motivates the key actors, while perceptions indicate the actors' understanding of the processes and the uptake of the practices. Institutions refer to the local authorities and civil society organisations, but can generally be taken as the existing governance processes. The main theoretical tool that we use from the discursive institutionalism framework is the differentiation between the cognitive and normative perceptions (as ideas), and how they have materialised in the current policy and market discourse through incentives and institutions. At an operational level, this theoretical tool is particularly helpful in the analysis of the qualitative data, as will be discussed in the next section. The focus on the local actors helps elucidate the complexities of the governance processes at the urban level.

3. Methodology

3.1. Research Context

The governance system of London is significantly complex due to its decentralised decision-making process and the management and ownership structure of its roads. As the chief

institution responsible for transport strategy and planning in Greater London, Transport for London (TfL) has full authority for providing transport guidance, but it does not interfere with the land use decisions of the specific Boroughs. This lack of central governance in London creates complexities in transport policy-making, particularly for schemes where there is a high dependence on public parking space, as this is mainly controlled by the London Boroughs.

Considerable shifts have taken place in the UK transport policy over the past few decades. The underlying Anglo-American philosophy has resulted in a market-based approach being adopted through the deregulation of transport and the private operation of most services [28]. The role of the public sector has been limited to providing a broad regulatory framework, and intervening where the market is not effective (e.g., through subsidy and additional service provision). The recent policy agenda has recognised the need to manage demand instead of meeting demand [29,30]. Increasing road space will not resolve the transport capacity and congestion, as it is likely to lead to higher levels of demand [30,31]. One of the most effective policy options in London has, thus, become to reduce the need to travel and car use [30].

Although the relationship between travel demand and car ownership depends on a number of factors, such as the size of the city, demographics, transport costs, and the existence of alternative mobility options, there is significant evidence that car ownership has an intermediary role in the built environment and car use [32,33]. The role of behavioural measures (e.g., congestion charging) and physical interventions (e.g., zoning; parking) have, therefore, been emphasised in a series of policy packages to reduce the environmental impacts of urban mobility in London [29]. These transport demand management options, rooted in the new realist perspective, come in many different forms to address negative externalities. The London Congestion Charging scheme, in which vehicles in the charging zone are charged a daily fee at certain times on weekdays, is a crucial example [34].

Car sharing has long been recognised as part of the transport strategy in London. At the initial phase of the research, there were only four key market players in the car sharing industry in London. There are currently eight car clubs, with around 193,500 members, and several other ride-hailing and peer-to-peer car sharing services [4,35]. The annual surveys conducted by Carplus, which is a not-for profit environmental transport NGO, since 2008 tend to reveal positive results [35,36]. However, they should be approached cautiously given the limitations of the survey and the difficulties around the comparability of the results over years due to rapidly widening variety of products and mobility services in London.

During the same period, several initiatives have also taken as part of the cycling strategy in London. The launch of the London Cycle Hire (LCH) scheme in 2010 is one of the key initiatives. The scheme has gradually expanded to more than 270,000 members (as of September 2017) [37]. New bike sharing schemes (e.g., dock-less stations) have recently been introduced. Improvements to the cycling infrastructure has also been high on the agenda [38]. Meanwhile, there have been important improvements to public transport ticketing systems and mobile phone applications in London since the early 2000s, such as the launch of the contactless payments earlier in 2015 and the Oyster card, which was launched in 2003.

3.2. Methods of Data Collection and Analysis

The empirical investigation in this paper draws on a larger project that looked at the potential of car sharing in London in 2012–2015. The results of the investigation were extended to analyse the current policy direction pertaining to car sharing practices in London. The methods of data collection included a policy document review, five semi-structured interviews with the operators and local policy actors in London, and a focus group discussion of eight people of mixed gender, age, occupation, and income background in North London. The first set of interviews and the focus group discussion were conducted in 2013. The documents reviewed include: Transport for London Road Task Force Report (2013) and the Progress Report (2015); Car Club Coalition Action Strategy (2015); Carplus annual survey documents (2016; 2017) and the Mayor's Transport Strategies (2010; 2017). The

key focus of this review was to understand the portrayal of car ownership and car sharing by the local authorities and civil society organisations. In addition to these documents, the recent reports published by the MaaS Lab [4] and the Institute of Public Policy Research [39] on the potential of MaaS, which "stands for buying mobility services as packages based on consumers' needs instead of buying the means of transport" [40] p. 3295), and the future of transport in London, respectively, were also useful to draw conclusions about the current picture on shared mobility in London. The documents published from 2015 onwards were particularly helpful in analysing how some of the perceptions from 2013 to 2015 have actually materialised over the intervening period and the impact on the current policy discourse.

The interviews were conducted with the Heads of Locations and Business Strategy from a commercial car sharing operator in London, three senior managers in the Transport for London in the areas of car- and bike-sharing, and a senior manager at Carplus. The interviews were repeated between September 2013 and February 2015. In the second round of interviews, we shared some of the policy recommendations that emerged from the quantitative analysis in the project [41]. For the purposes of this paper, this helped elucidate how the interviewees perceive some of the specific policies, such as the use of car sharing by businesses, congestion charging, and parking, as well as the expected impacts of car sharing systems.

The focus group discussion (with a duration of 1.5–2 h) was held in November 2013 and included a mixed group of mixed genders, ages, ethnicities and socioeconomic backgrounds. The criterion for selection also included different levels of driving (abilities). None of the members held memberships of a car sharing company in London at the time of the research. Only one focus group was conducted as part of this study, as the primary motivation was to explore different perceptions of sharing mobility without any explicit reference to geographical diversity in London. The selected London Borough in the North of London had high levels of car ownership and an emerging number of car sharing bays and docking stations for bike sharing at the time of the research. Potential users' insights were used to understand the public's perception and expectation from the schemes.

A thematic qualitative data analysis of the interview and focus group was followed to identify the main themes in relation to the perceptions of the key actors. The ideational approach described in the previous section was employed in the analysis part of the empirical investigation in two ways. First, it helped classify different elements of the behaviour and decisions of the key actors. This analysis focused on what the key actors perceive this emerging sharing practice to be (i.e., perceptions) given the existing institutions, and this context helped scope out alternative strategies. In this respect, one should note that the present discussion does not presume that the interviewees represent the shared view of the local authorities or the private operators. However, combined with the document review, their perceptions were useful to understand how public good, markets, and the government's role in provision of mobility are portrayed in the general public and private realm to a great extent.

Second, the discursive approach encourages flexibility in terms of defining new practices, and this was helpful in the focus group discussion. The framing of the analysis is structured around the interrelationships between three groups: users, providers (i.e., private operators) and regulators. The differences between normative and cognitive elements of the ideas were helpful in understanding the pathways that the key actors drew in terms of their perceptions of the current market situation and future policy discourses. What they think should be (i.e., normative) and what they think can be (cognitive) becomes an important distinction to make given the peculiar characteristics of the emerging sharing practices in terms of public and private ownership.

There are three key limitations of this research design. First of all, the interviewees selected may not necessarily reflect the shared strategy of the key actors. Second, both the policy discourse and the market are very dynamic (i.e., the developments concerning the urban sharing schemes occur rapidly). Finally, the sample could have been larger to reflect the diversity of the views on the shared mobility in London. The document review has addressed some of these limitations by complementing the themes that emerged from the interviews. The views of the participants were particularly mobilised to

highlight the synergies and conflicts from different institutions rather than generalising the participants' views to represent their respective institutions. Moreover, the key contributions of the paper are to offer a novel perspective that can be mobilised in future studies to address the uncertainty element of the sharing sector and provide an overview of the key paradigms, perceptions, incentives, and institutions of the last five years. The implications of the limitations are, therefore, lessened given the focus of the present study.

4. Emerging Themes

4.1. Reduction of Car Ownership as the Normative Frame

It is possible to suggest that the historical shifts in the transport policy in London reveal the responsiveness of the local transport provision to sustainability goals in an innovative way. The policy agenda has consistently identified the negative impacts of car ownership as a key transport policy issue and ambitious policy targets have been set with stringent policy measures to address the negative impacts of motorised transport [6,42]. The residents of London are already provided with alternative mobility options and innovations, and face strong restriction policies (i.e., congestion charging, parking limitations, and high parking costs). The car-sharing sector has gained significant popularity and support since 2000. The foremost evidence for the existence of a supportive network for the sector is the launch of the Car Club Coalition (CCC) in September 2014, which consists of the Greater London Authority (GLA), the London Councils, the TfL and the key stakeholders. The Coalition has the common understanding that the car-sharing sector could address several sustainability challenges, including air pollution by encouraging the use of cleaner vehicles and the wider use of sustainable means of transport on London roads [5,43]. All parties involved in the CCC have acknowledged the challenges that the sector is facing in the areas of governance, delivery, and awareness. These challenges include the decentralised decision-making process in London that results in a series of negotiations that operators have to make with individual Boroughs; the availability of sufficient parking space; the lack of local authority capacity for effectively managing the schemes; and the lack of incentives, awareness, and visibility, particularly amongst the businesses [5].

At first sight, the key private and regulatory actors (i.e., private operators, such as Zipcar London, and the GLA/TfL and the London Councils, respectively) seem to share the same ideal of reducing car ownership, and they all recognise the key challenges, as well as being willing to negotiate these challenges and support each other, as evidenced in the initiatives, such as the launch of the CCC. From the interviews, too, both sides consider parking space and uptake of car sharing as important factors that determine the use and service provision in the car sharing sector. The wide recognition of the key challenges and the consensus on the potential benefits of the practice amongst the local authority and the operators did not necessarily result in a policy that directly benefited the car sharing sector (such as exemptions from the congestion charge), as the operators would want. From the interviews and the document review, two potential conflicts or disassociations emerge reflecting the cognitive constraints on the range of policy solutions that the key actors can think of. The first one concerns the target user groups and the other relates to how the car sharing market and the role of government in this market is perceived.

4.2. Perceptions of the Potential Users

One of the most repeated phrases in the interviews with the operators and the local authorities (i.e., the regulator) is "young professionals". To the operator, people aged 25–35 without children working in the city who could afford a car "*but don't want the hassle of owning a car*" were the key consumer market [44]. This is confirmed with the findings of a recent Carplus Annual Survey: as of 2016, young professionals in their 20s and 30s renting in inner London boroughs, known as "metropolitan high-flyers", comprise the largest user segment in London [36]. Operators may make their long-term strategic objectives based on the current patterns of use. In fact, the market players aim

to attract young individuals to adopt the habit of car sharing, as one of the operators stated that they had started their services in cities with high levels of student density: "*Once they get used to car sharing service . . . when they move to London with their well-paid jobs, they may continue to use our services instead of buying a car.*" says the Head of Business of a private formal car sharing operator in London. The habit of using car sharing may not necessarily reflect the ultimate aim of sustainable urban transport policy that prioritises active travel and public transport, as it has the potential of resulting in an unintended consequence of introducing young people to the practice of driving.

The TfL planner interviewed in 2013, however, highlights the same user segment from an ownership perspective: " . . . *generally people under 30 are much less concerned with car ownership.*" and using this reasoning, they point to other potential users, such as the empty nesters (an "empty nester" is defined as a couple, whose children have left home [45]) in central and outer London, who tend to own cars: "*In the past, old couples whose children left home used to move to suburbs. Now, they tend to prefer to stay in cities.*" It may therefore be possible to decrease the level of car ownership amongst elderly couples, as they do not need to own cars in London as much as they do in the suburbs. The geographical dimension also appears in the planner's perspective, as the roads in outer London are easy for cars as parking spaces are available. However, there is more potential of uptake of car sharing in dense urban areas from the operators' perspective. Overall, it could be argued that, in contrast with the private operators, the local authorities including TfL and the local councils are keen to see the wider potential. In other words, TfL sees the potential of car sharing systems being complementary to public transport. While this does not necessarily contradict the incentives of the private operators, TfL planners' idea of exploring new user groups, particularly in outer London, may not be profitable for the private operators as the availability of parking spaces makes it harder to give up car ownership.

The discussion with the potential users also reveals the segmented nature of the emerging market. The focus group discussion reveals that people's driving styles and family upbringing constrains the transport modes available to the users. The non-driving middle-aged man with a family of four says, "*I never drove, and I don't have a car. The main reason is will. My parents didn't drive. So I did not face the expectation to learn to drive.*" One of the middle-aged driving women with a daughter aged 17 is excited for her daughter to learn to drive. A young woman who cannot drive points to financial reasons for not driving, but then long commuting time by public transport is forcing her to reconsider that necessity of learning to drive. A high-income middle-aged man with a household of five requires a second large car to carry stuff around, as his existing car cannot handle this. The retired man's concerns over whether when raising the issue of walkability (i.e., to the car sharing bay) and the carpenter's need of a van to carry stuff around reveal imaginations based on the actual needs rather than trying to understand what car sharing could actually provide [44,46]. All these examples highlight the importance of generational and socioeconomic contexts, as well as pointing to particular periods in the life course. It also points to the specifics of individual requirements and how the market is made up of many particular sets of circumstances. It is possible to argue that this contrasts with the view of the private operators that see car sharing users as 'rational consumers' that aim to their minimize economic costs [19,44].

4.3. Perceptions of the Market and the Government's Role

The second cognitive constraint concerns the nature of the car sharing market and the role of government. The car sharing market has peculiar characteristics: it is in the hands of the private sector with strong dependence on the local authorities [44]. "*To run a car sharing scheme, you need an operator and you need a city . . . It is about public-private partnership and working together,*" says a senior manager at the Carplus. The discussion with the senior managers at the TfL shows that the car sharing sector is recognised as a purely private sector initiative. Any exemptions or intervention in the market to prioritise them is accepted as being at odds with a market-based transport system. One of the managers at the TfL emphasises that their role is limited to providing guidance and increasing the visibility of car sharing schemes, and that they can only intervene when there is a market failure. The counter argument to this comes in terms of financial ownership of the public transport systems.

This is already criticised through the London Cycle Hire example: although the scheme was initiated by TfL, the scheme is owned by a Canadian firm with sponsorship from a Spanish company and operated by a UK private sector company. This raises questions over private involvement in public transport and what counts as public transport.

Furthermore, this new market entails several elements of continuation of the existing business model (i.e., selling cars and renting cars for a longer period of time), which may cause incompatibilities that are akin to conventional use and ownership of car. In fact, a senior manager at the TfL defines the sector, as " . . . *a natural expansion of the existing model does not promise a change of ownership*." This was particularly strengthened by the observation of the market dynamics already in the first couple of years of the sector: the key players in the car manufacturing and rental industry are dominating the sector either by extending their services to car sharing or acquiring the small start-up companies in the sector [44].

In addition, the role of government 'as a regulator' being expanded into government 'as a promoter and a user' has appeared in the operators' perceptions. According to the operator, the visibility of car sharing schemes in London is a central issue, and this is confirmed by the lack of understanding of how car sharing actually works in practice (from the focus group discussion). To the operators, the public businesses might play a key role in increasing the uptake of these practices. This could be in the form of using the local councils' parking space for car sharing operators or local councils starting to use these services themselves. In the context of parking and creating demand in outer London, political leadership seems to play a key role as the culture of car ownership is also embedded within political ideologies. From practical perspective, local councils in outer London can turn their parking spaces into shared-only parking spaces, which has the potential to increase uptake of car sharing as opposed to car ownership. It is, therefore, possible to claim from the operators' perception that local government, as an important actor (i.e., institution) in the sector, can contribute to the uptake of car sharing practices in different ways.

Finally, the most important change in terms of market dynamics is the reorienting of the focus of the key players in the mobility market. The longevity of the vision of car manufacturers determines how the current market dynamics are being shaped. A senior manager at the TfL interviewed in 2013 particularly emphasise the need for a long-term vision for the car sharing sector: "*[For the first time the] car industry is now trying to understand how people are using their vehicles . . . something they never had to deal [with] before and they are finding it really difficult.*" It is believed that the buy-and-sell manufacturing model is soon to disappear, as can be observed in the large car manufacturers that are beginning to promote themselves as mobility providers. Accordingly, the efforts on understanding consumer behaviour have been replaced by an increasing emphasis on travel behaviour [44]. This, in turn, renders the perceptions of the key actors even more critical. Equally important was the observation that manufacturers see the idea of car sharing as something that is in addition to their usual markets.

Overall, it is possible to map out the perceptions of the key actors in terms of users, the nature of the market, and the role of government in this specific market. We now discuss how and whether these perceptions have materialised in the current policy and market situation in London, and what it implies for the future of mobility sharing in relation to sustainability.

5. Discussion and Implications

5.1. Implications of the Perceptions on the Current Market and Policy Discourse

Through the case of car sharing in London, this paper provided an overview of the perceptions of the key actors regarding the uptake of car sharing schemes. The ideational pathways (i.e., perceptions) that we observed between September 2013 and July 2015 can be linked with the current market dynamics and policy direction. Specifically, the perceptions seem to drive the current policy and market situation in terms of the agency of change, market developments, and integrating the discourse.

The links between the findings and implications, and how these are derived from perceptions, are explained below.

Car club coalition as the agency of change: Given the centrality of the demand-side policies in the financial viability of the schemes (e.g., congestion charge being a significant item on the operators' budget), the government seems to be the obvious actor of change in the eyes of the private operators. Although the recognition of the dependency of the market on the local authorities did not result in the direct policy changes (such as the exemptions from the congestion charge), support has taken the form of forming a coalition that has provided more visibility for the sector. The normative ideal of providing car sharing as an alternative to private car ownership was most evident in the CCC Action Strategy. Moreover, the recognition of car sharing as a demand management tool in the pre-2015 policy discourse has expanded into the sector being seen as an opportunity area [6], and specific attention has been focused on allocation of car sharing bays in new housing developments [47].

This seems to be in line with the trend observed in that the local authorities have struggled to find their position in the car sharing sector, where they perceive the potential benefits in terms of contributing to low-carbon mobility in London. The operators' argument for exemptions from the congestion charges and reduced parking fees would both require changes in perception over the ownership of car sharing services, which, in turn, raises questions of what counts as public transport. Different reflections of ownership and operation of the schemes may be an issue when it comes to the legitimacy of the practice. To regulators, the crucial matter is what car sharing schemes are replacing (i.e., they should not be replacing public transport and non-motorised transport). Overall, while the change of agency has not necessarily been the government and regulatory changes, much change has occurred to support the sector in a variety ways, particularly through forming coalitions. These developments indeed reflect the shared normative ideal of reducing car ownership, as well as the cognitive ideas relating to the nature of the car sharing market and public transport that constrain the options available for the local authorities.

Expansion and diversification of the market: The major changes and developments have largely taken place in the market. Since 2013, the market has significantly expanded in terms of the number of providers (i.e., operators) and the range of products has become particularly wide. The existing players have started providing one-way floating schemes and electrical-vehicle-only schemes. New players have entered the market offering peer-to-peer car sharing schemes. The concept of the MaaS has entered into the policy discourse, as evidenced in the new Mayor's Transport Strategy [6]. In line with this trend, the concept of 'mobility as a bundle' (i.e., integration mobility options into a package) has also become evident in the discourse [39]. Specifically, the perceptions of the synergies between different mobility options, including bike sharing and car sharing, as explained above, seem to have materialised in the Carplus re-identifying itself as the CarplusBikeplus. Although the potential of the sharing systems being part of public transport has been mentioned several times in the past years, this view seems to have been followed by the provision of different mobility services as a bundle, and this is part of the new diversified hybrid market.

Integrated discourse: Related to the market developments, the discourse around the shared mobility seems to be converging in terms of two particular aspects. First, the focus on whether the emerging sharing schemes are replacing or complementing the public transport is now evident in the current policy and market discourse [4,36]. The notion of 'shared mobility' has become more mainstream. Moreover, the emphasis on the early adopters and the potential exclusions that the local authorities refer to has been picked up in the operators' discourse. For example, Carplus has started having a separate section that shows how 'inclusive' the schemes are by referring to the slightly more diverse range of the customers [35]. Yet, this needs to be interpreted carefully. Although the domination by the highly-paid young professionals has lessened slightly, new advantageous user groups are emerging, such as 'uptown elite' (i.e., prosperous households living in inner London) [35]. Moreover, the multiplicity of individual requirements also concerns other social dimensions, such as gender. Both bike sharing and car sharing sectors are defined to be primarily male dominated and

appeal to high-income groups. The former is probably due to male dominant nature of driving and cycling. It has also been pointed out that early adopters are usually well educated to understand the complexity of car sharing. Action and strategies based on the cognitive paradigms, such as the beliefs on how people drive, and gendered and socioeconomic practices of everyday mobilities, might result in unwanted outcomes. There is likely to be even more segmentation of the market facilitated by innovation and ICT. This requires corporations to be more responsive to consumer-defined demand. The operators' and advocates' use of terms, such as inclusion, should be scrutinised.

5.2. Conceptual and Policy Implications

We started with the premise that ideas around mobility sharing matter to a great extent, and different interpretations of the practices could reformulate the practice itself in specific city contexts. Unpacking the relationships between the public and private actors, we pointed out that particular attention should be paid to the perceived role of governments and governance needs in a new environment of innovations. We showed that the definition of public transport becomes distorted to the extent that new urban mobility services not only blur the role of regulator in transport policy but also makes the concept of car use vague. In terms of the market dynamics, we emphasised the elements of continuity, such as the dominance of the car sharing market by the key players in the automotive industry and the focus on creating a critical mass to increase the uptake of the scheme. We also pointed to the major change in private sector thinking, as there is a clear imperative to understand travel behaviour that unites the incentives of the operators and authorities.

We argued that governance challenges of the sharing economy in the mobility sector defines the fate of sustainability in the car sharing sector, as the changes in the institutions and perceptions of the key actors seems to define positioning of car sharing in relation to urban transport systems and vis a vis private car ownership and use. Conceptually, the paper contributes to the analytical toolkit of investigating sharing economy in mobility [18] by demonstrating the role of perceptions, incentives, and institutions in understanding these emerging practices. It also contributes to urban policy studies that call for deeper investigation of ideas and perceptions in affecting local policies [20], as it has focused on changing the discourses on the policy and industry agenda from a political economy perspective. Depending on the pathways of ideas, incentives, and institutions, there could either be significant potential, or just a continuation of the current regimes. The future of shared mobility is, therefore, not only a matter of collaboration between institutions, but of having a clear vision about what constitutes the most efficient and sustainable transport mix for a city that best serves its people. This extends the current literature that demonstrated the role of political support on the success of the schemes (e.g., [48]) by pointing to the importance of the synergies and conflicts between the key actors' perceptions and, eventually, the shared vision of a sustainable transport strategy.

The policy implications of the paper are three-fold. First, it shows that policy analysis should incorporate the elements of governance for any investigation that looks at the sustainability implications of car sharing. The evidence on the specific environmental impacts of the schemes should be put in a wider governance context to identify the role of car sharing in relation to public transport. The increasing recognition of the provision of mobility services as a bundle (i.e., MaaS) has the potential to integrate the discourse. However, it seems that the future very much depends on how the key actors will behave. Implied is the need for close communication between the local authorities, civil society organisations, and the private sector to ensure that the sustainability benefits are realised. Second, the public business users are likely to act as the promoters of the practice, as they have the potential to increase the visibility of car sharing schemes in London. However, given the increasing diversity of the market, it may not be possible for them to endorse one provider over another. It, therefore, requires careful consideration. Finally, and related to the second point, the definition of public transport should be made explicit by the local authorities so that the boundaries of what counts as public transport are clear and acceptable to all.

Finally, the market is very dynamic, but the institutional settings seem remarkably stable, which seems to pose problems for governing car sharing. Even though the market has changed since the data was collected for this study, and that the attention nowadays is given more to ride-sharing and other platforms, such as the MaaS, the regulator, in general, and in London, in particular, has not formed a clear vision or a strategy to benefit from the opportunities of sharing in the mobility sector. In the absence of such a vision or strategy the risk is higher that the emerging, de facto governance of sharing will likely result in either having no impact or (environmental and social) costs. Any future attempt on the topic should acknowledge the current trend that the future of car sharing is largely the responsibility of the "regulator" to shape.

Author Contributions: All three authors took part in the SPREE project that this paper draws on. Nihan Akyelken led the mobility sector research, conducted the fieldwork in London and wrote the majority of the paper with contributions and revisions from the co-authors. David Banister contributed to the framing of the paper through several discussions with Nihan Akyelken. Moshe Givoni led the policy packaging part of the project.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Greater London Authority. *Cleaner Air for London: Progress Report on the Delivery of the Mayor's Air Quality Strategy*; Greater London Authority: London, UK, 2015.
2. Metz, D. Peak Car in the Big City: Reducing London's Transport Greenhouse Gas Emissions. *Case Stud. Transp. Policy* **2015**, *3*, 367–371. [CrossRef]
3. Goodwin, P.; Dender, K. 'Peak Car'—Themes and Issues. *Transp. Rev.* **2013**, *33*, 243–254. [CrossRef]
4. Kamargianni, M.; Matyas, M.; Li, W.; Muscat, J. *Londoners' Attitudes towards Car-Ownership and Mobility-as-a-Service: Impact Assessment and Opportunities That Lie Ahead*; MaaSLab, UCL Energy Institute Report; MaaSLab, UCL Energy Institute: London, UK, 2018.
5. Car Club Coalition. *A Car Club Strategy for London Growing Car Clubs to Support London's Transport Future*; Car Club Coalition: London, UK, 2015.
6. Transport for London. *Mayor's Transport Strategy 2017 Draft for Public Consultation*; Transport for London: London, UK, 2017.
7. Frenken, K. Sustainability Perspectives on the Sharing Economy. *Environ. Innov. Soc. Transit.* **2017**, *23*, 1–2. [CrossRef]
8. Cervero, R.; Golub, A.; Nee, B. San Francisco City CarShare: Longer-Term Travel-Demand and Car Ownership Impacts. *Transp. Res. Rec.* **2007**, *1992*, 70–80. [CrossRef]
9. Shaheen, S.A.; Cohen, A.P. Carsharing and Personal Vehicle Services: Worldwide Market Developments and Emerging Trends. *Int. J. Sustain. Transp.* **2013**, *7*, 5–34. [CrossRef]
10. Nijland, H.; van Meerkerk, J. Mobility and Environmental Impacts of Car Sharing in The Netherlands. *Environ. Innov. Soc. Transit.* **2017**, *23*, 84–91. [CrossRef]
11. Chen, T.D.; Kockelman, K.M. Carsharing's Life-Cycle Impacts on Energy Use and Greenhouse Gas Emissions. *Transp. Res. Part D Transp. Environ.* **2016**, *47*, 276–284. [CrossRef]
12. Chen, T.D.; Kockelman, K.M.; Hanna, J.P. Operations of a Shared, Autonomous, Electric Vehicle Fleet: Implications of Vehicle & Charging Infrastructure Decisions. *Transp. Res. Part A Policy Pract.* **2016**, *94*, 243–254.
13. Le Vine, S.; Polak, J. The Impact of Free-Floating Carsharing on Car Ownership: Early-Stage Findings from London. *Transp. Policy* **2017**, in press. [CrossRef]
14. Balac, M.; Ciari, F.; Axhausen, K.W. Modeling the Impact of Parking Price Policy on Free-Floating Carsharing: Case Study for Zurich, Switzerland. *Transp. Res. Part C Emerg. Technol.* **2017**, *77*, 207–225. [CrossRef]

15. Kent, J.L.; Dowling, R. 'Over 1000 Cars and No Garage': How Urban Planning Supports Car(Park) Sharing. *Urban Policy Res.* **2016**, *34*, 256–268. [CrossRef]

16. Dowling, R.; Kent, J. Practice and Public–private Partnerships in Sustainable Transport Governance: The Case of Car Sharing in Sydney, Australia. *Transp. Policy* **2015**, *40*, 58–64. [CrossRef]

17. Bardhi, F.; Eckhardt, G.M. Access Based Consumption: The Case of Car Sharing. *J. Consum. Res.* **2012**, *39*, 881–898. [CrossRef]

18. Le Vine, S.; Polak, J. Introduction to Special Issue: New Directions in Shared-Mobility Research. *Transportation* **2015**, *42*, 407–411. [CrossRef]

19. Bergman, N.; Schwanen, T.; Sovacool, B.K. Imagined People, Behaviour and Future Mobility: Insights from Visions of Electric Vehicles and Car Clubs in the United Kingdom. *Transp. Policy* **2017**, *59*, 165–173. [CrossRef]

20. Bradford, N. Ideas and Collaborative Governance: A Discursive Localism Approach. *Urban Aff. Rev.* **2016**, *52*, 659–684. [CrossRef]

21. Urry, J. The 'System' of Automobility. *Theory Cult. Soc.* **2004**, *21*, 25–39. [CrossRef]

22. Kern, F. Ideas, Institutions, and Interests: Explaining Policy Divergence in Fostering 'System Innovations' towards Sustainability. *Environ. Plan. C Gov. Policy* **2011**, *29*, 1116–1134. [CrossRef]

23. Shanahan, E.A.; Jones, M.D.; Mcbeth, M.K. Policy Narratives and Policy Processes. *Policy Stud. J.* **2011**, *39*, 535–561. [CrossRef]

24. Campbell, J.L. Institutional Analysis and the Role of Ideas in Political Economy. *Theory Soc.* **1998**, *27*, 377–409. [CrossRef]

25. Hay, C. Ideas, Interests and Institutions in the Comparative Political Economy of Great Transformations. *Rev. Int. Political Econ.* **2004**, *11*, 204–226. [CrossRef]

26. Schmidt, V.A. Discursive Institutionalism: The Explanatory Power of Ideas and Discourse. *Annu. Rev. Political Sci.* **2008**, *11*, 303–326. [CrossRef]

27. Campbell, J.L. Ideas, Politics, and Public Policy. *Annu. Rev. Sociol.* **2002**, *28*, 21–38. [CrossRef]

28. Glaister, S. UK Transport Policy 1997–2001. *Oxf. Rev. Econ. Policy* **2002**, *18*, 154–186. [CrossRef]

29. Hickman, R.; Banister, D. *Transport, Climate Change and the City*; Routledge: Abingdon, UK, 2014.

30. Docherty, I.; Shaw, J. The Transformation of Transport Policy in Great Britain? *'New Realism' and New Labour's Decade of Displacement Activity. Environ. Plan. A* **2011**, *43*, 224–251.

31. Stead, D. Effectiveness and Acceptability of Urban Transport Policies in Europe. *Int. J. Sustain. Transp.* **2008**, *2*, 3–18. [CrossRef]

32. Giuliano, G.; Dargay, J. Car Ownership, Travel and Land Use: A Comparison of the US and Great Britain. *Transp. Res. Part A Policy Pract.* **2006**, *40*, 106–124. [CrossRef]

33. Van Acker, V.; Witlox, F. Car Ownership as a Mediating Variable in Car Travel Behaviour Research Using a Structural Equation Modelling Approach to Identify Its Dual Relationship. *J. Transp. Geogr.* **2010**, *18*, 65–74. [CrossRef]

34. Banister, D. Critical Pragmatism and Congestion Charging in London. *Int. Soc. Sci. J.* **2003**, *55*, 249–264. [CrossRef]

35. Steer Davies Gleave. *Carplus Annual Survey of Car Clubs 2016–17*; Steer Davies Gleave: London, UK, 2017.

36. Steer Davies Gleave. *Carplus Annual Survey of Car Clubs London 2015–16*; Steer Davies Gleave: London, UK, 2016.

37. Transport for London. *Santander Cycles Transparency*; Transport for London: London, UK, 2017.

38. Greater London Authority. *Call for Evidence: Cycling Infrastructure*; Greater London Authority: London, UK, 2017.

39. Institute for Public Policy Research. *Crossroads: Choosing a Future for London's Transport in the Digital Age*; Institute for Public Policy Research: London, UK, 2017.

40. Kamargianni, M.; Li, W.; Matyas, M.; Schäfer, A. A Critical Review of New Mobility Services for Urban Transport. *Transp. Res. Procedia* **2016**, *14*, 3294–3303. [CrossRef]

41. Akyelken, N.; Anderton, K.; Plepys, A.; Mont, O.; Salo, M.; Judl, J.; Koskela, S.; Bergman, B.; Givoni, M.; Feitelson, E. *Servicizing Policy Packages for the Mobility Sector*; SPREE Project: Oxford, UK, 2015.

42. Transport for London. *Mayor's Transport Strategy*; Transport for London: London, UK, 2010.

43. Transport for London. *Road Task Force Progress Report 2015*; Transport for London: London, UK, 2015.

44. Akyelken, N.; Anderton, K.; Plepys, A.; Mont, O.; Kaufman, D.; Givoni, M.; Feitelson, E. *Mobility Sector Report*; SPREE (Servicizing Policy for Resource Efficient Economy) Project: Oxford, UK, 2014.

45. Financial Times. Definition of Empty Nester. Available online: http://lexicon.ft.com/Term?term=empty-nesters (accessed on 22 January 2018).

46. Akyelken, N.; Anderton, K. *Mobility Sector in the UK*; SPREE (Servicizing Policy for Resource Efficient Economy) Project: Oxford, UK, 2015.

47. Carplusbikeplus. *Car Clubs in New Developments: Review of Experience and Good Pratice in Low Carbon and Car Free Developments*; Carplusbikeplus: Bristol, UK, 2016.

48. Schwanen, T. The Bumpy Road toward Low-Energy Urban Mobility: Case Studies from Two UK Cities. *Sustainability (Switzerland)* **2015**, *7*, 7086–7111. [CrossRef]