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University College London
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MOBILITY GOVERNANCE

understanding the institutional structures required to promote and effectively manage shared mobility services in Santiago de Chile

by

M. Florencia Cinalli

London, United Kingdom, 2019

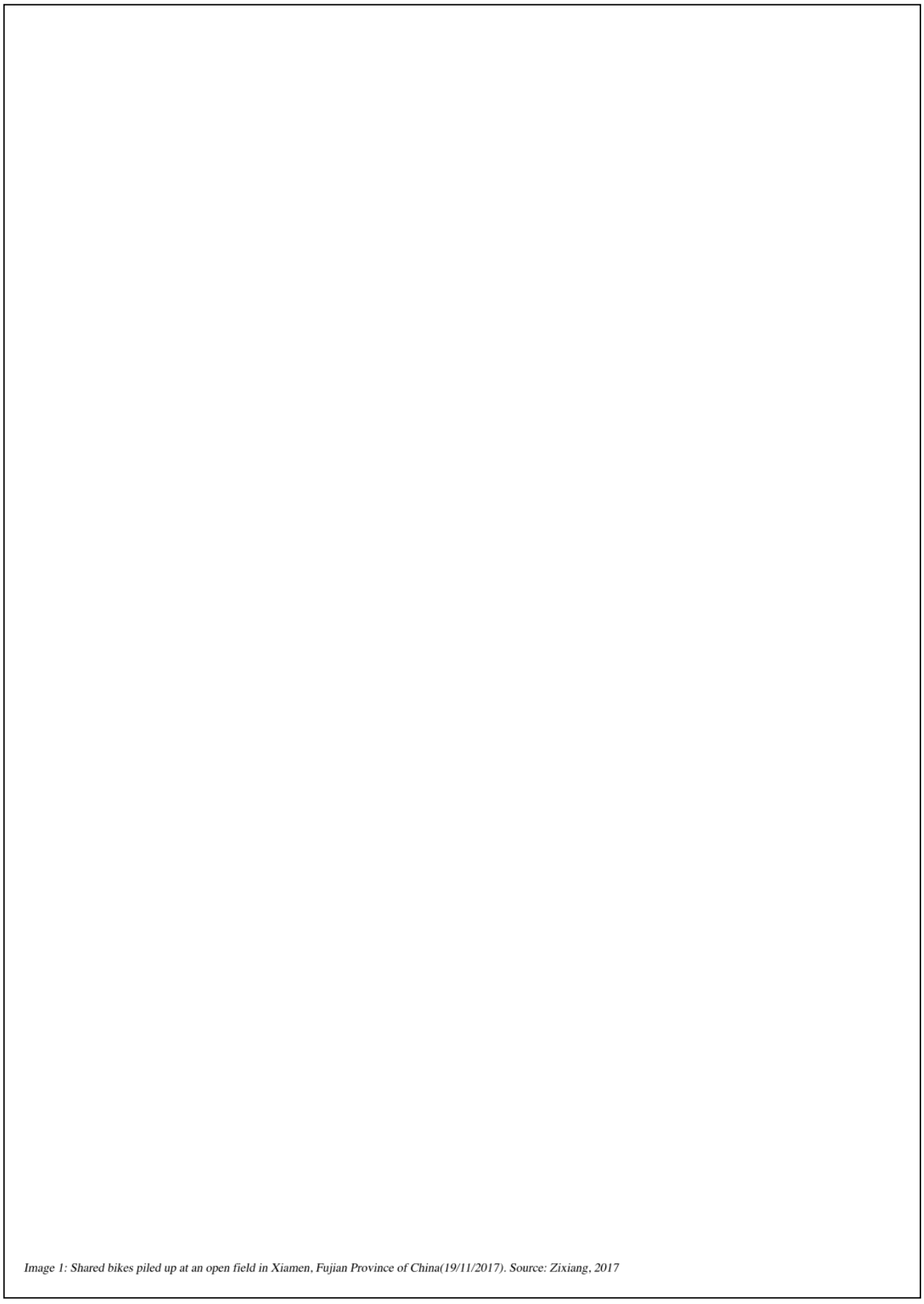

Image 1: Shared bikes piled up at an open field in Xiamen, Fujian Province of China(19/11/2017). Source: Zixiang, 2017

University College London
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MOBILITY GOVERNANCE:

UNDERSTANDING THE INSTITUTIONAL STRUCTURES REQUIRED TO PROMOTE AND EFFECTIVELY MANAGE SHARED MOBILITY SERVICES IN SANTIAGO DE CHILE

by

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Being a dissertation submitted to the faculty of The Built Environment as part of the requirements for the award of the MSc in Transport and City Planning at University College London: I declare that this dissertation is entirely my own work and that ideas, data and images, as well as direct quotations, drawn from elsewhere are identified and referenced.

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Besides, I take this opportunity to thank the people who voluntarily agreed to participate in this research, sharing their time, experience and knowledge. It has been an honour to speak with them.

To the stars and energies available for me during this year.

To the stones on the way. I graduate with enormous learning.

Thank you and lots of love.

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ABSTRACT

In a context of environmental crisis and unseen pace and scale of development changes, new technologies, such as shared mobility platforms, are emerging as potential solutions to current urban challenges. These innovative trends are revolutionising not only the way people move around and understand the whole concept of mobility but also the way mobility is planned and governed. These changes, often framed as socio-technical transitions, are complex and raise questions about struggles against existing regimes, externalities (both positive and negative) and how they should be managed. Therefore, the success of a transition from private car ownership to shared mobility systems will depend not only on design and engineering aspects but also on adequate governance structures that promote and manage the transition.

Through the qualitative analysis of the institutional structures of Santiago de Chile's governance and mobility issues, this dissertation highlights the reforms, strategies and measures required to facilitate a successful transition into new socio-technical systems such as the shared use of transport means. Based on the evidence, the current political fragmentation and lack of a metropolitan authority have proven to limit shared mobility effective and fair development in the city. Therefore, it is argued in favour of the need for a new model of governance to address the 'silo' mentality and (current and future) mobility challenges. A holistic vision must be implemented when planning mobility for cities like Santiago and for this to happen successfully, the coordination of multiple groups of interest (national/regional/local government, the private sector, academia and civil society) is fundamental. The reform of current institutional structures plays a central role in ensuring the sustainable development of Santiago de Chile's mobility system.

1. INTRODUCTION

1.1 Topic and motivation

Over the past decade, there has been a significant urbanisation growth, especially in emerging economies and developing countries (Rode et al., 2014). This unexpected phenomenon has created a series of urban challenges that threaten the health and well-being of citizens. Air pollution (Duh et al., 2008), rising travel demand (Rahman et al., 2012), traffic congestion (Adarkwa and Poku-boansi, 2011) and accessibility to economic and educational opportunities (Cobbinah et al., 2015) are among the main concerns and they are directly related to mobility management. The aforementioned have placed an enormous burden on policy-makers to reform their mobility systems and find ways to make urban settlements more liveable and inclusive.

Urban mobility challenges, such as ending car-dependency regimes or effectively introducing alternative modes of transportation, cannot be resolved without the united efforts from all key stakeholders who have the power to influence mobility development. Building a sustainable city is a challenge that requires 'good' governance. In this research, 'good' governance will be considered as the rules and forms that allow the successful collaboration between stakeholders to consolidate efforts and support actions in favour of common priorities (Peters, 1998; Graham et al., 2003; UNDP, 2014).

Moreover, the initiative towards finding cleaner, safer, faster and cheaper ways of travelling is lead by the private sector and consumers themselves (Docherty et al., 2018). As there is no guarantee that new trends will result in beneficial alternatives, governments have a responsibility to ensure that these are aligned with societal needs and to guide transitions in a way that social, economic and environmental objectives are fulfilled and not threatened. Shared mobility is an example of this; it is a system that offers optimistic visions for the future of mobility. However, if it is not well managed and regulated, it could lead to further aggravation of urban emergencies and even become a potential threat to citizens' most sensitive personal information (Li et al., 2018).

Governance is a fundamental part of the introduction and development of mobility systems that support the sustainable growth of cities. In Santiago de Chile, urban mobility represents the need for cooperation between the public and private sectors. Considering that the planning and operation of the city's transport network is a government responsibility (national, regional, local), a large part of its mobility issues are related to fragmented governance (Valenzuela and Toledo, 2017) and the outdated and rigid regulation (LyD, 2018). In this dissertation, the study of Santiago de Chile's governance structures is used to understand what is required to promote and manage new socio-technical systems (Geels, 2011) as shared mobility.

1.2 Research aims and objectives

This dissertation is structured to examine the political dimension of mobility to understand how institutional structures hinder or facilitate the transition into innovative mobility systems. Drawing on the study of Santiago de Chile, a bridge between the concepts of governance and mobility is created to determine which are the required structures to tackle urban challenges related to car ownership through the promotion and management of alternatives such as shared mobility systems.

Research aim:

To understand the required reforms in Santiago de Chiles's mobility governance to promote and manage shared mobility.

The following set of research objectives have been proposed to facilitate the achievement of this aim.

Research objectives:

1- To understand the political structures that govern mobility in Santiago de Chile.

2- To determine the main strengths and weaknesses of Santiago's mobility governance, which hinder or facilitate the transition to innovative mobility systems such as 'shared mobility'.

3- To examine the emerging shared mobility systems in Santiago.

4- To determine which reforms are required in Santiago's mobility governance, which could allow for a successful transition to a shared mobility system, ensuring sustainable development and public value.

5- To outline suggestions for future research and recommendations for the different political-administrative spaces, on which are the fundamental structures necessary in mobility governance to facilitate the development of a sustainable mobility system for Santiago de Chile and other cities with similar challenges.

1.3 Dissertation structure

This dissertation is organised as follows. Section 2 expands on the literature on mobility governance and the emergence of shared mobility as a global trend. It also critically analyses Santiago de Chile's current mobility system under the framework of Multi-level Perspective (Geels, 2010). Section 3 presents the methodology employed for this research. Section 4 exposes and analyse the main findings of the qualitative research. In section 5, findings are examined against the context of a broader literature on 'good' governance and its fundamental role in socio-technical transitions. Finally, section 6 concludes and highlights specific implications for future research and the various stakeholders responsible for the promotion and management of urban mobility.

2. LITERATURE REVIEW

'Imagine no possessions
I wonder if you can..'
(Lennon and Ono, 1971)

2.1 Introduction: The sharing revolution

In an era of rapid urbanisation, climate crisis, technological facilities, demanding consumers, a new trend has emerged. This trend is transforming the way products and services consumed on a daily basis are designed, delivered and consumed. The dominant economic model that promoted the consumption of disposable goods and governed over the last 150 years is coming to an end (Tzuo, 2019). Several reasons can explain this phenomenon. The fall of the global economy which decreased disposable income, the promotion of circular economies and the concepts of 'recycle, reduce and reuse' in response to environmental needs, the lack of space in urban settlements and a change in values which push society to pursue experiences rather than physical possessions are some of them (Colao, 2012; Stephenson, 2016).

Regardless of the reasons why the new trend has emerged, it has provided consumers with the option to benefit from services through a digital subscription without owning the physical good. Some examples of this are the digital platform AirBnB which allows consumers to share the use of accommodation, Spotify which provides access to unlimited music, firms such as WeWork that cleared the need to own an office, and Urban Outfitters who in May 2019 launched their new subscription-based clothing line available for rent. Similarly, focusing on the transport industry, shared mobility companies such as Uber, Lime and Mobike enable the temporary use of various types of transport devices for city commuting. As outlined, this is an increasingly global and intergenerational change in which more and more industries are participating (Gross, 2014).

Lennon's dream about life with 'no possessions', which 40 years ago was considered utopian, is now becoming a reality and not only influences markets and consumer behaviour but also creates new opportunities and challenges for city life. Policymakers and regulators have a crucial role to play in safeguarding the quality of life in urban settlements and pioneering change to avoid or control any adverse outcomes of new trends (Shaw et al., 2008). Given the sheer pace in which service providers operate and how consumers access goods or services, for example, mobility, the initial phase of a trend is a critical moment for authorities to pose questions (Docherty et al., 2018). It is not only about what kind of mobility systems can ensure the sustainable development of local and global communities but also, and this is the focus of this research, on what institutional structures are required to promote and manage the successful transition to new systems.

2.2 'Good' mobility governance

Ownership is on the decline, and 'usership' (Nieuwenhuijsen, 2015) is on the rise, even in the mobility sector. This phenomenon has presented new challenges and tensions between the various actors involved in the planning, delivery and use of mobility. In other words, challenges for the governance of mobility. Mobility governance is a concept that transcends the traditional government approach to decision-making processes. It refers to the relational framework that leads, controls and influences the processes involved while designing, building, promoting and managing policies, plans and projects related to a city's mobility system (Pierre and Peters, 2000; Bache and Flinders, 2004; Legacy et al., 2012; Marsden et al., 2014). It highlights the growing relevance of non-governmental actors, such as the private sector, academia and civil society, in the design and execution of mobility policies (Mayntz, 2003). Recent examples of non-state influences in the governance of Santiago de Chile's mobility system include urban social

movements, such as that against the construction of the Costanera Norte highway across residential areas (Sagaris and Landon, 2017), the activities of NGO's, such as La Coalición por un Transporte Justo, Ciudad Accesible, Defendamos la Ciudad or Bicivilizate, and the role of the private sector introducing new shared mobility platforms such as Scoot, Mobike, Awto or Uber.

During the last decades, the ideas of deregulation, market-oriented policies and neo-liberalism have altered the State's traditional position as the single governing institution (Bevir, 2008). Numerous scholars have analysed the evolving role of the State. Following the works of Pollit and Bouckaert (2004), the State went from being an administrator of the public services it provided, to a coordinator which outsourced public services. In Santiago's mobility sector, this is demonstrated through the transfer of power from the elected authorities to unelected transnational corporations and organisations who provide infrastructure and services for transportation (Purcell, 2002). However, in the context of the emergence of new regimes such as shared mobility, as Bryson et al. (2014) explain, the State's role is evolving into one in which its main duty is to guarantee that the provision of services and the services themselves are consistent with the collectively agreed planning objectives. As Rauschmayer et al. (2015) indicate, this is fundamental as the consequence of a lack of a 'supervisor' or 'leader' of governance could lead to transitions failing to deliver the promised improvements for society and the environment. To paraphrase Millard (2015), even if the government was to start sharing the decision-making process with a network of stakeholders, it remains in the position of authority to fulfil specific roles. The State still has to take primary responsibility when things go wrong; it must be accountable for services and their performance, it must correct market failures, manage the distribution of power and opportunities, regulate, and resolve conflicts of interest between different parties. In the administration of modern societies, multiple actors, competing but also cooperating, shape mobility development (Weyer et al., 2015). Nonetheless, elected officials continue to play a critical role in that development.

Understanding that the issue of the movement of people from point A to point B is no longer a question of engineering or financing, but of an administrative and political nature (Davila and Brand, 2012), what should be considered as 'good' mobility governance? The current challenge for mobility governance is to successfully respond to the dynamic changes that shape the sector, such as the emergence of new technologies while being consistent with sustainable development objectives, both local and global (International Transport Forum, 2017). If agreements such as those of the United Nations Sustainable Development Goals and the Paris Climate Agreement are to be respected and complied with, mobility systems and their governance must undergo significant changes. While it is not advisable to provide a fixed definition of 'good' mobility governance, the following are some of the principles recognised in much of the available literature. In the context of this research, 'good' mobility governance is characterised by inclusive, effective and efficient, transparent and legal processes related to the governance of mobility that guarantee sustainable development and the delivery of public value in cities (Graham et al., 2003; Tschoerner, 2016, Marsden and Reardon, 2017). Finally, the difference between governance and government does not reside in outputs, but in processes, the processes which guide decision-making. Therefore, the approach to understanding the required institutional structures to promote and manage transitions from, for example, a private automotive regime to a shared mobility one, must consider (1) the evolving role of the State, (2) the changes in society behaviours and norms, and (3) the new relational frameworks between the State and the various mobility stakeholders that influence

communicable diseases, together with the increased congestion and journey time within urban areas, cars are no longer satisfying society's needs and lifestyles and have become a much less desirable form of transport. Additionally, according to experts, in order to ensure the sustainable future of cities, the use of private vehicles must be discouraged and multimodal urban mobility promoted (Mohan and Tiwari, 1999; Lopez-Lambas et al., 2010; Pojani and Stead, 2015, Hickman, 2019).

Furthermore, technological advances (smartphones, GPS, 4g/5g networks, artificial intelligence, dynamic routing, docking stations, electro-mobility) have enabled a wider range of mobility options, accurate and real-time data for decision-making processes and greater responsiveness to the changing needs of society (Wockatz and Schartau, 2015). The preference for alternatives to private car ownership and usage is increasing. This includes active mobility such as walking and cycling, micro-mobility (the use of sub 500kg transport devices) (Bruce and Dediu, 2018), public transport, the use of zero-emission vehicles and shared mobility systems. These modes of transport do not only complement one another, but by taking advantage of new technological trends and the possibilities of digitalisation, the interfaces between them have improved, shifting patterns towards sustainability and flexibility.

The effects of user behaviour changes and the implementation of digital platforms with the spread use of smartphones are essential for understanding the processes of development and preference for shared mobility systems. Shared mobility is a transport strategy that allows the shared use of transport devices, temporarily, as needed, and in return for a fee (Shaheen et al., 2015). Shared mobility covers the use of public and private transport vehicles that can be rented under digital platforms, such as bicycles, scooters, motorbikes, cars, among others (Calvo et al., 2004), carpooling (car owners sharing their journey with more people) and on-demand ride-hailing services (matching algorithms that connect riders with drivers) (Feng et al., 2017). For this research, only ride-hailing and the shared use of privately-owned transport devices will be considered. These mobility services rely on digital platforms that integrate electronic payment, booking, end-to-end trip planning and GPS tracking. As a result, technological advances have removed some of the barriers of the movement of people and goods, benefiting both providers and users; providers can reach a wider audience and consumers have access to a broader range of products and services.

Shared mobility systems are presented as intelligent, efficient and sustainable alternatives to private car transportation (Katzev, 2003; Jakovcevic et al., 2016; Shaheen and Chan, 2016; Sluis, 2018). Unlike owning a transport device, users of shared mobility systems can access and use devices according to their specific needs of that particular time, at a competitive cost, as maintenance, service, repair, parking, energy supply and insurance costs are shared among all subscribed users. Furthermore, many of these systems offer electric vehicles, which reduce pollutant emissions and familiarises riders with clean transport modes. Additionally, when private-car drivers choose to share their journeys or, better yet, choose to use shared electric bikes or scooters, this lowers the number of cars on the street, reducing congestion, minimising parking problems and releasing street space for other mobility modes and public uses. These systems have the potential to complement the public transport network, helping to close gaps in under-serviced areas and addressing first and last-mile connections. Some authors (Graehler et al., 2019) have argued that the emergence of ride-hailing alternatives (Uber, Lyft, Cabify) constitute a decline of between 1.3 and 1.7 % in the use of public transport, but on the other hand, micro-mobility shared systems (bikes, scooters, motorbikes) are associated with an increased use of mass transit. For example, according to a Lime report (Lime, 2017), 40% of their e-scooter rides in the U.S. started or ended at public transport stations. If the main objective of a city's mobility network and policies is to provide transport alternatives that best satisfy the different needs of users to contribute to their subjective well-being (Ettema et al., 2010), a reduction in the number of public transport users is not necessarily a negative outcome. In cities where public transport systems are inefficient, suffer during peak hours, are not safe enough or do not guarantee universal accessibility conditions, shared mobility options can provide a faster, safer and more reliable/ predictable way of moving from point A to point B, improving the overall mobility experience for citizens.

Mobility innovations, such as shared modes, lead to significant changes in several aspects of everyday urban life. Shared mobility systems are changing the way people not only travel but also work, shop, socialise and communicate, which has direct impacts on the

economy, the environment and culture of a community. These changes can be positive and benefit people's well-being in urban areas. However, planning and regulation for this trend are fundamental in order to guarantee its operation and outcomes are aligned with the city development objectives. Smith et al. (2005) argue that the role of governance in socio-technical transitions is fundamental and that successful transitions depend on its ability to articulate the required changes in terms of policies, frameworks, debate and intervention. Examples of this include: regulating safety issues and insurance, taxation, amount of devices per company, energy source of devices, cover area and non-discrimination in service access, labour rights and responsibilities for ride-hailing drivers, data protection and submission to authorities for decision-making processes, road space designation for each mode, street space designation for parking, synergies between various modes, among other issues (Cohen and Kietzmann, 2014; Akyelken et al., 2018; Docherty et al., 2018). Hence, shared mobility schemes involve negotiations between the public and private sector. According to an international study (Yakovlev and Otto, 2018), more than 50% of current car owners believe that in the future people will switch from ownership to usership under shared mobility services. Therefore, if riders are open to shifting into a sustainable alternative to private-car travel such as shared mobility services, it is critical that governance structures undergo the required adjustments to effectively promote and manage this trend and facilitate a successful transition into this new socio-technical system.

2.4 Santiago de Chile: the need of a socio-technical transition

Santiago de Chile's current mobility system has been increasingly challenged by various elements (Figueroa, 2013). The system consists of trip generators, infrastructure, institutions, policies, regulation, symbolic meanings, and the different modes people use to move around the city. As the system is influenced by social norms and technical structures, drawing on Geels' work (2004), it can be considered a Socio-Technical System (STS). Changes in STSs are not easy to promote and effectively implement as existing lock-in mechanisms, such as resistance from certain powerful actors, inertia or infrastructure (Unruh, 2000), stabilise any intent of alteration of the 'regime' (the STS) from the context or innovative alternatives. The multi-level perspective (MLP) is a concept used to study transitions in STSs as it provides an overview of the multidimensional complexity of changes (Geels, 2010).

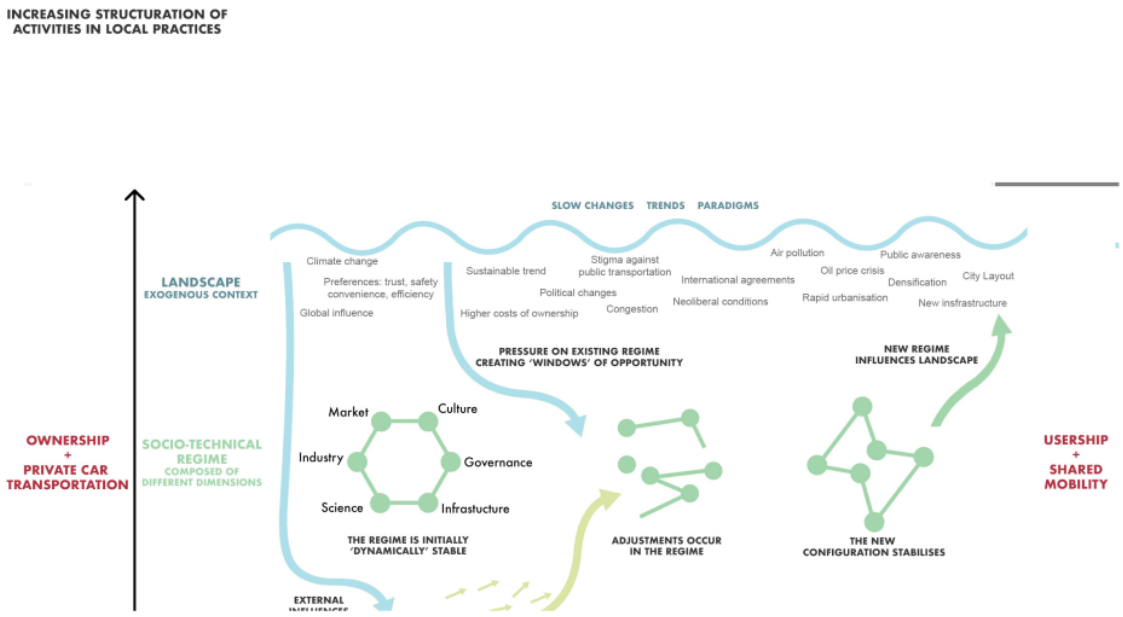

Figure 1: The MLP applied to Santiago's mobility system to understand the potential transition to a shared one.

Source: Own production based on Geels , 2011.

As illustrated in *Figure 1*, the MLP identifies three analytical levels. Firstly, the 'regime', which looks at the mainstream activities and structures that define the dominant STS, in this case, a mobility system based on private car ownership and transportation (Gestión Activa, 2018). Secondly, the 'landscape', which is the wider context. For Santiago's mobility system this would be climate change concerns, rapid urbanisation, the high levels of congestion, the air pollution emergency, the increasing public awareness of health or safety issues and the promotion of the 'inverted pyramid' (Bicycle Innovation Lab, 2011) of transport priorities. Thirdly, the 'niche', which serves as the place were radical innovations are developed and tested. In this case, there has been an emergence, both in the public and private sector, of research and development (R&D) labs, such as CEDEUS or the Unidad Ciudades Inteligentes (dependant of the Ministry of Transport and Telecommunications), new networks of actors supporting innovation, such as the Red de innovadores Públicos or the Centro de Innovación (dependent of the Pontificia Universidad Católica), and shared mobility service developers and operators, for example Uber, Awto, Mobike or Scoot. The MLP proposes that changes in a current STSs and transitions to a new one, are a consequence of the pressures and interactions within and between the aforementioned levels.

To frame the current 'regime' crisis in Santiago, the results of the latest (2012) origin-destination survey (SECTRA, 2014) concluded that the total number of trips generated in the city, on a typical working day, exceeded 18 million, which translated to an average of 2.78 trips per day per inhabitant. The modal split survey showed that 29.1% of the daily trips made in the area were by public transport, 28% by private transport, and trips on foot and by bicycle represented 38.5%. Another relevant finding from this survey is that the average travel time reported in public transport (up to 2 hours per section) is significantly higher than in a private vehicle (around 30 minutes). Annually, an average of 140.000 cars is added to the road network, which, according to UOCT measurements, has decreased the average speed of circulation in the capital, falling 18% between 2011 and 2016 (EyN, 2017). This situation negatively impacts the speed and frequency of buses, which implies a need for greater investment and public expenditure. Besides, it is estimated that 187 hours per year are lost to city traffic, which reduces productivity and translates into US$2.5 billion in annual losses (CPI, 2018). Moreover, the current mobility system, which promotes ownership and private car transportation, favours the already dramatic concentration levels of pollutants in the air and the related respiratory disorders.

Thus, adopting efficient solutions to combat urban problems related to the current STS (ownership and private car transportation) is vital. As indicated, the described 'landscape' and 'niche' elements have been pressuring and questioning this system, looking for ways to end it and establish an alternative STS (usership and shared mobility). Some consumers of the traditional STS have been convinced about shared mobility benefits and are switching to this niche idea for their daily transportation (Sepulveda and Chechilnitzky, 2019). In the belief that, when properly managed and regulated, shared mobility is a sustainable and effective alternative to private car ownership and usage, this research intends to understand how the mobility governance structure has to be adjusted in order to promote the breakthrough of this niche innovation and facilitate the successful transition and final establishment of this new STS.

3. METHODOLOGY

3.1 Introduction

In this research, considering the political dimension of mobility and its fundamental role in the quest for the sustainable development of cities, 'mobility governance' has been selected as the unit of analysis. In the context of this study, 'mobility governance' is understood as the structures and relationships associated to the decision-making process applied to the mobility system of a city (Legacy et al., 2012). Research and examination of the institutional structures that govern Santiago de Chile's mobility system have allowed for the recognition of which are the required reforms to address current urban challenges such as the emergence of shared mobility as an alternative to private car ownership and transportation.

3.2 Research strategy

In order to complete the stated research aims and objectives, the case study approach was based on the compilation and analysis of qualitative data. Confirming Snape and Spencer's (2004) theories, qualitative research was suitable to understand and interpret the social and material circumstances of Santiago's mobility system from the experiences and perspectives of the research participants. Semi-structured interviews were conducted with relevant stakeholders involved in the mobility governance of Chile's capital. This method was selected as most appropriate, with the interviews focusing on open-ended questions, which allowed sufficient flexibility to deepen on certain concepts and clarify possible misunderstandings. Besides, they encouraged unplanned questions and discussion, leading to other concepts. Furthermore, following the work of Yin (2009), as a case study approach must rely on multiple sources of evidence, secondary data (documents, reports, publications) provided by some of the interviewees, as well as recent academic contributions on these topics, were also considered to address the research objectives.

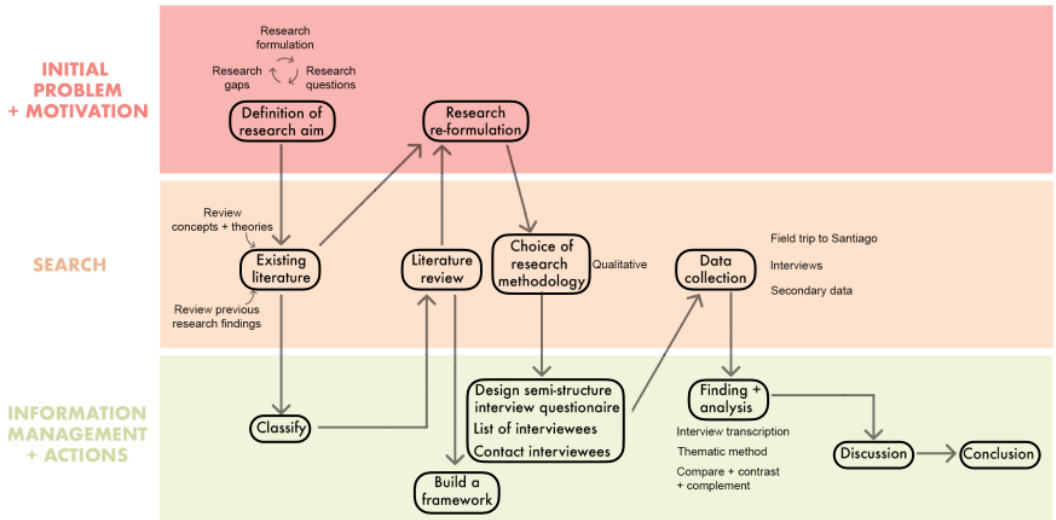

Figure 2: Research process.

Source: own production

Commencing with a critical analysis of the existing literature on mobility governance and shared mobility trends, the current mobility regime (vehicle-ownership and private car transportation) in Santiago de Chile was examined under the MLP (Geels, 2011)

!

3.4 Research ethics and risk

Before the interviews were conducted, interviewees were asked to signed or send a consent form (appendix 4) stating their willingness to participate voluntarily in this research. They were all fully informed about the aim and scope of this research and notified that the interviews were going to be recorded and transcribed. Additionally, they were asked if they preferred to remain as anonymous contributors, and if that was the case, they were assured that all the disclosed data would remain confidential. This has been guaranteed by avoiding any reference to their personal identities, and instead, characterising them through coding according to their field of expertise or group of interest (appendix 3). The questions did not involve sensitive topics, so no extra measures were required in terms of research ethics.

4. FINDINGS AND ANALYSIS

4.1 Introduction

The data collection and analysis carried out for the purpose of this study helped to identify the critical issues of current mobility governance in Santiago de Chile, as well as the main challenges for the new STS (shared mobility) to be established as an effective alternative to car ownership and usage. Additionally, the reforms required in governance to promote the socio-technical transition and manage the innovative system were identified. *Figure 3* presents the results of the qualitative analysis, and the following sections develop the findings on each of the three themes.

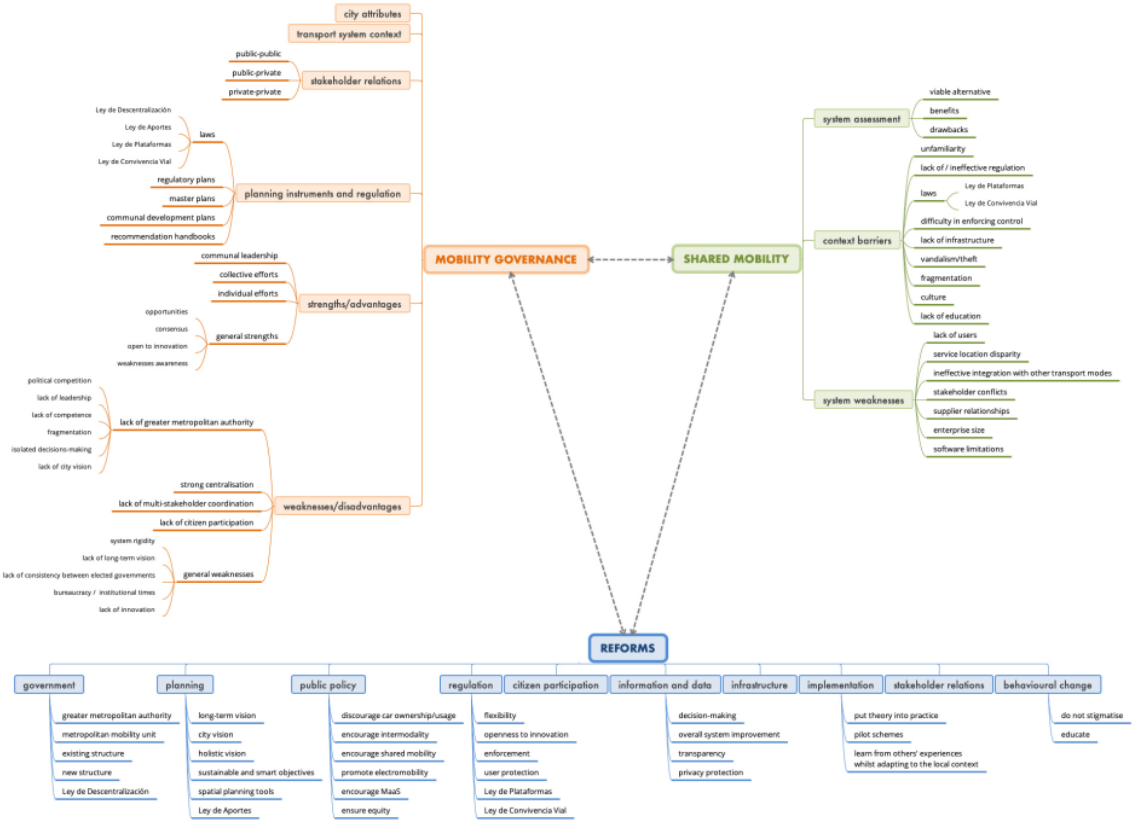

Figure 3: Thematic analysis map.

Source: own production

4.2 Santiago's mobility governance

Despite the intention to start the interviews identifying the strengths and advantages of the institutional structures that lead mobility decision-making, all interviewees found easier to start with its weaknesses and responded with criticism against Santiago's current mobility governance.

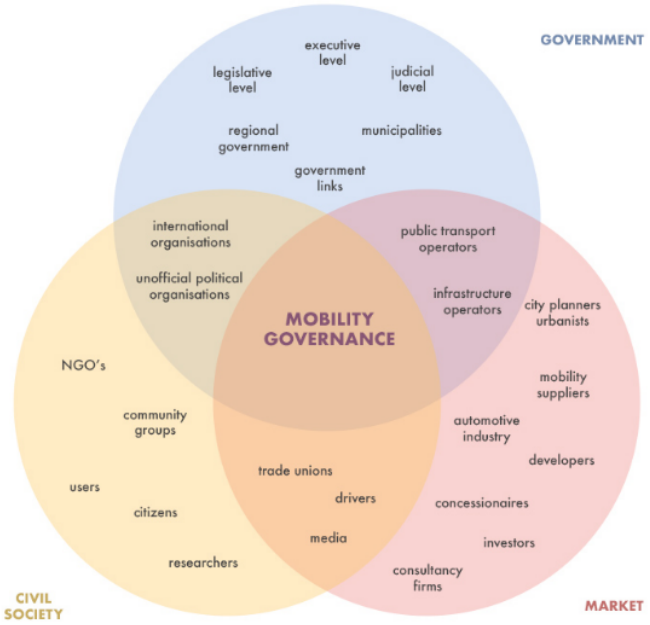

Figure 4: Map of Santiago's mobility stakeholders.

Source: own production

As illustrated in *Figure 4*, the governance of the planning and definition of mobility policies in the city involve a diversity of stakeholders. These stakeholders interact in a tremendously complex territory that is the result of the administration of 52 micro-territories (municipalities), 32 of which are urban areas and 20 rural areas. At the government sector, there are two main management groups - one at a national level (ministries) and a second at the local level (autonomous municipalities). There is no mid/level or greater metropolitan authority. Several interviewees (GN6, GN8, GL1, GL3, GL4, D1, GR1, P3) recognised some collective coordination efforts to overcome this fragmentation. In their opinion, specific projects such as Nueva Alameda-Providencia, Mapocho 42k or the joint tender for the city shared bicycle system (BikeSantiago) are examples of effective governance. During these, through multi-sectoral (ministries, municipalities, operators, consultants, academia and civil society) coordination, inter-institutional work was accomplished to promote metropolitan scale projects with a city vision. There has also been local government collaboration through associations such as AMZO (GL1, GL2, GL4) as well as through private laboratories such as CEDEUS (GL3), which seek to promote and establish a common vision about the future of mobility in Santiago. Within the national government, the Ministry of Transport and Telecommunications (TT) has created a progressive unit (Unidad de Ciudades Inteligente) that works across all the ministry's projects and has a collaborative logic with academia, entrepreneurs and international institutions (GN3, GN5, GN6). Links have also been identified within the private sector. An example of this collaborative work can be identified through providers of shared mobility services, such as the Asociación Chilena de Movilidad Sustentable, which encourages providers and authorities to work together and negotiate a regulatory framework that allows them to operate effectively (P3, P1). Also, agreements have been made between shared mobility providers and private companies for mutual benefit and support. For example, some service stations now offer parking spaces for micromobility devices on their private land, which in turn attracts a footfall of potential new consumers in the mini-markets (P2, P3).

In turn, GN8, C1 and NGO2 mentioned the importance of coordinated efforts led by individuals who, without having the responsibility, resources or attributions to do so, forced the current inefficient governance structure. Owing to these individuals'

leadership, ideas and practices aimed at finding holistic and metropolitan scale solutions for the city's mobility challenges have penetrated governance. Finally, there was a broad consensus among the interviewees on the importance of local governments leadership in mobility governance. Municipalities have the last-mile demand, and they are the ones who receive feedback from their constituents and are therefore in a better position to tailor mobility projects to their needs (UP1, GN8, GR2, GL4, A1). Thus, local governments are the most aware of mobility alternatives (P1) and find themselves in a suitable position to promote projects, policies and coordinations to allow for shared mobility development (GL1). Due to current institutional structures and regulatory framework, it is also municipalities that have the capacity to implement pilot plans effectively and agreements with service providers through tenders and permits for the use of public space (D1, GN7, GL4, A2, P3, P4).

Interviewees commented that current governance weaknesses outweighed the strengths. The lack of an inter-communal/metropolitan scale authority was a major concern among interviewees.

> *The biggest problem is the lack of a greater mayor. (GN8)*
> *The fact that there is no metropolitan authority to manage the big conurbations is a serious issue and one of the most complex that exists in Chile. (C1)*

As mentioned, the mobility system runs over 32 autonomous territories. Each mayor promotes a development based on their constituents' needs, which are not necessarily those of the city. Thus, there are 32 independent interlocutors with different visions on how to solve mobility problems (GN1, GR1, A2), whose budgets and resources vary significantly (A1, NGO2, GN7). For example, this is highlighted through the standard and location of bicycle infrastructure in each commune. Given that there is no national or mid-level regulation to guide the implementation of shared mobility systems, service providers have signed different contracts with each mayor, which respond to the municipality's interests, ignorance or knowledge on this system (GL2, P3, P4). The aforementioned can be exemplified through the case of the city's shared bicycle service. Here, a mayor chose not to introduce the same service operating in 14 other municipalities (BikeSantiago) and instead introduced its own (biciLasCondes), fragmenting the system at the city level. It is challenging for local councils to introduce innovations due to a lack of regulation at the metropolitan level. Additionally, the current regulatory framework hinders any intention for collaborative efforts on joint tenders, regulations and policies. Administratively, municipal duties are fixed within their territorial limits (GL3). This outdated structure does not respond to the challenges of the current city (GN7).

The discussion about the need for a metropolitan authority has been going on for a long time (UP1). There is consensus that an institutional change is fundamental, however, the two laws designed to decentralise government structures: Law N°21.073, which regulates the Election of Regional Governors and Law N°21.074, on the Strengthening of the Regionalisation of the Country (both enacted in February 2018) present a series of problems. In practice, these laws translate into a lack of attributions, power and resources for the new regional authorities (A1, C1, NGO2, GR1). Thus, it is surprising that whilst having so much acceptance and awareness of the need for a figure that leads the development of Santiago and coordinates the different actors, the recent regulations do not allow for this. Santiago de Chile makes up almost 45% of the national population and generates almost half of the country's GDP. In the Chilean presidential regime (C1) a mayor of a city like Santiago will become a direct competitor to the President, causing jealousy, especially if these are of opposite parties. It has been suggested that this is one of the reasons that generate resistance to the creation of leading figures at a metropolitan level (GN7, NGO2). The Intendants, who are appointed by the President and could fulfil this type of role, have also restricted powers to be able to exercise a more significant leadership (GN2, GN8, A1, C1, GR1, GR2).

There is also fragmentation at the national governmental level. There is no holistic vision of the various aspects of mobility, but rather, each element is approached in an isolated way by each ministry (C1, A2). There are three central ministries which play a

significant role in managing Santiago's mobility system: The Housing and Urbanism (HU) is responsible for local and metropolitan streets and general urban policies, the Public Works (PW) works on motorways, the underground and the construction of major infrastructure, and the TT is responsible for the management and operation of the transport system running over the network built by the former. There is not only fragmentation between governmental institutions but also within them. There is a lack of communication between the technical areas and those with authority to make decisions (P2).

As a consequence of this fragmentation and lack of an official figure leading and coordinating mobility governance, there is no city vision (GN8, A1, GL3), let alone a long term one (C1, GR2, GL4). Decisions are taken under a silo mentality, for specific projects, without effective coordination between the key stakeholders (D1, GN6, GN7, GN8, GN9), and defined by those with more power, such as the national government or municipalities in the eastern sector of the city (GN1, GN7, GN8, GN9, UP1, NGO2, A2).

4.3 Shared mobility in Santiago

Santiago de Chile is known for its simplicity with regards to the physical layout of the city. A clear civic centre and defined axes of development, help to identify the pattern of origin and destination trips between the centre and its periphery. The city has excellent infrastructure for vehicle transportation in the form of highways and roads and an integrated public transport system that consists of a high-quality underground network, a bus system and suburban trains (UP1). As for the development of mobility innovations, Santiago is known as a city of early adopters. Several interviewees (P2, C1, NGO2, GN2, GN7, A2) agreed that generally, citizens welcome innovations and that the Neo-liberal market model, stability, legal voids, promotion of private entrepreneurship and passive posture of the authorities facilitate the entry of new services and generation of critical mass. The city is, therefore, chosen as the first Latin American location for shared mobility service providers to launch their products. The challenge is ensuring that the new services are effectively integrated into the existing mobility system and positively impacts the city's level of wellbeing.

FOR	INTERVIEWEE
discourages private car usage and ownership	GN8, GN9, P2, C1
decongestion	P2, GN7
sustainable alternative	GL1, P1, P2, P3, C1
improve first- and last-mile connectivity of public transport	UP1, P2, GN6, GL3, NGO1
complements current public transport system and promotes intermodality	UP1, P2
useful data for decision-makers and researchers	GN4, GN5, GN6, GN9, A1, P1, P2
simplicity, no need for major infrastructure	GN2, P2
optimises trips and travel costs	P1, UP1, GN1, GN2, GN7
democratises an exclusive from of transport service	NGO1
quality improvement	C1, NGO1, A1, P1
contribution to modernisation	UP1 y C1
technology allows for: advance travel-time information, efficient route planning	GN1, GN2, GN6
efficient use of vehicles for transport services (supply and demand connection, less emissions and congestion from empty vehicles)	P1
job creation for unemployed and non-professionals	P1

Table 1: Identified shared mobility's benefits.
Source: own production

AGAINST	INTERVIEWEE
incorrect use of public space	GR2, GL3, NGO1
increase in road accidents	GN3
assumption of sustainability	D1
reduced use of public transport	GN1
increase in vehicle kilometres travelled (VKT)	GN1, GN2
increase in congestion and vehicle fleet	GN2, GN6, C1

Table 2: Identified shared mobility's disadvantages.
Source: own production

The majority of interviewees (UP1, GN3, GN5, GN6, GN8, GN9, NGO1, A1, C1, GL1, GL2, GL4, P1) believe that shared mobility systems are a potential alternative to private car ownership and usage. They do, however, also recognise that they can have a negative impact on society while there continues to be no regulation and lack of infrastructure. Shared mobility systems have generated significant controversy in the city. *Table 1* and *2* demonstrate the arguments for and against this system outlined by the interviewees.

It was also discussed the weaknesses of the various types of shared mobilities that arrived into the city and how Santiago's particular governance context has hindered its establishment as a new socio-technical regime. Firstly, decision-makers lack knowledge of the systems themselves, and on the potential impacts they can have on the city's mobility network, the urban space and other aspects of Santiago's development. The institutional ignorance does not promote support (P3, P4), and this is evident in the lack of regulation, investment in infrastructure for micro and electro-mobility and promotion of these modes as a valid transport alternative. Consequently, the operation of these systems has taken place outside the legal framework, which has led to a series of scandals, accidents, fines, vehicles impounded and strikes.

Ride-hailing, carsharing and carpooling have been heavily criticised by taxi and 'colectivo' drivers (UP1, GN2, GN3, GN4, GN6, GN7, GR1, P3) who accuse them of illegal operation and blame them for economic losses. As well, micromobility devices have generated tensions as they are used on infrastructure designed for active mobility (sidewalks and bicycle paths) and are often parked on pavement negatively affecting pedestrians and risking the safety of the most vulnerable members of the city's transport system (NGO1, P2, GL3). Despite shared mobility providers advising their users on good practice and a recent (May 2018) amendment to the Transit Law to incorporate terms on the coexistence of different modes of transport (Law 21.088), there is a fundamental need for behavioural change (GN3, P2, P4).

GN1, GN2, GN8, NGO2, A1 and C1 believe that shared mobility is only a real alternative mode of transportation for a select group of citizens and that their impact on the modal partition of Santiago's transport system will remain minimal. Indeed, these services are only available in affluent socio-economic sectors. Interviewees from shared mobility companies (P2, P3, P4) expressed that they intend to expand across the entire city; however, that lack of infrastructure in most municipalities, vandalism issues, theft and low density or demand in certain areas have proposed reasons not to operate in specific locations. Furthermore, these services tend to be introduced in those territories where constituents have high incomes, and they have influenced the relevant agreements allowing the systems to operate in their local area (GN3, GN5, GR1).

Finally, it is worth noting that in Chile, there is resistance to move away from particular practices and the use of certain modes. There may be efficient and sustainable transport solutions, such as shared mobility, but this will not guarantee that people will replace private car ownership and usage, which is one of the critical elements for a successful transition to a shared regime.

> *In Chile, the use and possession of a car is still associated as something good, aspirational, desirable, almost like a right (*A2*).*
> *The car has a lot of status, owning a car is still very important, (C1)*
> *Only 24% of all Chileans are willing to leave the car at home if there is a quality public transport that meets their transportation needs. The car is considered as an extension of the house, as something indispensable, as it is the only comfortable and efficient way we have to travel (P3).*

4.4 Towards a successful transition: the required reforms

In the last five years, Santiago de Chile has been affected by the sudden and rapid growth of shared mobility services. The varying actors involved in mobility governance have been forced to understand and accept these new services (GN4, GN5, NGO1, NGO2, GR1, P1) and define the most effective way to frame their development, to avoid their negative externalities and enhance their benefits. With the belief that these systems can become an effective, beneficial and sustainable alternatives to private car ownership and usage, the last section of the interviews was focused around which reforms are required in current institutional structures in order to allow for the promotion and management of these new modes of transport.

A fundamental issue for all interviewees was the lack of a metropolitan-level figure with sufficient authority and resources to coordinate and define the city's mobility policies, plans and projects. As outlined in the previous sections, Laws N°21.073 and N°21.074 were intended to address this issue; however, their terms do not meet the challenge. A profound change in governmental structure is required to make room for a leadership figure who can resolve conflicts caused by fragmentation among the diverse agents involved in Santiago's mobility management and development. The new institution needs to break the 'silo' mentality and foster collaborative work, communication and shared agreements between the vertical and horizontal levels of different institutions that make up mobility governance (UP1, GN6, GL4, C1, GL1). Articulating (GN7) and institutionalising multi-sectoral work is critical to avoid duplication or overlapping of efforts (D1, GR1).

> *Santiago is a complex city and requires a metropolitan scale of analysis and planning, not local. The travel logics are inter-communal and require a macro view (*GN7*).*
> *You have to change the perception, the city is a system, and the municipal limits should be invisible (*GR1*)*

The new leadership figure would be required to outline and communicate the vision for the city's development and thus establish which type of mobility, regulation and infrastructure is required. Having a clear vision and strategy allows for anticipation (P2, A1), collaborative work and planning (GL2) and to avoid improvisations (NGO1) to successfully deliver the outlined vision (GL3). This vision must be long-term. Interventions in the city are intended to last many years, so decisions must be made based on sufficient research and informed debate (GN8, P1). The Chilean institutional framework still reflects that of an underdeveloped country; it is designed to be reactive and not proactive (D1). Therefore, the planning instruments approved by the new metropolitan authority must promote an integrated vision for the city's future development, be consistent between elected governments, flexible enough to respond to new challenges and take full account of the various interests involved. Law 20.958 (August 2016), which states the

obligation for developers to contribute to a city and municipal funds for public space infrastructure, could represent the starting point for looking at the city as a single territory as opposed to 32 separate ones. 40% of the funds raised should be allocated to an inter-municipal plan for investments in city infrastructure. According to the law, this inter-municipal plan must be agreed by all mayors of the region, submitted for citizen consultation and binding to local scale plans. The creation, approval and implementation of this plan could act as good practice to establish coordination between institutions, promoting informed decisions based on the holistic understanding of the city's challenges to define projects aligned with the future vision for its development (GN9, GR2, GL1).

In addition to a metropolitan authority that coordinates actors and defines projects with an integrated vision, some interviewees mentioned the need for a metropolitan technical mobility institution, which should be exclusively responsible for managing the whole mobility system in Santiago. Today, the Metropolitan Public Transport Management (MPTM), founded in 2013 and dependent on the TT, is responsible for coordinating Santiago's public transport system. In practice, this unit oversees the bus system but does not have enough power over the underground one (GN5), and also, does not consider the other modes (private) that conform the complete mobility system. Currently under debate is whether the MPTM should leave the ministry and be overseen directly by the new metropolitan authority (GR2). GN2, GN3 and UP1 consider that more institutions are not needed but rather restructuring the existing ones and redefining responsibilities. In conclusion, whether under the current structure or a newly formed separate institution, technical and integrated coordination of all transport modes and stakeholders is needed.

According to interviewees, a coordinated effort on the following elements would be most important for the realisation of a vision of sustainable development for the city's mobility. Firstly, a policy to discourage private car ownership and usage acting according to the theory of the inverted pyramid (GN1, GN7, GL4, UP1, NGO1, NGO2, GR1, C1, P2, P3). Secondly, promoting inter-modality between mass public transport systems and those of micro-mobility, both private and under the shared platform system (GN3, GN4, GN5, GN6, GR2, UP1, A2, NGO2, P1, P3). Thirdly, providing the corresponding infrastructure (GN6, GN8, GL1, GL3, GL4, A2, NGO1, P2), especially for sustainable mobility such as active (walking and cycling) and electro-mobility. Additionally, on this last point, D1 emphasises the importance of managing battery disposal and their source of energy; where a lack of policy in place to change the city's energy matrix would transfer emissions from one source to another. Finally, the future development of Santiago's mobility cannot be accessible only to a minority and must be inclusive. Improvements to the system, in terms of its standard, the number of alternative means of transport and access to these services and technologies must be equitably distributed throughout the territory (GN5, C1, D1, P1). The institutions that participate in mobility governance have a responsibility to ensure that there is equality in access to benefits, developing regulatory frameworks that encourage the implementation of systems throughout the city regardless of the socio-economic conditions and profitability of the different areas.

To carry out the aforementioned policies, coordination and collaboration between the different actors involved in mobility are required. For example, to plan and develop infrastructure or facilitate inter-modality, the data of origin/destination of trips and modal partition is essential (GN3, GN4, GN5, GN6, GN7, GN9, GR2, GL1, P1, P2, P3, P4). In this particular example, there would be coordination between three main groups: on one side, the mobility service providers would share the data obtained from their digital platforms., followed by the academy which, as an intermediary entity, would be in charge of analysing and processing this data, extracting conclusions (e.g., new areas of demand). Ultimately, with this technical information and knowledge, the authorities would be able to make better decisions with regards to resource assignment when defining the location of bicycle lanes or the design requirements of intermodal stations; as well as learning the impact of the implemented policies and then making corresponding modifications.

This information is also of utmost importance to the regulatory process, allowing decision-makers to develop new analysis and produce updates to regulations, in aspects such as the size of the permitted city's taxi fleet. It would also be useful for the creation of new regulation to frame the functioning of shared mobilities and guarantee quality and safety to citizens (GN3, GN5, GN6, NGO1,

A1, GL2, P1). Chile is undergoing a time of inflexion concerning the development of this technology. Good regulation will result in citizen benefits, while bad regulation could delay progress and thus limit the technology's potential (P1). With this is mind, authorities must build a flexible enough structure (GN3, GN7, GN8, A1, GL1) that facilitates the quick adoption and adaptation to innovations, considering that what is decided today could likely become obsolete in as little as five years. To provide an example, a bill nicknamed 'Uber Law' is currently being discussed in Congress to define a flexible and basic framework to regulate the travel service platforms (ride-hailing/ride-sourcing), and gradually modify this initial attempt to include, for example, shared travel services (carpooling/ride-sharing). Furthermore, when looking at the institutional structures in Chile, in addition to national regulation, it would be interesting to complement them with ones of regional and local scale (GN3, NGO2, P4). There are different needs throughout the country, and thus, it is fundamental that public-private cooperation creates the conditions for these methods to be practical and useful for each territory.

The qualitative analysis carried out suggest that the reforms to mobility governance in Santiago de Chile have to do not only with the organisation of institutional structures but also with the decision-making processes and how a new mid-level authority is able to achieve coordination between the different stakeholders involved in mobility.

5. DISCUSSION

5.1 The role of governance in promoting alternative Socio-technical Systems like mobility

This research has highlighted how 'good' mobility governance (Tschoerner, 2016; Marsden and Reardon, 2017) is a critical factor for a new STS to compete and ultimately replace the current one. Following the works of Mayntz (2003) and according to the previous qualitative analysis, to promote and manage alternatives such as shared mobility, collaboration and coordination is essential, not only between the different levels and units of government but also between authorities and non-state actors. Therefore, if the Chilean authorities have real intent to promote usership over ownership, due to its proven benefits, a structural change to the current political dimension of Santiago's mobility system is required. This dissertation has proved that only through this change will decision-makers be able to define policies, plans and projects based on the awareness of each party's interests and the understanding of the different aspects and requirements of the new STS.

Mobility is not only an engineering or financial question but also an administrative and political one; thus, its planning and management require a holistic approach. During the interviews, the impacts of shared mobility outside the transport perspective were rarely mentioned. When requesting material through the public information transparency system (Law 20.285) from the different national ministries (HU, PW, Environment, Energy, Social Development, Economy, Labour) about their relationship with mobility issues and their opinion about shared mobility, the general response was that these matters were outside their realm of responsibility, suggesting that the institution addressing these issues was the TT. However, mobility, and in this case, shared mobility, has a much broader impact than the issues that fall under the TT's domain as it places new opportunities and challenges for city life in general. For example, the fact that ride-hailing systems are a labour alternative for unemployed or non-professionals, especially for a large number of immigrants who have recently arrived in the country (Fernandez, 2019). These would be concerns for the Labour, Social Development and Economy ministries. Furthermore, shared mobility services are encouraging the use of electro-mobility, which has the potential to make them a sustainable alternative. However, currently, not only are electric charging stations yet to be installed in public spaces, but the energy source in the city is not clean, which would require the involvement of the Ministry of Energy to work on initiatives to modify the energy matrix. Finally, other aspects like user data protection, the development of new technologies and start-ups or the analysis of the economic and environmental externalities of the usership tendency do not fall under TT's competence and would need to be reviewed and managed by other institutions.

According to Peters (1998) and Graham et al., (2003)'s categorisation, if a wider network of stakeholders is brought in the decision-making process, then a 'good' governance structure would be achieved. This new institutional framework would help deliver an integrated strategic vision for a city's mobility system and consequently direct collective efforts to discontinue the damaging current socio-technical regime (private car ownership) and establish a new one (shared mobility). Based on the qualitative evidence, in Santiago, the silo mentality and absence of a mid-level leadership has limited the possibility for shared mobility to be established effectively and equitably in the urban territory. Therefore, the lack of governance has been a barrier to the transition between one regime to the other, delaying the delivery of potential improvements for society and the environment. As Docherty et al. (2018) argue, the initial phase of a trend is a critical moment for decision-makers to raise questions. Mobility innovations are clearly outpacing the authorities' capacity to respond to them. It is therefore, imperative to recognise the importance of 'good' governance in decision-making processes, not only for the development of mobility in Santiago but also for other urban settlements.

6. CONCLUSIONS

6.1 Final thoughts

At a turning point in the face of urban challenges and the effects of climate change, we are left with the hope that Lennon's dream will be real and that a world without possessions will be a better one. Different innovative mobility services such as shared mobility systems are shifting the paradigms of mass and individual urban transportation creating new opportunities and challenges for cities. The international literature and qualitative analysis of this research demonstrate several positive externalities of a STS based on usership of transport devices. However, even if this new STS promises to meet a number of social and environmental objectives, more research is needed to understand and govern the implications of this technology. New concepts, strategies, methodologies and empirical evidence from the increasingly connected population is required to identify the most effective governance models to foster an innovation that can potentially benefit citizens and the broader mobility system.

Similarly, this research proves the theories of authors such as Smith et al. (2005), who highlight the fundamental role of governance in socio-technical transitions. A successful transition to a shared mobility regime depends on its ability to articulate negotiations and coordination within and between the public and private sector. To effectively promote the breakthrough of this niche innovation in Santiago, it is essential to adjust the existing institutional structures, and this dissertation exposes the fundamental reforms required. Through these changes, decision-makers will be able to think through, agree on priorities, and channel shared mobility's development as an integral part of an efficient, sustainable, integrated and equitable mobility future for the city that best satisfies both local and global needs.

6.2 Value of research

This research is a contribution to the growing body of academic literature linking governance and mobility. Here, a critical review has been formed around the factors that influence the ability of governance to address the most pressing urban challenges, such as those related to mobility. The governance approach to mobility also highlights a number of key dilemmas or concerns about how governance systems are changing and should change to confront mobility demands associated with the emergence of new technologies, socio-cultural changes and environmental emergencies.

In addition, the study of the institutional structures and processes in Santiago de Chile provides a framework and solutions for those who participate in the decision-making process of urban mobility. This document highlights potential solutions for planners, operators and authorities who seek to improve the quality of life of citizens through the promotion, development and management of sustainable mobility systems as an alternative to private car transportation.

As the usership trend and emergence of shared mobility systems is a global phenomenon and challenge, this dissertation can be a stimulus to broadening the knowledge about the role of governance in socio-technical transitions. Hence, the methodology and findings of this research can be considered when evaluating the institutional structures of other cities and how these approach mobility innovations, especially those known to operate on a fragmented basis and within a context of a fragmented transport system. It would, then, be interesting to compare and contrast results to highlight how particular contexts determine specific requirements for each institutional structure and specify 'good' mobility governance characteristics.

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APPENDICES

Appendix 1: Semi-structured interview questions

PRELIMINARY REMARKS

The interviewee's details are completed.

His-her time and interest are appreciated.

The aim and scope of the research are re-explained.

The concepts of *governance* and *shared mobility* are defined.

The interviewee is asked if he or she has any questions.

It is informed that from that moment on the interview will be recorded.

The interview begins.

MOBILITY GOVERNANCE

This section discusses the institutional structures related to the promotion and management of mobility in Santiago de Chile.

1- In your opinion, which are the main strengths/advantages of the current mobility governance which can facilitate a successful transition to innovative mobility systems such as shared mobility?

2- And the main weaknesses/disadvantages?

SHARED MOBILITY

In the second part of the interview there is a consultation on shared mobility schemes.

1- What is your opinion about the arrival of this international trend in Santiago de Chile?

2- Which would you say are the main challenges/barriers for shared mobility's development in the city?

REQUIRED REFORMS IN SANTIAGO'S MOBILITY GOVERNANCE

The questions in this last section are intended to examine the institutional structures needed to promote and manage such mobility schemes.

1- Which would you say are the fundamental changes required in the institutional structures that promote and manage mobility in the city of Santiago?

2- What do you think is the capacity of the existing structures to be reformed and respond successfully to new trends, such as shared mobility?

3- Could you mention any successful cases of governance in the promotion and management of mobility projects in the city of Santiago?

FINAL

Finally, the interviewee is asked if he or she would like to add anything else or ask the interviewer a question.

Time, interest and valuable answers are again appreciated.

Appendix 2: Approaching email for interviewees

Dear ————,

My name is M. Florencia Cinalli, and I have taken the liberty to write to you for the following reason. I am doing a research to obtain a Master's Degree in Transport and City Planning at the Bartlett School of Planning at University College London (UCL), which aims to understand the required institutional structures to promote and manage innovative mobility systems, such as shared mobility, in Santiago de Chile.

As part of this research, I am interviewing a number of people about the processes of policy-making, regulation, collaboration and stakeholder participation in relation to the governance of mobility in Santiago. These interviews will be conducted confidentially and participants will remain anonymous (unless specifically approved otherwise) in the published work resulting from this research.

In this context, I would be very grateful if you would agree to accept an in-person interview or a video call (Skype, FaceTime or Whatsapp) of approximately 40 minutes to answer some brief questions about these topics. If so, perhaps the easiest way to arrange the interview would be for you to provide me with the time and date that suits you best.

I will also like to mention that I will share the results of my research with all the people participating in the interviews, through a short report, and I will be happy to provide more information if it is of interest. If you have any more doubts about this research, please do not hesitate to contact me.

I look forward to hearing from you and thank you very much for your time.

Yours sincerely,

M. Florencia Cinalli

Appendix 3: Interviewee matrix

CODE	SECTOR	GROUP	INSTITUTION	POSITION/AREA	NAME	PROFESSION
GN1	Public	National Government	Ministry of Transport and Telecommunications	(Former) Ministry of Transport and Telecommunications	Carlos Cruz	Business Engineer
GN2	Public	National Government	Ministry of Transport and Telecommunications	(Former) Ministry of Transport and Telecommunications	Andrés Gomez Lobo	Business Engineer
GN3	Public	National Government	Ministry of Transport and Telecommunications	Head of Cabinet Undersecretary of Transport	Martin Mackenna	Business Engineer
GN4	Public	National Government	Ministry of Transport and Telecommunications	Director in the Metropolitan Public Transport Directory	Fernando Saka	Industrial Civil Engineer
GN5	Public	National Government	Ministry of Transport and Telecommunications	Coordinator Intelligent Cities Unit	Nicolás Grandón	Civil Engineer
GN6	Public	National Government	Ministry of Transport and Telecommunications	Intelligent Cities Unit	Richard Mora	Electronic Civil Engineer
GN7	Public	National Government	Ministry of Transport and Telecommunications	Director of Communications	Manuel Valencia	Journalist
GN8	Public	National Government	Ministry of Public Works	(Former) General Manager of Public Works	Juan Manuel Sanchez	Architect
GN9	Public	National Government	Ministry of Housing and Urbanism	(Former) Head of Urban Development Division	Pablo Contrucci	Architect
GR1	Public	Regional Government	Metropolitan Regional Government	Division of Infrastructure and Transport	Felipe Sandoval	Architect
GR2	Public	Regional Government	Metropolitan Regional Government	Division of Planning and Development	Anonymous	Architect
GL1	Public	Regional Government	Asociacion Municipalidades Zona Oriente	Project Manager	Anonymous	Industrial Civil Engineer
GL2	Public	Regional Government	Asociacion Municipalidades Zona Oriente	Transport Advisor	Cristian Lopez	Civil Engineer
GL3	Public	Local Government	Municipality of Providencia	Urban Advisor	María José Castillo	Architect
GL4	Public	Local Government	Municipality of Vitacura	Head of Cabinet	Galo Errazuriz	Journalist
NGO1	Private	NGO	Ciudad Accesible	Corporate Director	Pamela Prett	None
NGO2	Private	NGO	Pedaleable	Founder	Tomás Echiburú	Architect
A1	Private	Academia	Pontificia Universidad Catolica de Chile	Academic Director City and Mobility Laboratory	Rocio Hidalgo	Architect
A2	Private	Academia	Pontificia Universidad Catolica de Chile	Department of Transport Engineering and Logistics	Ricardo Hurtubia	Industrial Civil Engineer
IO1	Private	International Organisations	OECD	Policy Analyst	Abel Schumann	Economist
D1	Private	Developers	GIZ	Cities and Climate Change Unit	Andrea Palma	Architect
P1	Private	Mobility providers	Uber	Head of Government Affairs & Public Policy	Nicolas Sanchez	Lawyer
P2	Private	Mobility providers	Mobike	Business Intelligence	Anonymous	Industrial Civil Engineer
P3	Private	Mobility providers	Awto	General Manager and Founder	Francisco Loehnert	Business Engineer
P4	Private	Mobility providers	Scoot	Director of Market Development LATAM	Gonzalo Cortés	Hydraulic Civil Engineer
UP1	Private	Urban planners	Allard & Partners (consulting)	Founder and managing partner	Pablo Allard	Architect
C1	Private	Media	SantiagoAdicto	Founder	Rodrigo Guendelman	Journalist

Appendix 4: Consent form

University College London
Bartlett School of Planning

Consent Form

Name of participant: _____

Name of interviewer: M. Florencia Cinalli

Title of the project: Mobility Governance: understanding the institutional structures required to promote and manage shared mobility in Santiago de Chile.

I confirm that I am willing to participate in the aforementioned research project.
I understand that my participation is voluntary and that I am free to withdraw at any time, or not answer any individual question posed, without specifying a reason.
I confirm that I am willing to allow the interview to be recorded.
I understand that the transcript of this interview will be used by the postgraduate student named above for research purposes.

I WANT / I DO NOT WANT my participation to be anonymous.

Date:

Signature:

Appendix 5: Thematic analysis matrix extract

THEME	CATEGORY	CODE	INTERVIEWEE	CONTEXT
Reforms	Government	Greater metropolitan authority	GN1	In cities that are expressions of conurbations of different communes, you should have a metropolitan authority that regulates, and it should be associated with the regional government.
			C1	There is a lack of an authority to coordinate the city, and where transport is part of that coordination. There should not be so many isolated institutions working on the same urban aspect. this has implied the destruction of newly inaugurated works as a result of a lack of communication and coordination between actors.
			GL1	It could order the central regulation at the intermediate level
				It could support municipalities that want to replicate good ideas but don't have the capacity and resources. Also develop these ideas on a regional scale to lower costs and then spread them.
				Hopefully, a model will be established that allows us to face technological changes, new business models and arrive at solutions that people need.
			GL3	The local and national levels are very developed, but the regional level is absent. The challenge is to be able to have a level of regional coordination, and then to be able to operate in a coordinated way between the 3 levels.
			NGO2	it is important to move from a rather national structure to a structure of metropolitan governments, with greater authority
			GN5	With the Law of Decentralisation, there is an intention to give more powers to the GORE. Within these, must be created a figure of mayor, who considers a technical team and skills to act within the territory. It works in order to be able to articulate certain systems that are of interest.
			GR1	GORE should not only expect to be transferred competences but should also request them according to its experience. Otherwise, it will depend a lot on the government plan that the elected character brings, it will end up depending on the mood, the priorities or the particular political color.
			A2	There is a risk that the metropolitan authority will become a merely political figure, and that in the end it will end up taking actions under the clientelist logic or that it will be captured by economic interests. An alternative could be to have a board of directors. Different people in charge of the different urban aspects (housing, public space, mobility, security...) and that these people function as a board, that they are all equally important. A directory that replaces the individual figure. So that being mayor of the city is not the logical step to become president. That it be a collective effort of different people with a technical profile, independent of the political color. I think this would be a good idea.
			GR2	Coordination is needed between local authorities that administer adjacent territories and are part of the same city.
			GN2	If you want to make things better, you have to look for a metropolitan government. You need a political authority at the metropolitan level that is in charge of transportation among other things.
		Metropolitan mobility unit	UP1	There should be a metropolitan authority exclusively for transportation. The political model may vary, but independent of the elections, whoever plans coordinates and manages the transport that is a metropolitan instance. It can be a metropolitan transport authority, a metropolitan transport director, a metropolitan transport secretary. But clearly there has to be a metropolitan scale authority because it has all the conditions of a metropolitan market or service.
				Santiago has a great opportunity, through the decentralisation process, to begin to create certain proto-structures of transport governance. To incorporate the lessons from transantiago, of the pilots, bikesantiago, that are effectively advancing in establishing a governance that allows to plan, execute and operate the transport and mobility in the best way.
			GN1	Here what is needed is a metropolitan transportation authority that orders this from a more integrated and comprehensive perspective. In which the measures taken talk to each other. They cannot be isolated measures as it happens today, which do not have a level of interaction with the other measures that are being taken. That they have the necessary powers and resources to fulfill those functions.
			GN3	In such a large and complex city, with 32 municipalities, perhaps there should be some coordinating institution. How to get coverage to other places. It would be good to bid in a general way, at the city level, with conditions and rights to operate in certain sectors but obligations to provide services in others, where it is not so attractive out there.
			GN4	There must be a government entity that can associate all modes of public transport. Regardless of whether decisions can be made with civil associations, academic, citizen consultations. But if there is no single entity that can manage, control, and regulate the entire transportation system, the transportation system does not move forward as it should. It doesn't meet the goal of improving people's quality of life.
				Regulation, where we're going, how we're going to do it, must be under a single entity, at the city level. Regardless of the existence of an MIT, who generates the guidelines at the chilean level, each city should have its own regulation because each city has its own needs and challenges.