Understanding the Role of Power during the Implementation of BRT Systems

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The candidate confirms that the work submitted is his own and that appropriate credit has been given where reference has been made to the work of others.

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Álvaro Guzmán Jaramillo

Abstract

This research is about power. It is completely immersed in modern societies, reflections on power have not settled its definition. Regardless of centuries of considerations about power, there is still much to learn about its exercise. For decades, power has been analysed by scholars all over the world; however, transport planners have avoided issues concerning power.

This dissertation focuses on the use of power during planning and implementation processes of two Bus Rapid Transit Systems; one in Quito, Ecuador, and another in Cambridge, England. Using a multimethod phronetic approach, this research examines how decisions were made for the implementation of BRT in the selected case studies. Phronetic methodology aims to explain social phenomena by piecing together large and small details that shape the context of events; in this case, existing planning documentation and the narratives of key stakeholders and decision-makers —such as former Mayors, Council Members, and Heads of Transport Departments— were used to understand the reasons behind the adoption of bus systems.

Despite the contextual differences of geography, population, and political and administrative terms between Quito and Cambridge, there are key themes found in both case studies. Solving congestion and improving economic growth is a key motivation for the implementation of the systems in both cases. A complex network of actors is formed during the planning processes of BRT systems that shape the way decisions are made. In both cases, an isolated group of actors that lack the opportunity to exercise power was also identified. A sophisticated mixture of power mechanisms were discovered, which contained actors that had more experience, training and opportunities to exercise power.

The findings of the analysis of power in Quito and Cambridge suggest that stakeholders with opportunities to exercise power —from the beginning— are also actors with more opportunities to influence the final uptake of the systems. Planners interested in participatory processes need to focus efforts to involve different communities as early as possible in the planning processes. The inclusion of communities does not guarantee that their needs and objectives will be incorporated into the planning process. A set of power mechanisms need to be developed by all members involved in the process. An early participation of these communities can help focus planning on solving people's needs rather than the implementation of a specific scheme.

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List of Abbreviations

BRB	British Railway Board
BRT	Bus Rapid Transit
CA	Census Area
CCC	Cambridgeshire County Council
CHUMMS	Cambridge to Huntingdon Multi-Modal Study
CNTTT	Consejo Nacional de Tránsito y Transporte Terrestre (National Transport Council)
CoE	Centre of Excellence
DETR	Department of Environment, Transport and the Regions
DMQ	Distrito Metropolitano de Quito (Metropolitan District of Quito)
ECLAC	Economic Commission for Latin America and the Caribbean
EMT	Empresa Municipal de Transporte (Municipal Transport Company)
FAB	Fondos Activos Bancarios (Spanish Development Bank)
GBW	Guided Busway
IBN	Index of Unsatisfied Basic Needs
IEA	International Energy Agency
INEC	Instituto Nacional de Estadistica y Censos (National Institute of Statistics)
IPTP	Index of Public Transport Provision
IRSAD	Index of Relative Socio-Economic Advantage/Disadvantage
ITDP	Institute for Transportation and Development Policy
ITN	Index of Transport Needs
OECD	Organisation for Economic Co-operation and Development
P&R	Park and Ride
pphpd	Passengers per hour per direction
RSBP	Royal Society for the Protection of Birds
SACTRA	Standing Advisory Committee on Trunk Road Assessment

SEU	Social Exclusion Unit
SHMA	Strategic Housing Market Assessment
SNI	Sistema Nacional de Informacion (National Information System)
TCRP	Transit Cooperative Research Program
TFL	Transport for London
TPP	Transport Policies and Programmes
TSU	Transport Study Unit
UN	United Nations
UNDP	United Nations Development Program
UPGT	Planning and Transport Management Unit (Unidad de Planificación y Gestión del Transporte)

1. Introduction

This research is about power. However, because power is completely immersed in modern societies, reflections on power have not settled its definition. For example, questions arise on how to study it and —if it is measurable— how to measure it (Lukes, 2005). “Power is talked about in daily life and discussed in scholarly works in an attempt to explain its location and its extent; who has more and who less; how to gain, resist, seize, harness, secure, tame, share, spread, distribute, equalize, or maximize it; how to render it more effective; and how to limit or avoid its effects” (Lukes, 2005, p. 61). Regardless of centuries of considerations about power, there is still much to learn about its exercise. This dissertation focuses on the use of power during planning and implementation processes of Bus Rapid Transit Systems.

1.1. Background

Rationality and Power: Democracy in Practice by Flyvbjerg (2001), is a book about urban and transport planning during the development of an urban plan in the city of Aalborg, Denmark, between 1977 and 1995. The city council, together with local businesses and the city’s bus company, developed a plan destined to regulate four elements of urban planning: urban renewal, land use, traffic, and the environment. The plan became known as the award-winning Aalborg Project; it was recommended by the Organisation for Economic Co-operation and Development (OECD) as a model to be implemented internationally due to its integration of environmental and social concerns, including how to deal with an abundance of cars in a city (Flyvbjerg, 2002).

As the plan developed, conflicts amongst different actors began to appear: the bus company argued about the size of the new terminal; the local businesses were against the reduction of traffic, because they argued that fewer cars meant fewer clients; and the environmental agency was concerned about the environmental impact of the plan. The opportunities to shape the plan were not equal, given that some individuals and groups had more resources and power that allowed them to pursue their own objectives (Albrechts, 2004). The participation of some undemocratic groups —with high political influence that eventually shaped the main plan, along with a handful of sub-plans— was of particular interest (e.g. members of a Chamber of Commerce).

The results were categorized by Flyvbjerg (1998b) as disastrous: instead of reducing car traffic, it was increased by 8 percent; instead of creating an integrated system of bicycle paths, unconnected stretches were built; instead of reducing traffic accidents, the number of fatalities and injuries among bicyclists had increased 40 percent; instead of reducing noise,

measurements revealed that noise levels in downtown Aalborg substantially exceed Danish and international maximum limits; and lastly, air pollution has not reduced, with soot and airborne particles actually increasing. The work in Aalborg describes problems between different actors, questions the democratic participation of many of them, and discusses how these relationships shape planning outcomes. These relationships have been categorized by Flyvbjerg as “relations of power”.

The existing power relations are shaping our cities, designing our transport systems, and ruling our ways of life. For decades, power has been analysed by scholars all over the world. In western countries —particularly in Europe and the USA, until the first half of the 20th century— power was understood from a Hobbesian perspective, power was seen as hegemonic, it was centralised and focused on sovereignty. This vision of power was deemed more appropriate than the modern scientific approach, as it allowed observation, measurement, and quantification of power. During the second half of the 20th century, the French philosopher Michel Foucault contested conventional interpretations of power and characterized it as something that is not possesed by any person or group in particular, but as an ability that every one has. Foucault’s question was ‘how is power exercised?’ rather than ‘who has power?’ or ‘where is it located?’ (Flyvbjerg, 2001).

Urban planning practices in general, and transport planning in particular, have avoided questions concerning power (Friedmann, 1987). It is assumed that transport planners and the agencies they represent hold power during planning processes and that a focus on their practices can help understand the role of power. However, as pointed out by Flyvbjerg (1998b), even in countries with highly democratic systems, undemocratic forces influence the final outcomes of planning process.

It is essential to investigate how power is exercised, rather than simply identifying who holds power and why they do so. Critical scholars such as David Harvey, Henri Lefebvre, Neil Brenner, Christine Boyer, and others have focused on unveiling hidden and unacknowledged biases and power asymmetries in contemporary cities. Regardless of the acknowledgement of different power structures behind planning practices, there is a long road ahead in order to learn and understand how power is exercised and how this affects planning outcomes.

Cities all over the world, particularly in Latin America and Asia, experience severe congestion, low motorization with rapidly growing rates, increasing pollution, safety concerns, reduced public transport options, social exclusion and other problems (Wright, 2011). Bus Rapid Transit systems (BRT) have been implemented to answer identified transport problems. BRT was first

introduced in Curitiba, Brazil in the 1970s. Several systems followed Curitiba. However, after the implementation of Transmilenio —BRT system in Bogotá, Colombia— a rapid uptake in the adoption of these systems followed in different parts of the world (BRT Centre of Excellence, 2017).

A variety of studies revealed that BRT are introduced in cities for several reasons, including: economical, these systems are cheaper than other rail-based alternatives; political, these systems can be planned and implemented in one mayoral period; environmental, these systems provide a high-quality transport option with the potential to attract car users; and social, as BRT have the ability to integrate larger social segments into the transport network, particularly the more vulnerable portions (Wright and Hook, 2007).

A more critical look at BRT systems has found that the expected benefits are not being delivered or are partially delivered in an unequal manner. The literature shows evidence that the more vulnerable segments of the population are not benefitting from new investments, and actually may be losing previous cheaper alternatives (Venter et al., 2017). Operational problems have been found in cities where political pressure resulted in starting projects without all facilities ready, leaving significant portions of the population without access to the systems (Hidalgo et al., 2007). Positive effects are usually experienced only on land corridors where the systems are implemented. For example, new modern buses are introduced in city centers, while old polluting units still run in areas where the more vulnerable inhabitants live; accidents are reduced in the corridor areas where the systems are implemented, while pedestrian casualties (most often poor) in the city outskirts have increased (Carrigan et al., 2014).

1.2. The Problem

Researchers have identified the existing disparity in current BRT systems (Venter et al., 2017, Scholl et al., 2016, Venter et al., 2013, Bocarejo and Oviedo, 2012, Jaramillo et al., 2012). This research has been important for creating tools and techniques that help identify areas and segments of the population that are not being served by the systems, and for suggesting solutions to the current reality. Finding solutions to existing problems is important and requires further research in order to design and deliver the best options for vulnerable communitites.

However, failure to understand about planning and implementation of BRT systems, entails the danger of reproducing the same mistakes that caused unequal development. This research study aims to fill this knowledge gap by understanding how power is exercised during the

adoption of BRT systems, and also how power relations affect the systems' outcomes. Understanding why these outcomes occur allows this thesis to suggest some possible solutions.

1.3. Addressing the Identified Problem

A phronetic planning research approach, as developed by Flyvbjerg (2001), is used on this thesis. Phronetic planning brings together the ideas of phronesis from Aristotle and MacIntyre (2013), the phenomenological perspective of the Dreyfus brothers on human learning (Dreyfus and Dreyfus, 1986) and Foucault's conceptualization of power/knowledge (1988, 1982, 1978). Phronetic planning offers a systematic approach to research power, which can be replicated by different researchers interested in the subject. Having a clear structure that shows where to start an analysis of power is beneficial, as it provides guidance to the researcher on how to approach the difficult task of identifying the exercise of power during the decision-making processes of transport planning practices.

The phronetic approach starts with four 'value rationale' questions that must be answered:

1) Where are we going?
2) Who wins, who loses, and which mechanisms of power are used?
3) Is this development desirable?
4) What, if anything, should we do about it?

The stated questions seem very standard for social policy research; however, Flyvbjerg formalises them, and with the second question, puts power at the heart of research. Access to decision-makers of these systems is of significance for this research, and for the phronetic approach. Questions are set for a specific group of stakeholders, since only the people directly involved in the systems' planning process can provide the reasoning behind the adoption of BRT, as well as mechanisms used to achieve established objectives. Two case studies with access to key stakeholders were carefully selected. Quito, Ecuador and Cambridge, UK set the context for answering these research questions.

1.4. The Research Questions

Using the phronetic questions as framework, four research questions were designed to understand the role of power in BRT planning practices.

Question 1: What were the key drivers for the implementation of the BRT?

The first question will help understand the context of each city. What transport problems were identified before the implementation of BRT systems, and how BRT was thought out to address existing problems. In BRT literature, several reasons that may act as drivers for implementation were revealed: 1) they are cheaper and faster to implement than rail-based solutions; they can be planned, designed, and implemented within a mayoral period, typically about 4 to 5 years (Wright and Hook, 2007); 2) environmentalists support their implementation, as BRT systems have the potential to displace journeys that would otherwise be made by individual motorised transport (Wright and Hook, 2007); 3) funding agencies, such as the World Bank, the Inter-American Development Bank, and the Asian Development Bank, support BRT in developing countries based on their ability to provide good transport services to the poorest segments of the population (Scholl et al., 2016, Gilbert, 2008). Each of these perceived benefits will be explored and critically examined as part of this research study.

Question 2: Who benefited from the introduction of the BRT? Which mechanisms of power were brought to bear?

The second question will help understand who won and who lost with the introduction of BRT systems. It is undeniable that public transport creates many opportunities for different segments of the population. For example, those involved in the implementation of BRT (building contractors, vehicle and technology suppliers) have important financial interests in the introduction of these systems. Planners and politicians supporting the introduction of BRT also benefit from the successful implementation of a new system for the city. Economical gains are felt by infrastructure and technology suppliers, and also by businesses and services served by the new systems, given that more customers can travel to their locations. Lastly, and most importantly, the population served where the system is implemented gains with a new and fast travel option.

Although, there will always be segments of the population that will not benefit from the introduction of the system. The literature points out that the more vulnerable population is not being fully served by the new systems (Venter et al., 2017, Venter et al., 2013). The systems are not being designed to satisfy the needs of the poorest segments of the population; however, in some cases, the vulnerable population is located in harder-to-reach areas of the cities where it is difficult to implement BRT systems.

Different mechanisms of power are expected to be present. The literature identifies five mechanisms of power present in planning practices: intimidation, manipulation, persuasion, authority (Albrechts, 2003), and coercion (Flyvbjerg and Richardson, 2002). These mechanisms

of power can be exerted in different ways. For example, authority can take the form of knowledge, respect or prestige. Similar mechanisms were expected to be found in this research, however, the possibility of finding new mechanisms also existed.

Question 3: Is the development of the implementation of the BRT desirable?

Numerous answers to this question were expected based on the varying stances that participants have. It can be interpreted that the rapid uptake of the systems all over the world suggests these systems are not only desirable but also replicable. More than 400 systems in over 200 cities support the idea that the systems are a 'good' thing for cities. In some of the cities where the systems have been implemented, expansion projects are being developed, and every year new systems are planned and implemented throughout the world. However, there is evidence that benefits of the systems are not equally distributed in some cases. It is important to understand whether BRT is seen as the solution or part of the solution and perhaps why it is becoming so dominant.

It was expected to find —in the case studies selected— a group of actors that benefited from the introduction of the system, who believed that the implementation of the system was desirable for the city. It was also expected to find areas of the city where the system was not implemented. The demographic characteristics of those areas can provide clues about which segments of the population might not necessarily understand the implementation of BRT as desirable.

Question 4: What, if anything, should we do to improve the current reality?
- 4a: How do existing power relations shape the outcome of the system?
- 4b: How can these relations be challenged?

Recent studies have suggested that to ensure the poorest segments of the population are included in the benefits of BRT systems, it is important to introduce accessibility assessment tools to the current transport practices (Venter et al., 2017, Bocarejo and Oviedo, 2012, Jaramillo et al., 2012). This will help decision-makers design systems that are more suitable to serve the needs of vulnerable segments of the population. As a result, more BRT systems, larger feeder buses, and the inclusion of more technology seem to be the approaches made to solve existing inequalities. Venter et al. (2017) discussed two ways in which BRT systems can fulfil their potential to benefit the poorest segments of the population: first, better integration with the urban fabric, particularly with the peripheries where the poorest live; and second, a fare system that considers the paying capacity of the more vulnerable.

However, it is important to observe that these solutions focus on how BRT systems can be made more accessible. This may solve problems for these communities, or other policies may be more appropriate. The research begins with a position where the literature and planning practice start from a presumption on the appropriateness of BRT as a solution.

The existing power structures shaped a system that served the less vulnerable population to the detriment of the more vulnerable groups. The less organized, the voiceless, and the excluded have fewer opportunities to exercise power, therefore their transport needs are not addressed in the policies and plans proposed by planners and politicians. The communicative planning approach suggests that integrating the local communities into the planning practices can help overcome some of the problems. However, without a deeper understanding of the exercise of power, the participatory practices do not guarantee that the needs of the more vulnerable are addressed. This research aims to challenge existing power structures by understanding what power mechanisms lie behind and how those mechanisms can be used to favour the more vulnerable groups.

1.5. Outline of the Thesis

Chapter 2 presents a review of the literature. It starts with a discussion about the different ways of planning and the approaches most commonly made by transport planners. It is followed by presenting different forms of understanding power and how those understandings have evolved in past decades. The recent attempts to include power in planning frameworks are noted before discussing Bus Rapid Transit systems. The chapter finishes with a presentation of key points found in the literature.

Chapter 3 has two objectives. The first, to present the justification for using case studies to understand the use of power; and the second, to present Quito and Cambridge as the selected case studies. The transport developments up to the development of BRT are presented separately for each case.

Chapter 4 presents the methodology and methods used for this research. A phronetic approach was used because it proved to be a framework suited for studies that seek to understand the secrets behind the exercise of power. As for the methods used, both qualitative and quantitative methods are described. Semi-structured interviews were the main method used to gather qualitative data, however, other methods like document revision were also used. The complete interview process for both case studies is presented. In order to understand the impacts that transport systems have in cities, a discussion of the selected

method for an accessibility analysis is presented. The chapter finishes with some ethical considerations and a summary of the chapter's key points.

Chapter 5 demonstrates how the data was analysed. The chapter describes how interviews were synthesized, and how the narratives developed and were then submitted to four levels of analysis. A fifth level of analysis, called the GIS level, complements the generated narratives, exposing —with quantitative evidence— the results of the implementation of BRT in spatial and demographic terms. The chapter concludes with comments about validity and reliability of the methodology selected.

Chapters 6 and 7 present the findings for detailed case studies of Quito and Cambridge. The analysis of both case studies is presented in order to answer the research questions. The results of each level of analysis, described in Chapter 5 are presented for both cases. With the analysed data, all research questions are finally answered, with a summary of key points for the findings.

Chapter 8 draws together key issues that cut across both case studies. Using material from the answers given in Chapters 6 and 7, four cross-cutting themes are discussed with each theme being presented in its own context. The chapter then proposes ways to challenge the existing power relations with a more general view.

Chapter 9 draws the conclusions. In this chapter the main findings of each research question are presented, incorporating the existing literature and the main findings of the research. The chapter addresses existing limitations of the research and discusses some implications for future research. Based on the results of this research, and building on the existing literature, the concluding remarks propose and present a transport planning framework, for further exploration, critique, and policy formulation.

2. Literature Review

2.1. Introduction

"Rationality and Power: Democracy in Practice" by Flyvbjerg (2001), is a book about urban and transport planning during the development of an urban plan between 1977 and 1995 in the city of Aalborg in Denmark. The award-winning Aalborg project, was presented by the OECD as a model to be used internationally. As the plan was implemented, different actors influenced the adoption of the system pushing for changes to satisfy their own interests. The participation of some undemocratic groups with high political influence was of particular interest. The work in Aalborg describes problems between the different actors, questions the democratic participation of many of them, and discusses how these relationships shape planning. Flyvbjerg's work paves the way to critically examine and question the general notion of urban planning developments in cities as progressive, reformist and modernist societal projects (Yiftachel, 1998).

This thesis critically explores issues surrounding the process of implementing Bus Rapid Transit (BRT) projects in order to enhance uptake and reduce the risks found both before and after implementation. This requires understanding BRT as a political process, as well as a planning process and comprehending its implementation and evolution on the ground. It also requires a clear conceptual framework. This literature review provides that framework by exploring three important issues.

First, an exploration is presented about different efforts to define what planning is, followed by an explanation of various existing attempts to categorise planning practices. Rational and participatory planning, as the most common methods of doing transport planning, is presented. Second, power is presented as one of the key challenges in planning. Power has a long historical and conflicting tradition; different perspectives of power create different ways of dealing with this important phenomenon. The second half of the 20th century saw important developments of power theories that can help with a clearer understanding of how power is exercised in modern societies. Finally, before advancing to the third part of the chapter a summary of the key theoretical findings of the literature review are presented.

The third part of the chapter presents what is meant by Bus Rapid Transit Systems (BRT), noting different definitions and characteristics through exploring various projects around the

world. A critical look at the systems is presented, as well as current approaches to overcoming existing criticisms. Finally, the last section presents a summary of the chapter.

2.2. Planning

Planning has a wide variety of definitions. The existing diversity comes from basic historical and institutional differences between the various settings where planning is practiced. For example, in Italy, planning is considered part of the aesthetic design of buildings; whereas in Britain, planning focuses on the regulation of spatial development; and in the United States it is referred to as a loose concept dealing with the governance of communities (Yiftachel, 2001).

A broad and critical definition of planning appears necessary for the development of a credible body of knowledge about the shaping of cities. Therefore, planning is here defined after Lefebvre (1991) as the production of space, and after Friedmann (1998) as the production of human habitat. The idea is that humans, like all animals, build the environment in which we live, work, and reproduce ourselves. However, both authors agree that space is not always built as we would like it to be because it responds to a series of forces that interact with each other (Friedmann, 1998). This definition helps to position planning as the interaction of powerful forces that define the places we live in without always being the places where we want to live.

Yiftachel (1998) critically extends the common understanding of the role of planning. Planning is normally seen as a progressive, reformist, and modernist societal project. Therefore, it is understood as a rational practice that produces some kind of “merit good”. Yiftachel understands that benign social control is important to avoid chaos and anarchy. However, the same practices can be used for control, repression, constraint, exploitation, and oppression, in what is described as “the dark side of planning”.

Yiftachel (1998) notes the dark side of planning in different geographical locations, even in enlightened and highly democratised countries like the USA, UK, and Australia, where planning functions as a form of deliberate social control and oppression exercised over weaker groups. Bent Flyvbjerg (1998b) revealed some undemocratic decision-making practices in Aalborg, Denmark, during the planning of the urban regeneration project that included a large transport makeover in the city centre.

Most often, the victims of power forces that shape our cities are different racial and ethnic groups, women, and national minorities. Studies with Marxist, feminist and racial perspectives have highlighted oppression and control in current planning practices. However Yiftachel

(1998) notes that even those who agree that planning supports dominant practices of powerful groups, they also agree that planners and politicians share a practical belief in the contributions of planning to maximise the benefits for large parts of the population. By exploring the links between planning and the State mechanisms of social control and oppression, Yiftachel (1998) notes that planning is not only manipulated and used by powerful interests but also by the State to exert control and oppression in a normative way.

Friedmann (1998) explores the different positions explaining planning since the 1950s and the difficulty of a common agreement on a definition. Four difficulties are highlighted for finding a common understanding (Friedmann, 1998). First are the problems of defining planning as an object to be theorized; the difficulty arises because of the struggle to answer the following questions: “Who is the planner? Is it the architect, the urban planner, the housing expert, the lawyer with no planning degree who creates regulation, etc.”? “What is the planning process?” The formal planning process is directly connected to a series of additional processes, which could be happening long before the planning starts. The large number of answers for these and other questions will make a significant difference to what is planning and how planning is theorized.

Second is the impossibility of talking about planning disconnected from actual institutional and political contexts. It is not the same to discuss and compare about planning in the Netherlands, India, or the USA, because theorizing about planning in any country should help improve the practices in that particular country and should reflect the local traditions of such setting.

Third is the problem utilising several modes of doing planning theory, normative, positive, critical and paradigm-shifting, and the dilemma of choosing among these modes. Some scholars see theory as primarily normative: how to improve the practice of planning. For others, it has an explanatory or even predictive value that can lack concepts about power theory, but can be highly useful in practice. Others use planning theory to critically question traditional assumptions about planning. Finally, planning theorists’ efforts in changing our thinking about planning altogether. For example, sustainable mobility appears as an alternative paradigm in which the complexities of cities are investigated and which strengthens the links between land use and transport (Banister, 2008).

The fourth and last problem found is the difficulty of incorporating power relations into planning discourse. Friedmann (1998) notes that power has been understood in a sense of enabling the powerless to do things for themselves, however the existing literature about

power has been imported from outside the planning field. Therefore, he urges theorists to build relations of power into their conceptual frameworks.

These different views about planning have developed a variety of theories that have been organised into different categories. An exploration of some of the existing categorizations follows in the next section.

2.2.1. Planning Categories

Different authors reviewed and highlighted the importance of bringing power into planning research. Friedmann (1998) and Flyvbjerg (2002) recognize existing 'ambivalences' about power as the biggest problem for understanding planning and have encouraged scholars to study what is actually happening in particular cities: who gains and who loses, and what power relations have to do with this (Schmidt-Thomé and Mäntysalo, 2013).

These 'ambivalences' are found in all schools of thought, from the rational paradigm to the communicative approach. It is highlighted that planners should have a good understanding of how power is exercised during planning processes before imposing a normative structure (Friedmann, 1995). The challenge is to understand the weaknesses found by the different scholars in the various planning models in order to develop new ideas to address the existing flaws.

During the past fifty years, many authors have discussed the array of planning theories that have risen. Different classifications and typologies of planning theories have been defined. For example, John Friedmann (1995) identifies five modes of theorising planning: applied rationality, societal guidance, behavioural approaches and communicative practice, as well as social learning, and radical planning or emancipatory practices. The intention was to awaken master-level students onto the complexities of a planning career and provide a framework for their own ideas about planning.

On each of the five modes identified, Friedmann includes the main authors and issues for each mode, the basic concepts and methods, the classical writings and the normative inferences for planning practice. This categorization made by Friedmann was not well received by planning scholars of the time, as they did not want to be restricted by any classification of planning discourse, because it was perceived that any definition was "limiting their freedom to call 'theory' whatever they wished it to mean" (Friedmann, 1998 p.246).

At the same time, Patsy Healey (1997) was categorizing planning with different intentions. She categorized planning, in a European and North American context, in three traditions: economic

planning, physical development, and policy analysis. The objective was to build a new Participatory Planning Theory based on elements of each tradition upon which transformation can happen. According to Healey (1997) *economic planning* aims to manage the productive forces that, together with social policies, form the framework of a 'welfare State'; the *physical development* originally supports health, economy, convenience, and beauty of urban regions; and *policy analysis* puts emphasis on instrumental reasons.

The evolution of these traditions has incorporated the institutional preconditions for economic health, the recognition of the social processes underpinning planning and a new variety and complexity of sustainability demands, and demand for more participative and interactive policy development and implementation. Thus, the evolution of these traditions provided clues to Healey for the development of new forms of Participatory Planning.

In contrast, Allmendinger and Tewdwr-Jones (2002) discussed several schools of thought that have shaped planning in the past decades: systems and rational theories of planning, Marxism and critical theory, new right planning, pragmatism, planners as advocates, postmodern planning, and collaborative planning. Each category encapsulates not a single theory, but instead a collection of coherent and self-supporting theories/ideas/philosophies (ibid).

For example, rational planning includes technical rationality, functional rationality, and instrumental rationality (Albrechts, 2003). There is great difficulty in finding one single theory that embodies all the complexity of the planning field given its diversity of actors, philosophies, practices and contexts (Friedmann, 1998). The various theories coexist and they all have a contribution to make to the planning field (Ferreira et al., 2009). Alexander (2000) supports the idea of coexistence by presenting a contingent framework where the existing planning paradigms are complementary, not conflicting: each theory contains different actors or roles doing different kinds of planning at different stages or levels in the planning process (Alexander, 2000).

2.2.2. Rational Planning

Rational planning has been described by Willson (2001, p.3) "as an exploration for the best possible mixture of means (plans and programs) for given ends (goals)". This assumes that effective means can be found using algorithm-like methods, that all promise a given goal or objective function, such as optimisation and cost-benefit analysis. Rational planning is deep-rooted in a positivist worldview (Connell, 2010).

Positivism prioritises observed data over theoretical concepts, arguing that observed data is more believable (Timms, 2008). It is needed that planners extract and interpret observed data, particularly in areas that are too complex for political leaders or the public (Willson, 2001). In the planning of transport systems, for example, instrumental rationale assumes that unchangeable laws can be discovered and used for prediction of travel behaviour. However, such methodologies are problematic in applications that deal with people, given the potential of people to change their behaviour (Timms, 2008).

Rationalism applies well when decision-makers have "a well-defined problem, a full array of alternatives to consider, full information, a strong capacity to predict the consequences of considered alternatives, full information about the values and preferences of citizens and fully adequate time, skill and resources" (Forester, 1984, p.24).

However, real-life planning encounters many challenges. To begin, there are enormous difficulties generating accurate projections of future urban growth that do not allow for solid foundations of high-quality data and a good understanding of the likely patterns and trends of urban change (Cohen, 2006). Additional to these mentioned difficulties in developing countries, rapid urbanisation and motorization levels —in some cases above 10% annually— together with little institutional capacity, technical capacity and lack of financial resources (Pendakur, 2011), produces a challenging task for preparing rational plans.

Rational planning requires anticipated goals of the decision-maker to be known. However, in order to establish objectives, the problems need to be defined. Definitions of problems can be framed in different ways and can also be defined by power. Shmueli et al. (2006) note framing as cognitive devices or shortcuts for making sense of complex situations.

Frames guide the ways participants perceive their social realities and present these to themselves and to others. Frames can also present institutional principles that structure those perceptions (van Hulst and Yanow, 2014). Frames are constructed by beliefs, values, and perspectives held by particular institutions and interest groups, and those who construct frames do not do so from positions of neutrality (Schon and Rein, 1995). How planners or institutions frame the existing problems will determine the choice of alternatives, the baseline and background to be used, the consequences, the preferences and interests of the actors, and the time needed, as well as skills and resources (Tennøy, 2010).

For example, in order to gain public support in the UK, a Bus Rapid Transit (BRT) system is normally framed as part of a major portion of policy that aims to attract car users as an element of transport demand management and to reduce transport environmental impacts.

Therefore, a crucial issue is whether BRT can be of sufficiently high quality to attract car users and produce a modal shift (Hodgson et al., 2013). In Latin America, BRT is framed as being pro-poor projects, and their political acceptability is often premised on their position within a larger equity agenda (Venter et al., 2013, Venter et al., 2017, Scholl et al., 2016). Each country frame comprises a different set of objectives as well as applied knowledge.

In search of new solutions, planners may start looking in different places for evidence. In the past decades, with the fast growth of communication, planning is increasingly relying upon policy transfer (Dolowitz and Marsh, 2000). Policy transfer is defined as the "process by which knowledge about policies, administrative arrangements, institutions and ideas in one political system (past or present) is used in the development of policies, administrative arrangements, institutions and ideas in another political system" (Dolowitz and Marsh, 2000 p.5).

Rational planning theories address the ideas that planners in cities or countries can look for efficient and effective policy lessons from different places (Marsden et al., 2012). However, as Wang (2010) notes, context matters in the policy transfer process. Policy transfer implies a series of new challenges, particularly in an era where a large number of policies is one click away.

Policy transfer can be a completely voluntary initiative. However, powerful hierarchical structures of formal governance create coercive mechanisms of transfer, such as harmonised regulations (EU normative) or selective finance (IMF, IDB, World Bank) (Marsden et al., 2012). International agencies or funding bodies can play an important role in the diffusion of policies as well.

Evans (2009) suggests that coercive transfer mechanisms can be particularly important from international agencies to developing countries, because they are influenced more by these agencies. Such is the case of Bus Rapid Transit systems, as this has become one of the World Bank's favourite policies for developing cities, based on the notion that these systems have the ability for poverty alleviation (Wright and Hook, 2007).

Matsumoto (2006) notes that the World Bank was one of the funding sources for Transmilenio in Bogotá, and the Spanish Development Fund and the Spanish Banco de Bilbao Vizcaya funded the total cost of the first trolleybus line in Quito. International agencies had influence in Jakarta and Beijing. For the TransJakarta project, the Insitute for Transportation and Development (ITDP) provided assistance in the form of support to civil society, private bus operators, and the government. This assistance included visits of key stakeholders like government officials, local parliament, the private sector, press, and NGO representatives to

BRT systems in Latin America, and visits from key consultants to Jakarta. These visits happened at key turning points and seem to have influenced the adoption of the system (Matsumoto, 2006).

2.2.3. Participatory Planning

Developments in planning, including transport planning, towards more collaborative ways of planning have been described by Healey (1996 p.1) as the "communicative turn" of planning. Participatory planning theory, or collaborative planning, attempts to integrate scientific and social learning approaches in order to create a rational basis for constructing ends and means in a democratic society (Willson, 2001).

Collaborative planning focuses on the communication exchange that takes place amongst various social actors within the planning process (Timms, 2008). It is based on the ideal of consensus by Habermas, (1990:198) in (Flyvbjerg, 1998a) that "argumentation ensures that all concerned in principle take part, freely and equally, in a cooperative search for truth, where nothing coerces anyone except the force of the better argument". It appears with an antagonistic understanding of previous positive ideas of rational theory emphasising "communications as a fundamental prerequisite for understanding and transforming society" (Huxley, 2000 p.369).

However, a key element is that communicative planners accept multiple forms of rationality, including instrumental rationality. The role of the planner is to create more space for other discourses by questioning the dominance of instrumental rationality (Connell, 2010). Studies on collaborative planning have resulted in increasing knowledge about everyday planning practices, particularly in the ways planners negotiate particularities of the planning process, like local development or environmental issues, in their offices and in public meetings (Huxley, 2000). Now there is growing debate over the theoretical basis of, and practical possibilities for, collaborative planning. Although the communicative theory has strongly emerged as an alternative for instrumental rationality, some authors have critically examined communicative rationality theories.

Tewdwr-Jones and Allmendinger (1998) note that the basis for communicative rationality is the work of Habermas (1984). The authors show that Habermas develops his communicative rationality based on the role of "language and the search for undistorted communication as a basis for consensus and action" (p. 1976). In the ideal speech situation, the only force present is the force of the better argument (Flyvbjerg, 1998a). Tewdwr-Jones and Allmendinger (1998)

identify three components of critiques on communicative rationality: theory, practice, and value.

First, the theoretical foundations are questioned as not being a complete theory; they are described as a life view based on a very partial understanding of the world based on specific values, such as participatory democracy and deep questioning of free-market economies. Emphasis is made on participatory democracy for conflict resolution; however, participation does not necessarily mean desirable outcomes, given the existence of different levels of power relations. As mentioned before, undemocratic forms of planning have been found in the urban regeneration project in Aalborg, as private interests directed the outcomes of a participatory, European award-winning, urban planning project (Flyvbjerg, 1998b).

Second, there are practical problems with the application of communicative rationality. A practice that is based on values is difficult to implement because values are different from person to person and interests among groups are varied. There is room for accord between group members to ensure their viewpoints win over other participants, leaving space for normative action to occur.

Fagence (1977) (Albrechts, 2003) alerts that practices directed and executed by bureaucracy, rather than those that are motivated by initiatives from politicians or citizens, will degenerate into perverted forms of democracy. Reaching consensus does not mean a positive outcome, as some group ideas are definitely left out. Bureaucracies and their professional staff have played a significant role in perpetuating outmoded planning ideas in countries like Venezuela, Bolivia, Ecuador, Paraguay, and Nicaragua, where many planners from the socio-economic elite, and those who identify with its values, oppose the current regime's call for a new approach to planning policy that questions models of professional expertise and demands that planners learn from the people (Irazábal, 2009).

Tewdwr-Jones and Allmendinger (1998) note a series of problems with participatory planning. For example, during the integration of discussion groups, how are participants identified, who is included, who is left out, who decides who participates? If the role of the planner is to be denied a communicative action process, who will facilitate the process of mutual learning and sort through the arguments expressed? Collaborative planning can bring high expectations to participants about the expected outcomes of particular projects; however, ideas can get lost during the implementations process.

Third, issues related to values are also identified. The role of the planner in the collaborative exercise is unclear. Is the planner expected to act supportively in favour of participatory

practices while maintaining a marginal role? For communicative advocates, the planner is the vehicle of power and political symbols from the administrative elite. It seems difficult to discern if it is expected for planners to act as additional stakeholders or if it is time to de-professionalise the planning system. It assumes the facilitator —being it the planner or another stakeholder— will act in a value-free mode without exercising power (Tewdwr-Jones and Allmendinger, 1998).

2.2.4. Participatory Planning in Transport Research

Despite the existing critics to participatory approaches, there is a generalised belief in transport research that the integration of the public into the planning process can lead to more sustainable and democratic outcomes. Transport planning has presented itself as a value-free practice, and as such has been long related to a rational positivist approach. Since the 1960s, a clear interest in the efficiency of overall movement of people and goods has influenced transport planning guidance (Banister, 2002). Transport planning has traditionally followed, most commonly, a rational positivist approach (Willson, 2001). However, since the 1990s, a renaissance has been taking place, because there has been growing political and public concern over the way in that transport planning has been carried out (Banister, 2002).

Participatory planning is widely accepted as a key component of sustainable transport planning (Banister, 2008). For example, de Luca (2014) notes that considering the interests of the public can help planeers understand the needs of the people for whom the planning process is carried out. It may actually help build a more coherent future. Fernandez Milan (2016) argues that Transit Oriented Development could multiply social benefits with the introduction of participatory planning processes, by increasing transparency, trust, social inclusion, collective action, and social networks. Public engagement is widely interpreted as involvement in decision-making with the purpose of influencing the choices being made (O'Faircheallaigh, 2010).

In the UK, driven by national planning participatory strategies, local planners have been experimenting with new methods of public involvement (Bickerstaff and Walker, 2001). Hodgson and Turner (2003), for example, review the existing links between social exclusion and transport in the UK and propose possible directions for the development of practices and tools in order to tackle exclusion via more participatory approaches.

An analysis of the inclusion of public participation by the UK highway agencies (Bickerstaff et al., 2002), after the Labour shift towards more participatory approaches (DETR, 1998), found that actions did not often match the government’s rhetoric. It can be argued that, at the time

of the study, in 2002, the government had not enough time to properly implement wide public participation. However, it was found that some organised 'special interest' groups had more opportunity to participate than 'ordinary people'; that participation was more likely to happen during planning development than during earlier stages of goal setting; and that strategies, settings, and participation was more oriented towards informing than consulting (Bickerstaff et al., 2002).

In the US, Bartholomew (2007) reviewed 80 scenario planning projects in over 50 metropolitan areas. Scenario planning is a planning practice that allows envisioning possible future outcomes that then creates the opportunity to engage with local communities. It creates oportunities for stakeholders to engage in productive discussions about their futures and is a hands-on opportunity to shape the development of their cities. However, the study found that the public was not actively involved in the process. Instead, its participation was limited to being informed about decisions made by consultants, planners and other insiders (Bartholomew, 2007).

In Portugal, as in many European countries, the use of a motor vehicle is the preferred mode of travel. Gil et al. (2011) describe how a participatory approach to develop a sustainable transport plan can help change public perception towards more sustainable transport modes, such as walking, cycling, and using public transport. The study found that the involvement of heterogenous multiple stakeholders helped in the development of the plan. Thus, active involvement and transparency from all stakeholders, particularly public officials, was found to be key for the development of the plan in the island of Ponta Delgada, in Portugal.

Since 1992, encouraged by Agenda 21, the European Union has been recommending constant and continuous dialogue with all relevant stakeholders. For developing countries, the recipe is not different, and new methods of inquiry to complement traditional planning practices are believed to help in understanding the needs of the most vulnerable segments of the population in developing countries (Fouracre et al., 2006).

The various studies about the role of participation in transport planning highlight the importance of bringing the public to the decision-making arena, particularly when trying to pursue sustainability transport objectives. Public engagement in transport planning cannot yet be considered a consolidated, successful and fully shared practice in any stage of the transport planning process (de Luca, 2014). It is important to note that power can be hidden inside participatory planning approaches supporting undemocratic practices (Flyvbjerg, 1998b) and,

without the incorporation of power analysis, participatory approaches can repeat the same mistakes made by traditional rational planning.

Although public participation in decision making seems like a good idea for people committed to democratic principles, there are still a few challenges during participation processes that need to be deeply understood. Three waves of critics are found in the literature by Bickerstaff and Walker (2001). First, it is pointed out that it is important to consider new ways of engaging with the public, as well as having an analytical focus on the nature and failures of the institutional contexts within that processes are being employed.

It appears that new communicative practices may be becoming part of normal politics, rather than instruments of empowerment, thus providing powerful stakeholders reasons for maintaining influence while agreeing to act more democratically (Allmendinger and Tewdwr-Jones, 2002). Second, the Habermasian principles of participatory planning, where consensus is reached by the power of the better argument, will never fully be met. However, in an attempt to approximate to the proposed principles, decisions should include important knowledge and perspectives that are socially just without taking advantage of those in weaker positions. Last, it is found that in response to the Habermasian ideal, perspectives from Foucault —on discourse and power— and the notion that participation is constrained by certain sets of power relations, are increasingly being considered (Bickerstaff and Walker, 2005).

2.3. Power

Current reflections on power have not settled its definition. For example, questions arise about how to study it and —if it is measurable— how to measure it (Lukes, 2005). Power is everywhere; it is discussed and written about; people know or think they know what it is. The Oxford English Dictionary defines power as *the capacity or ability to direct or influence the behaviour of others or the course of events* (Dictionary, 2016). However, this definition does not explain the diverse and broad understanding and even misunderstandings of power. Power is talked about in daily life and discussed in scholarly works in an attempt to explain "its location and its extent, who has more and who less, how to gain, resist, seize, harness, secure, tame, share, spread, distribute, equalize or maximize it, how to render it more effective, and how to limit or avoid its effects" (Lukes, 2005 p.61).

2.3.1. Power – Early Developments and Understandings

Modern thought about power originated with two main authors. Machiavelli, during the early 16th century, published *The Prince* and Thomas Hobbes published *Leviathan* in the mid-17th century. These two works influence —in one way or another— how we interpret power in social sciences (Karl Marx) and other domains, such as philosophy (Friederich Nietzsche), and psychology (Alfred Adler) (Sadan, 2004). Machiavelli presented power and organisation as strategic and decentralised. Power was presented as a means, not a resource, and was used to seek strategic advantages, such as military ones. On the other hand, Hobbes presents power as hegemonic, where power was centralised and focused on sovereignty. Until the mid-20th century, the Hobbesian understanding of power was seen as triumphant, since this vision of power was more suitable to the modern scientific approach. The Hobbesian view permitted observation, measurement and quantification of power. However, starting in the 1970s, the strategic and contingent understanding of power, presented first by Machiavelli, received a renewed appreciation due to rediscovering the unpredictable nature of power and its profound dependence on context (Sadan, 2004).

After the Second World War, an understandable interest in power resurfaced in social sciences. Max Weber, following a Hobbesian line, developed a definition of power that has remained the starting point for understanding power. According to Weber, power was the ability of an individual or group to achieve their own goals or aims when others were trying to prevent them from realising them (Edles and Appelrouth, 2014). For him, power could be exercised by authority or coercion. Authority power was seen as legitimate while coercion occured when someone exercised power through force.

Authority power manifested itself in three forms:

- Charismatic: authority was exercised based on charisma, such as personal qualities of an individual;
- Traditional: power came from established customs that passed power on an hereditary basis, such as the British monarchy and;
- Rational-legal authority: power came from certain groups having certain positions of power over subordinate groups; for example, a teacher in a classroom has power over its students.

Dahl (1957), Bachrach and Baratz (1962), and Lukes (2005) built on Weber's ideas to provide a wider understanding of power. These three authors conceptualised power in an incremental form. Dahl used Weber's definition; however, instead of discussing power in the context of

organisation and structures, Dahl located the discussion at a community level. His major contribution was in understanding how ruling elites developed after World War II. In his theory of community, power was exercised in a community by a specific individual. This caused those who are subjected to power to follow the private preferences of those who possess it (Sadan, 2004).

Bachrach and Baratz responded to Dahl by developing a model called the *Two Faces of Power* (Bachrach and Baratz, 1962). The most important criticism raised by Bachrach and Baratz to his work was in Dahl's assumption of a pluralistic society, in that the community interests are represented by means of open processes, thus contesting the idea that the decision-making process is democratic and open. The second 'face' of power presented was the ability of power to prevent things from happening; i.e. power can be exercised by *not* making decisions.

They raised awareness of the ability of power elites to prevent discussion on certain issues and determine what is important and unimportant. These two ideas developed by Dahl and by Bachrach and Baratz are known as the overt and the covert dimensions of power. The overt dimensions deal with declared political interests, as they are politically open, whereas the covert dimensions only reveal themselves when complaints of political non-issues appear, such as lack of access to good education in poor communities while there is overprovision of quality education in high-income areas.

A few years later, Lukes (2005) took the ideas of Bachrach and Baratz one step further by introducing a third dimension to the exercise of power. The third dimension deals with the relationship between political preferences and *real interests*. Power, in this view, can embed interests in people's minds that are contrary to their own good. The dimension introduced by Lukes is the hardest to identify, because it is difficult for people who are influenced by this dimension to discover its existence.

Thus, a complete understanding of power requires to unveil both the overt and the covert dimensions, but also to examine the entire political agenda and examine its adequacy to the true interests of various groups. Regarding the important advances in understanding how power is exercised, the different views presented above all agree that power is exercised by someone over others. That someone can be an individual or a group; however, the different understandings present power as something that is always the possession of someone.

2.3.2. Power – Recent Approaches

During the same years that Lukes (1974) was developing his radical view on power, a contemporary French philosopher named Michel Foucault was thinking about power in a way that would dramatically change its modern understanding. Foucault was, like many critics of Western society, concerned about the problem of excessive government power (Stein and Harper, 2003). He developed a 'genealogy' of how knowledge and truth are generated in different moments in history.

Genealogy is the term Foucault uses to describe his historical method to study knowledge. He presents knowledge not as incremental, but as different moments of thought in history. This means that the way humans developed knowledge and truth in the Middle Ages was completely different to how the Greeks developed knowledge and truth, and modern man also develops it in another way. He also understands that knowledge generated in time period responds to the way power is exercised.

Foucault (1978) notes three forms of knowledge-power and each one connected to specific historical settings, as follows:

Measure: a form of knowledge-power examined in its relation with the Greek City-State. It is a means of establishing or restoring order, the right order, in the combat of men or the elements. But it also contains a matrix of mathematical and physical knowledge. Measure thus had a function to create order (Foucault et al., 2015, in Elden, 2017).

The inquiry: instituted during the formation of the medieval State, this is a means of establishing or restoring facts, events, actions, properties and rights. However, it contains also a matrix of empirical knowledge and natural sciences. The inquiry has the function of centralization (Foucault et al., 2015, in Elden, 2017). The inquiry is about knowing events according to witnesses, according to criteria of observation (Foucault, 2016).

The examination: a means of setting or reinstating the norm, the rule, the distribution, the qualifications, the exclusion. But it is also a matrix of all the psychologies, sociologies, psychiatries —in short, of what is called the 'human sciences'—. An examination is a form of knowledge-power linked to systems of control, exclusion, and punishment that characterise industrial societies. Examination has a function of selection and exclusion (Foucault et al., 2015, in Elden, 2017). The examination recognizes individuals according to observation by power-holders and a criteria of normality (Foucault, 2016).

Measure, inquiry and examination are all forms of exercising power; and, at the same time, for establishing rules for knowledge (Elden, 2017). In historical terms, power can be understood as containing both inclusion and exclusion, some social segments participate in the benefits of that society while others are excluded. The knowledge-power form described above differentiates normal from pathological, healthy from ill, and rationality from madness; and how that differentiation changed throughout time.

Foucault notes that our understanding of the subject as normal, healthy, rational, non-delirious, etc. depends on a gesture of force, of power, of censorship, a division and an exclusion from the different. For the Greeks, anything outside of the social order needed to be excluded from the city; in medieval times, the inquiry excluded other forms of knowledge, for example the test; and in modern times, people living on the fringes of society, outside the 'norm', are excluded.

The different forms that power adopted to determine what knowledge and truth are, during different time periods, allowed Foucault to present certain characteristics of power that help advance the modern understanding of the power phenomena. For Foucault (1982), power is not something people have, it is something people exercise. The question: "How is power exercised?" is more important to Foucault than "who has power or where it is localised?" (Flyvbjerg, 2001).

Foucault did not attempt in any way to frame a general theory of power. His focus was on knowing where power happens, how it happens, between whom, between which points, according to which procedures and with what effects (Foucault, 2004). Although Foucault does not present general theories about power, he does give ideas of how to understand power.

For Foucault, power is not exclusively localised in government, the State or any particular person or group. Rather, it spreads throughout most micro levels of the social body. The idea that a class or other privileged group has power is useful, but power is not possessed, it is exercised. It forms a grand network of relations that interact with each other, thus forming a chain or a system, or alternatively, the disjunction and contradictions that isolate people from one another (Foucault, 1978). Power is not stable; it is something that is affecting one and all and is always mobile.

These power relations are productive. How we become 'subjects' is the real interest of the studies of Foucault (1982). We begin to understand a subject as what is normal, rational, etc. This design feature exists, both socially and historically, from the moment we think oppositely about what cannot exist, excluding everything that can compromise our own existence, for

example the mad and the different. It is the distinction between ‘normal’ and ‘abnormal’ that determines productively who we are and how we behave, by establishing what we think, generating discourse and knowledge, and promoting public policy (Foucault, 1998). The Cartesian subject, for example, is the thinking subject, “I think, therefore I am”. This subject cannot be confused in any way with the delirious or the mad.

As stated before, power is not something people have; it is something people exercise. The exercise of power has particular characteristics described below. The sovereign view of power accepts that power is exercised by the formulation of norms, laws or policies (Lukes, 2005). However, those, like the tip of an iceberg, are just the visual end points of a series of complex interactions in the network of relations (Foucault, 1998).

Power is exercised differently depending on the context; that is to say the resources and the people that are related to particular times and behaviours. Power is exercised by a series of micro processes that happen before the implementation of specific policies. Power is exercised by actions that modify other actions. Such actions can be observable or non-observable. It is not about making people do things, but motivating what to do in very subtle ways. Power is exercised only over free subjects, and subjects must maintain the capability to act.

Freedom is not necessarily the absence of physical restraint, but the ability to think outside of common knowledge or ideas. The interplay between power and freedom is not confrontational, as they are both needed for the productive exercise of power (Foucault, 1978). Freedom is a condition and a precondition for the exercise of power. Power is exercised strategically, like in war.

Objectives and aims are set by the exercise of power, and most often they appear as the production of what is socially desirable. But this does not mean objectives and aims result from a person’s individual choices; these are the result of different mechanisms and interplay of different actors (Foucault, 1982). For example, a transport plan might be set to increase transport efficiency in terms of reducing travel time of car users, but that could lead to more cars on the roads, increasing accidents and air pollution.

Finally, where there is power there is resistance. Resistance, as the exercise of power, is immersed in the social body and uses the same complex mechanisms used by the exercise of power. It is in this battleground of relations that we must try to analyse the mechanisms of power (Foucault, 1978).

The different theories and conceptualizations of power presented above have influenced many fields of the human domain. Particularly the work of Foucault has influenced others in

understanding the role of power in many areas and theories of planning (Flyvbjerg and Richardson, 2002, Yiftachel, 2001).

The analysis of Foucault's concepts of power can be used in productive ways to support the empowerment of civil society; however, in regard to planning, his theories have been ignored (Flyvbjerg and Richardson, 2002). Foucault conceived power not only as a mechanism of repression, prohibition, constraint and exclusion, setting limits to what agents do and might desire, but also as a whole series of actions producing positive effects.

As it traverses and produces things, it induces pleasure, forms knowledge, and creates discourse (Lukes, 2005). His ideas concerning power are important, as they not only help understand how power is exercised, they also give us clues on how the exercise of power can help deliver better outcomes. The idea that power both represses and produces is analysed by different authors within the planning field.

2.3.3. Power and Planning

Power, resources, and expertise are basic components for building planning capacity of agencies and authorities (Adams and Watkins, 2014). As mentioned in section 2.2.1., power is often seen as the position of a person or group that has the ability to influence the behaviour of others. Under this idea, transport planners and the agencies they represent hold power during planning processes, and focusing on their practices can help understand the role of power.

However, as pointed out by Flyvbjerg (1998b), even in countries with highly democratic systems, some undemocratic forces are influencing the final outcomes of the planning process. It is essential to investigate how power is exercised, rather than simply identifying who holds power and why they do so. Authority and political supremacy are important in planning projects, but power cannot be reduced to them. Despite important advances in transport planning practices, big questions regarding who is benefiting from transport investment remain. A deeper understanding of politics behind decision-making can help uncovering the role of power in transport decision-making in order to inform and advance the transport planning practice.

Yiftachel (2001) proposes to start looking for the actual impact of planning rather than what is being promised. The suggested approach is willing to reconsider the legitimacy of the entire planning practice and not blindly accept its usefulness for society. This will allow for better

understanding of power structures and the different dynamics between different actors that often participate in the “dark side” of planning.

As noted before, the same policies and tools that can be used for the creation of some sort of good for society can be used by societal power to advance opposing goals. This is clearly illustrated in the Aalborg case study (Flyvbjerg, 1998b): the promise of a good city was not achieved. BRT projects in developing cities are often positioned within a pro-poor agenda; however, the poorest segments of society may not be receiving the full benefits of these schemes (Venter et al., 2013).

Yiftachel (1998) notes that planning can also be used for social control, however, it is rarely exerted openly. It is often exercised as an agreed and generally unquestioned plan. Stakeholders involved in planning often hide, ignore, or are simply unaware of the regressive consequences of their actions. It is recommended that a societal critique of planning is undertaken, given the existing mismatch of the normative values and beliefs and concrete social and political outcomes (Yiftachel, 2001).

Stein and Harper (2003 p. 126) note that different authors have “extended and generalized Foucault’s understandings to claim that all supposedly legitimate social processes, including planning, are a sham, in the sense that they can be understood only in terms of the vocabulary of power—who has the most power to advance their own interests”. Implementation of any policy requires that a set of interests are advanced, this does not turn them into a sham, however if interests are concentrated in a handful of actors, policies may start losing legitimacy.

After Friedmann’s (1987) seminal work urging planners, practitioners, researchers, and scholars to include the role of power in their frameworks, important advancements have been achieved and many scholars have taken a Foucauldian perspective to analyse how power is exercised. The most representative authors found are Flyvbjerg (1998b) and Yiftachel (2001) (Stein and Harper, 2003).

The analysis of power is not exclusive to the mentioned authors; participatory planning advocates also include power in their analysis (Healey, 1997, Forester, 1982), however, they tend to remain normative without understanding what really happens in politics or what is really behind rationality, what is understood as “realpolitik and real rationality” (Flyvbjerg, 2001). Studies of power help with such understanding (Flyvbjerg, 2002) by addressing what is really happening behind the existing and accepted rationalities.

As mentioned in Chapter 1, five typologies of power have been identified. A classification system helps as a vehicle for analysing power. The typologies found are defined as:

a) Intimidation: the act of making timid or fearful or of deterring by threats;
b) Manipulation: to control or play upon (information, actor, process, etc.) by artful, unfair, or insidious means so as to serve one's purpose;
c) Persuasion: to move by argument, entreaty, or expostulation to a belief, position, or course of action;
d) Authority: power to influence or command thought, opinion, or behaviour, authority can be related to a hierarchical position, to knowledge, to respect, or to prestige Albrechts (2003).
e) Coercion: the action of persuading someone to do something by using force or threats, can also be added as one of the typologies found in the planning literature (Flyvbjerg and Richardson, 2002).

The types of power identified are exercised in various ways in different stages of the planning process. These stages are recognized as dimensions of planning; identifying each planning dimension can help recognize how power relations shape the process. These are presented by Albrechts (2003) as three dimensions of planning: plan making, formal decision-making, and action/implementation. These are similar to the chronological stages of interactive projects described by van Tatenhove et al. (2010): establishing the architecture of a project, the negotiations within a project, and the way that the outcomes of interactive projects are translated into formal decision-making circuits. Plan-making is referred to as the process of the planners' proposals and recommendations; formal decision-making as the decisions of elected members of parliament or city council; and action /implementation are the actions of executive officers, citizens, firms, etc. (Albrechts, 2003).

However, power can be shaping the planning process before the identified stages even happen. "Power is not an institution nor a structure nor a certain capacity that some possess: it is the name that is given to a complex strategic situation by a certain society. For Foucault, power is a flow-like, diffuse characteristic of social practices, which operates through discourse —instead of through the government (actor) or the law (rule)— and that disciplines —instead of subordinates or excludes— ordinary people. Discourses define what normal and legitimate behaviour is" (Arts and Van Tatenhove, 2004 p.349).

Power is richly embedded in planning. The recognition of the scientific status of certain branches of knowledge, such as transport planning, is a way of turning these branches of

knowledge into a hierarchy that is linked to power status (Crampton and Elden, 2007) with consequences much more effective and refined than X influencing Y. In a similar way, institutions develop a hierarchical status based on resources available, like banks with their lending capabilities, or NGOs with their knowledge resources.

All actors —including organisations— in the planning process have different objectives of what they want to achieve; however, the opportunities to achieve those objectives are not equal. Individual stakeholders and groups of stakeholders exercise more power, that allows them to pursue their objectives (Albrechts, 2004). However, the implementation of such objectives sometimes can mean obtaining the opposite to what was originally expected.

Planning, and transport planning in particular, is far from being a value-free practice (Willson, 2001). The idea that planning is intended to do some kind of 'good', is completely dependent on the values practised by the person or group making the judgement. The rational planning paradigm has created a series of planning innovations, such as inquiry methodologies, and cost-benefit analysis, that help with the decision-making process. Participatory planning has integrated the methodologies in the rational paradigm with additional tools to include a larger group of stakeholders, particularly the public, in order to make more informed decisions and design better transport policies.

However, more communication has not guaranteed a better outcome and transport projects are still being delivered with negative social implications, including environmental, exclusionary, and economical. Bringing power to the analysis can help understand how the decision-making process is actually made, in order to start correcting the planning processes so as to develop better outcomes.

2.4. Key Theoretical Findings

The literature reviewed in this document has discussed various themes and concepts that have been analysed during the construction of this PhD study. It has focused on both planning and the role of power in planning practices based on literature from the developed world since most of the existing literature comes from those countries. However, it creates a rich understanding of existing trends and theories that can be used elsewhere. Some of the conclusions from this literature review are as follows:

Planning is an activity that is very difficult to define; what planning achieves depends on the countries and regions studied. There is a general understanding that planning has the objective to create some kind of 'good'. However, the same tools and techniques used to create a better

city can be used for the opposite objective, like social exclusion, transport externalities, such as congestions, increased pollution levels, safety hazards, and others.

Rational planning practice has dominated the transport planning field for many decades. Transport planning has built a reputation of being technical and free of values. However, the results have produced planning that lacks respect for local knowledge, culture, and values. In an attempt to move away from instrumental rational ideas about planning, new theories have been developed with the objective of integrating more actors and ideas into the processes. More actors represent more democratic participatory processes, where dialogue was the means to reach consensus. However, the inclusion of new actors does not guarantee better outcomes. Whether more actors means better planning remains an empirical question for exploration and research.

A new approach to understanding planning is centred on the idea of exploring the consequences of current practices with an emphasis on power, and how power shapes the results of policies and programmes. By understanding how power is exercised in the planning processes and how that behaviour relates to the actual results of implementations, planners can create strategies to deal with power and address the difficulties presented.

2.5. Bus Rapid Transit - BRT

The purpose of this research is to understand the planning process and the role of power during that process for the development of Bus Rapid Transit projects.

2.5.1. Definition

There are several definitions that describe what a BRT is. However, they are all centred on the idea of a bus-based system in its own right of way that delivers a high-performance service. Wright and Hook (2007 p. 1) define it as “a high-quality bus-based transit system that delivers fast, comfortable, and cost-effective urban mobility through the provision of segregated right-of-way infrastructure, rapid and frequent operations, and excellence in marketing and customer service”.

The Institute for Transportation and Development Policy (ITDP) has developed the ‘BRT Standard’, a benchmarking tool for BRT systems, and define it as “a section of a road or contiguous roads served by a bus route or multiple bus routes that have dedicated lanes with a minimum length of 4 kilometres”(ITDP and GIZ, 2013, p. 6). The BRT Standard identifies six categories with their respective sub-categories by which all systems are rated, see Table 1. The

best rated systems receive a gold qualification, the systems with fewer points receive silver or bronze.

Long time has passed since the initial bus priority measures —such as designated busways and bus lanes— were proposed back in 1937 in the USA. (Levinson et al., 2002). Bus Rapid Transit systems have been implemented throughout the world in the past few decades (Deng and Nelson, 2011). The first known full BRT system was implemented in Curitiba, Brazil, where busways and feeder services were introduced in the 1970s, and later integrated with the transit network in the 1980s after the idea of a light rail transit system was aborted due to its high capital costs (Lindau et al., 2010a).

BRT brought together the speed and reliability of rail systems with the flexibility and lower costs of bus services. Curitiba is considered the 'cradle' of these systems; the first full BRT was completed in this southern city of Brazil in 1982 (Lindau et al., 2010a). Other corridors followed and improved the experience from Curitiba. Quito, Ecuador in 1995 was the first large system to be implemented outside Brazil. In 2000, Transmilenio, in Bogotá, started what is known as the "jewel in the crown" of transport reforms (Gilbert, 2008).

Since then, over 2000 cities have implemented similar transport schemes (BRT Centre of Excellence, 2014). Different agencies like the ITDP and Transit Cooperative Research Program (TCRP) have developed planning guides for the implementation of BRT in five different languages, including Chinese and Russian, see (ITDP, 2015). The best known systems are in Latin American particularly Curitiba and Transmilenio (Deng and Nelson, 2011).

Categories	BRT Basics	Service Planning	Infrastructure	Stations	Communications	Access & Integration
Sub categories	Dedicated Right-of/way	Multiple Routes	Passing lanes at stations	Distance between stations	Branding	Universal access
	Busway alignment	Express, limited and local services	Minimising bus emissions	Safe and comfortable stations	Passenger information	Integration with other bus services
	Off-board fare collection	Control center	Stations set back from intersections	Number of doors on bus		Pedestrian access
	Intersection treatments	Located in top ten corridors	Center stations	Docking bays and sub/stops		Secure bicycle parking
	Platform-level boarding	Demand profile	Pavement quality	Sliding doors in BRT stations		Bicycle lanes
		House of operation				Bicycle/sharing integration
		Multi corridor network				

Table 1 BRT Standard Categories

Source: (ITDP and GIZ, 2013)

Not all systems are alike and they do not all implement all the categories mentioned in Table 1. However, they all share certain key characteristics to be called a BRT. Right-of-way should be kept apart from other forms of traffic. Distinctive stations usually include unique design elements, as well as passenger information and service branding. Vehicles provide improved comfort, speed and safety. Quality bus service must be fast, frequent and reliable, and provide some level of Intelligent Transport Systems (ITS) elements, like bus signal priority and closed circuit television (Levinson et al., 2002).

2.5.2. BRT Key Elements

Running ways are a BRT's central element and its most fundamental piece of infrastructure (Levinson et al., 2002). Running ways can range from mixed traffic operations to fully grade-separated busways. Three types are described by Wirasinghe et al. (2013): on-street, on-freeway and off-street running ways. On-street and on-freeway running ways include mixed

traffic lanes, kerb bus lanes, median bus lanes and bus-only streets, and off-street facilities comprise at-grade busways, bus tunnels and bridges. Physically segregated running ways are more common in countries where enforcement is harder to apply, such as cities with weak policing.

Level boarding stations in BRT systems provide more than a sign marking where to catch a bus. Stations offer not only functional purposes, but also customer comfort and convenience, with protection from rain and extreme heat (Wright and Hook, 2007). Full-service stations, with reliable information, off-vehicle fare collection, and suitable passenger amenities, are common characteristics in high-level BRT systems like Curitiba, Bogotá, and Guayaquil. The unique image of the systems has been raised through creative architectural designs for the stations (Wright and Hook, 2007), like the popular tubular station in Curitiba, Brazil.

High-quality vehicles provide comfortable ridership, 160-passenger, articulated, low-floor, clean-fuel buses with more and wider doors than traditional buses have become standard in most BRT applications (Cervero, 2013). ITS technology is commonly fitted in the vehicles for informational and operational purposes. Faced with difficult institutional and regulatory contexts for new tram schemes, tram-like guided buses and higher technology bus-based systems are gaining popularity in the UK, with systems implemented in Leeds, Bradford, Crawley, and Cambridge (Hodgson et al., 2013).

The combination of dedicated busways, at bus level stations, and high-quality buses allow BRT systems to achieve higher speed, increase capacity, provide reliable service, improve accessibility and operational safety characteristics that differentiate them from regular express services (Wirasinghe et al., 2013). BRT systems are also associated with positive environmental, social, and economic benefits in cities where they have been implemented. Benefits differ from city to city, depending on the network characteristics, congestion levels, BRT characteristics, and the modal shares before and after the implementation.

Hidalgo and Graftieaux (2008) reviewed 11 cities in Latin America and Asia. They reported the average commercial speed of the system had improved previous systems speeds by between 14.5 km/h and 26 km/h, depending on the quality of the busway. The Adelaide Guided Busway has reported average speeds of 80 km/h, with maximum running speeds of 100 km/h (Deng and Nelson, 2011).

Transmilenio, the Bogotá system, introduced a series of innovations at the time of implementation that allowed it to provide a high-quality service to a very large number of people. It has the capacity to move over forty thousand people per hour per direction (Ardila

and Rodríguez, 2000); that is more than many of the world's subways (Rosenthal, 2009). A systematic assessment on peak ridership in 26 BRT systems has found that the ridership varied from 2,000 to 8,000 passengers per hour per direction (pphpd) and systems in four South American cities could carry over 20,000 pphpd (Hensher and Golob, 2008).

Running in their own right-of-way does not only increase speed and capacity but it also improves reliability and on-time performance, because —by avoiding the disruptive effects of normal traffic conditions— services become more regular and expected times of arrival become more predictable (Cervero, 2013).

BRT brought administrative control to the transport system in cities where it has been implemented. The multiple operator structures used by traditional bus services have been substituted by large consortiums that are run in a modern, professional way. Small, old buses have been replaced by large, modern, articulated buses in dedicated lanes. This has brought peace to a chaotic environment. Drivers' conditions have improved dramatically: fewer working hours, higher wages, and operations and customer service training are part of their new contracts (Wright, 2002). Competition for passengers has disappeared because passengers are picked up from stations specially designed for that purpose. Maintenance and repairs are done by a specialised team in the new facilities specifically made for this kind of operation.

Before and after analyses of safety records in 9 BRT systems in 4 cities have shown significant improvement in safety numbers (Duduta et al., 2012). Central lane systems appear as safer than kerb systems, whereas counter-flow lanes are the most dangerous configuration (ibid). Safety along the main corridors in Bogotá has improved greatly; it was found that after the first two years of operation, traffic collisions and pedestrian accidents decreased by 94%, injuries to passengers by 76%, and fatalities by 94% (Echeverry et al., 2005). As part of the safety improvements BRT has made, it is important to mention that electronic fare collection limits both passenger and operator vulnerability during cash transactions. Lastly, there are also advanced camera technologies that facilitate management of the systems, discourage crime and allow faster responses to incidents (Wirasinghe et al., 2013).

All public transport options produce environmental impacts when displacing journeys that would otherwise be taken by individual motorised transport (Wright and Hook, 2007). Therefore, environmental impact will be directly related to the ability of BRT systems to attract car users. It was found that in Bogotá approximately 20% of Transmilenio users formerly used private vehicles (Wright and Hook, 2007). In developing cities, the biggest environmental

benefits come from the introduction of better technology and articulated buses replacing old smaller units.

Urban buses emit relatively high levels of particulate matter (PM) and nitrogen oxides, a precursor to photochemical smog. The introduction of new articulated buses in exchange for old high emission vehicles has moderated the air-quality impacts of BRT corridors (Cervero, 2013). Improvements have been measured in Mexico City, Guangzhou, and Bogotá where reductions of 61.8% in CO_2 and a 50% in diesel consumption were found when compared to the operation prior to the BRT implementation (Wirasinghe et al., 2013).

In countries with financial constraints, BRT systems are a viable alternative to rail systems at a fraction of the cost (Levinson et al., 2002). BRT costs vary from US$ 1.35 million/km in Leon, Mexico to US$ 8.2 million/km in Bogotá (Hidalgo and Graftieaux, 2008). Modern transport systems have been introduced to the poor areas of developing cities, like Guayaquil, Bogotá, Quito, and Santiago. However, the poorest areas of the cities are not always served directly by the new systems (Gilbert, 2008).

Another important factor to consider about BRT systems is the speed of implementation. In a mayor's term in office (normally four or five years) a BRT line can be planned, implemented, and put into operation. Even though operational problems have been found in cities where political pressure meant starting the project without all its facilities ready, like in Guayaquil and Santiago (Hidalgo et al., 2007). Albeit many planning, financial, operational, and structural problems are still present (Hidalgo and Graftieaux, 2008), BRT systems are claimed to be far superior to traditional bus systems and much cheaper than rail systems (Gilbert, 2008).

Accessibility to BRT systems has found improvement when measured by the ability of the systems to incorporate user-friendly design from the perspective of the most physically challenged customers. The idea is that a system is accessible if it is designed from the perspective of a parent with a stroller, a child, a senior, or a physically-disabled person (Wright and Hook, 2007). However, more recent studies have started looking at accessibility as the opportunities that a transport system creates for the vulnerable segments of the population to access daily activities (Venter et al., 2017). This means the studies have begun to analyse the systems' capacity to serve the more deprived areas of the city in order to access the areas of the cities where job, education, leisure, etc. opportunities are.

In Bogotá, like in many other developing cities, bus users tend to be more socially disadvantaged. The systems were expected to bring more direct mobility and accessibility benefits to this particular group. However, the poorest of the poor are still not included,

because of higher transport costs than traditional buses and the inability of the systems to reach the peripheral zones (Gilbert, 2008). Besides the handicap of being at the greatest distance from the central area, they also have transport infrastructure with the worst conditions (Jaramillo et al., 2012).

In Cali, Colombia, access was measured in terms of access to the transit system and health care, education, and recreation. Middle-income groups had the greatest access to BRT compared with the lowest and highest socioeconomic strata. Recreational activities had more equitable accessibility than health centres (Delmelle and Casas, 2012).

More than 200 cities all over the world have adopted —to a certain degree— the concept of BRT (BRT Centre of Excellence, 2017). Many of the systems are in the developing world. However, the concept is increasingly being adopted in the United States and Europe. Reviewed literature revealed that Bus Rapid Transit had been evaluated by different authors and from different perspectives. The authors reviewed the impacts of BRT on urban planning, the environment, the economy, and equity, as well as the institutional arrangements needed and different strategies for the dissemination of the concept around the globe. BRT is generally found to be a viable solution to the transport problems of many cities. However, there is a lack of evidence around how and why these systems came to be chosen and the role of power in the adoption of the systems. This research aims to fill in this existing gap.

2.5.3. A More Critical Look at BRT

BRT has been proven to be a faster-to-implement, lower-cost, more economically and operationally effective transport option. It is highly supported by development agencies based on its ability to support the poor (Gilbert, 2008, Scholl et al., 2016). However, a closer look at the current systems suggests that the objectives of providing a transport system to support the poor may not be completely achieved. There are currently few documents that critically examine some of the consequences of the implementation of the BRT; here are some of them.

Gilbert (2008) understands the case for BRT, particularly in low and middle economy countries for two reasons: first, every day more people with rising income levels are opting to travel in their own vehicles. However, the existing evidence notes that car-based solutions offer little in the long-term to solve the existing transport problems. Second, other mass transit options, like a heavy railway system, go beyond their financial means and cover a limited geographical area of rapidly urbanising cities. He argues that only an improved and efficient bus system can help solve the transport problems. Therefore, a BRT is —most often— the solution of choice.

The Transmilenio system in Bogotá, Colombia, is reviewed after its first six years of operation. The analysis is limited to the first 84 km of a system that has been planned to have 387 km of segregated busways. After revision of official documentation, including surveys and operational data, press articles and attending debates of mayoral candidates who were running for the position at the time of the study, an evaluation has been made (Gilbert, 2008).

Among the findings of the analysis made by Gilbert (2008), it was found that the systems brought many improvements to the city, like cutting congestion along the corridors and improving the quality of travelling. However, at rush hour, travel buses can be slower and more overcrowded than at non-peak times. The analysis argues that there is uncertainty whether the capacity of the system can help the poor. This is explained by two reasons: first, that the lines studied do not run into the most deprived areas of the city; second, that fares remain too high for the poor to pay.

A study of Line 3 of Metrobus, BRT system in Mexico City, found that serves primarily middle income areas (Carrigan et al., 2014). Jaramillo et al. (2012) found that the BRT in Cali, Colombia, failed to improve access to many of the city's isolated and peripheral districts that are also districts with higher levels of illiteracy, unemployment, and higher numbers of households from low socio-economic strata. Delmelle and Casas (2012) also found that whilst the Cali system increasingly enhances accessibility to the city, nevertheless, middle and upper-middle strata have greater benefits as their neighbourhoods have a more central location, where transit access is better.

The systems are sometimes promoted as least dependent on operating subsidies (Cervero, 2013) that can put pressure on the poorest segments of users to afford the tickets. A planned 15% increase in the fares for the introduction of Phase 3 of Transmilenio in Bogotá, would be offset to the affected poorer users by the expected increase in speed (Bocarejo and Oviedo, 2012).

In Bogotá, like in many other developing cities, bus users tend to be more socially disadvantaged. The systems were expected to bring more direct mobility and accessibility benefits to this particular group. However, the poorest of the poor are still not included, because of higher transport costs and the inability of the systems to reach the peripheral zones (Gilbert, 2008). Besides the handicap of being at the farthest distance from the central area, they also have transport infrastructure with the worst conditions (Jaramillo et al., 2012). In Cali, Colombia, access was measured in terms of access to the transit system and health care,

education, and recreation. It was found that recreational activities had more equitable accessibility than health centres (Delmelle and Casas, 2012).

In Ahmedabad, India, Mahadevia et al. (2012) report that despite the BRT route being located within walking distance to many low-income houses and slums, the BRT system attracts primarily middle-income groups. More mature systems have enhanced the accessibility, by extension of trunk services, and a denser network of feeder services particularly in poor neighbourhoods (Teunissen et al., 2015). However, the new services may start pricing out the poorest segments of the population from BRTs (Bocarejo and Oviedo, 2012, Bocarejo et al., 2016).

As mentioned above, a key element of BRT systems is the increase of speeds in travel and time savings; however, reported changes (Hidalgo and Graftieaux, 2008, Deng and Nelson, 2013) are not felt equally across the cities implemented. New services that require transfers, have been found to result in travel time increases when compared to previously existing direct services (Hook and Howe, 2005). Similar results were found in Bogotá, passengers that required transfers during their daily travels in the new systems experience longer travel times (Lleras, 2003). The poorest segments of the population tend to live in the outskirts of cities, which translates into the need of feeder services or other paratransit services before accessing BRT trunk lines (Scholl et al., 2016).

Gilbert (2008) suggests that the biggest obstacle that must be overcome in Bogotá's system is the power of the transport lobby. Too much was offered to operators during the implementation of Phase I, particularly in terms of profits. Buses remained in the garages in order to keep costs down; this translated into constant overcrowding. In Santiago de Chile, in order to incentivise operators to join the BRT system, public authorities minimised risks by guaranteeing up to 90% of operators' income (Hidalgo and Graftieaux, 2008). BRTs are priced slightly higher than conventional services (Venter et al., 2013) in detriment to poorer users whom —with the introduction of BRT— lose the cheapest alternative of conventional services.

Investments in car infrastructure remain high in the city; this maintains a steady growth in congestion and in the reduction of passengers to the system. Traditional bus services are not regulated, and together with illegal transport, need complementary measures in order to support the operation of Transmilenio (Gilbert, 2008). The usual response to existing critics is improving planning techniques; such is the case of Bocarejo et al. (2012) that suggest the introduction of better pre-evaluation of projects by implementing accessibility assessment tools into the process.

In addition, if BRT implementation is not supported by additional policies to prevent new additional traffic that can offset the benefits of BRT over the long run created by induced demand, particularly in cities with high rates of motorization. In addition, if BRT implementation is not supported with transport, travel demand, and land-use policies, the resulting decreased travel time for private vehicles that occurs through BRT implementation might make traveling by car more appealing (Wirasinghe et al., 2013); thus, creating the same problems BRT are trying to solve: congestion, pollution, safety, etc.

Bocarejo and Oviedo (2012) understand that reducing travel time and increasing the efficiency of the systems will not be enough to address the transport problems presented in Latin America. It is noted that the evaluation of BRT projects includes a financial structure where the system's fares are responsible for covering investments and financial sustainability of projects. The financial structures are designed to satisfy the requirements of lending agencies. However, it is acknowledged that improving the systems through price increases adversely affects individual accessibility, particularly for the poorest inhabitants of the cities.

Most BRT systems are not priced lower than other modes because they are often framed as a better alternative that traditional modes (Venter et al., 2017). The formalization of previous services can have very contrasting results, for example, on Lagos' BRT the system brought cost savings by standardizing the fares that used to change based on the hours of use; while in Bogotá the automated fare system removed the possibility of poor passengers to negotiate fare discounts, a common practice in the informal system of the city (Venter et al., 2017). The poorest segments of the population are not willing to pay higher prices in exchange for faster and more reliable services.

A planned 15% increase in the fares for the introduction of Phase 3 of Transmilenio in Bogotá, would be offset to the affected poorer users by the expected increase in speed (Bocarejo and Oviedo, 2012). However, the negative effects of higher prices can be counterbalanced with careful design of fare policies and effective integration of feeder services (Venter et al., 2017).

Bocarejo and Oviedo (2012) recommend introducing the concept of accessibility in the analysis of mobility conditions for a specific population group, in order to consider not only the relation between land use and transport, but also the effectiveness of transport use and ease of access to the city's opportunities, depending on individual purchasing power.

An accessibility index was developed and tested in Bogotá in the Transmilenio system. The suggested methodology can be used as an "additional element in the decision-making process regarding where and how to respond to transport disadvantages in cities that experience

transport-related inequalities, through the identification of specific needs, prioritisation and proposal of transport strategies for addressing the disadvantages caused by location or reduced purchasing power" (Bocarejo and Oviedo, 2012 p.153). Such a tool can be of great use in cities where income inequality is high, as well as in cities where the location of opportunities is highly centralised.

All the existing knowledge about BRT is important and necessary in order to advance with improvements and increase the quality of the systems. However, it has fallen under the same umbrella in which planning literature has been crucially examined: its lack of understanding regarding power shaping the systems. BRT scholars, like general planning scholars, have focused on prescriptive, normative, and procedural theories to the detriment of the explanatory and the substantive (Yiftachel, 2001). However, there is work analysing the consequences of BRT (Bocarejo et al., 2012, Venter et al., 2013, Jaramillo et al., 2012, Venter et al., 2017), there is an existing gap in the literature on how power is shaping BRT projects.

2.6. Summary

Latin America is the most urbanised continent in the world. Car ownership levels are increasing at a rapid pace at the detriment of other sustainable modes of transport such as buses, walking, and cycling, which are the modes more frequently used by the poorest and most vulnerable segments of the population. There is constant pressure to improve the quality of existing transport systems. Investments in rail-based systems represent a challenge for struggling economies.

Bus Rapid Transit is a common and increasingly growing mass transit policy, particularly in developing cities. The immense popularity of these systems is based on the potential to serve traditionally underserved populations, by increasing speed and increasing accessibility for the spatially excluded. The fact that BRT systems are cheaper than rail-based systems stands a better chance of offering affordable fare to users who are poor, and as a surface mode it can better integrate land use and non-motorized transport to benefit the poor (Venter et al., 2013).

Yet, BRT systems are not exclusive to developing cities. More developed countries, such as the UK, France and Germany, have also implemented bus priority measures that are categorized as BRT. In developed cities, particularly in the UK (Hodgson et al., 2013), BRTs are adopted based on their ability to get drivers out their cars into mass transit systems. It has brought transport improvements in most places where it has been implemented; however, these systems are still a long way from fulfilling all expected promises. Further improvements of the systems are

needed; still, a different approach to understanding existing weaknesses can create better tools for addressing existing problems.

The following work will try to explain how the exercise of power is shaping BRT systems.

3. The Case Studies

3.1. Introduction

The purpose of this chapter is twofold. One is to justify the use of case studies for this research. The second is to present the two case studies selected to understand the context where the research questions will be answered. It begins with a general description of what constitutes a case study and its importance for the study of power relations. A discussion about the selection of the case studies and the particularities of each case study selected is then presented.

There is a description of each case that includes key facts about each city studied in terms of development, the history of public transport, and the most recent developments in existing Bus Rapid Transit systems. Focus is placed on the past 20 years of transport planning, with a deeper description of the development process for BRT. Material for this chapter comes from various sources, such as planning documentation, media notes, and existing literature about the cases. The case studies summarize key facts from public domain, which then informed the empirical work.

3.2. Case Studies

The characteristics of power described in the literature review, section 2.2 and its subsections, describe a modern form of power that is exercised by highly refined and subtle mechanisms. Finding mechanisms used, which are entrenched in our everyday activities, requires an in-depth description of the studied phenomenon's particularities. In-depth analysis can be achieved by using a variety of methods, such as surveys, archival data, historical research, or case studies (Yin, 2013).

Surveys require the researcher to have control over participants or their actions. Surveys require direct manipulation that is not possible when researching power. However, some clues to the mechanisms of power in current planning practices have been identified in Section 2.3.3 Power is a context-sensitive subject that requires a deep and separate understanding of various mechanisms in each of the cases under study. It is not possible to know how, when, and by whom these mechanisms were exercised during the planning of BRT systems, unless a deep analysis of the processes of implementation of the systems is carried out.

As mentioned in Section 2.3.2 of the literature review, power studies require rich contextual investigation; however, surveys have a limited ability to investigate contexts (Yin, 2013). The survey designer, for example, has a finite number of questions that can be analysed, participants are confined to the type of answer that can be given (yes/no, multiple choice), and there is little space for reflection and counter-argumentation. With a survey it is more difficult to understand social, economic, or environmental settings around which the events take place.

Historical research relies on documents as well as cultural and physical artefacts as the main sources of evidence. Power studies based on historical research are more pertinent when dealing with research if there is no access to relevant participants, because they are no longer alive to report, even retrospectively, about what occurred (Yin, 2013). Historical events can be studied in depth; however, there is little ability to fill any existing gaps in data collected, or reframing by the actors, or relevant social or environmental conditions that are additional sources of evidence, which usually require direct observation.

The power phenomenon being studied in this research utilises some of the methods used by historical research, such as document revision. However, this research deals with more contemporary and ongoing events that facilitate access to key participants in the process of implementing BRT.

Yin (2013) defined a case study as an empirical inquiry that:

“1. Investigates a contemporary phenomenon (the ‘case’) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident.

2. A case study inquiry copes with the technically distinctive situation in that there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis” (Yin, 2013,p. 16).

Case studies are used as exploratory strategies; however, they are also used for descriptive and explanatory approaches (Yin, 2013). Exploratory case studies are used in situations in which the intervention being evaluated has no clear single set of outcomes, and explanatory case studies are used to find an explanation that would link, for example, program implementation with program effects. The case study approach is the most appropriate existing method for a study that seeks to understand, in depth, a complex phenomenon such

as the exercise of power in contemporary practice (Flyvbjerg et al., 2012), for example planning and implementation of BRT systems.

As mentioned in section 2.3.2 of the literature review, given that power is context sensitive — due to the fact that it is exercised in different ways, depending on the time period, the actors, and the place— there is no clear set of outcomes. The case study permits understanding of how existing power relations shape the system and the effects of such implementation. Thus, this research begins with an exploration of power relations and continues with an explanation of how the exercise of power shapes the implementation of BRT systems.

The main advantage of a case study is that it gives the opportunity to study one aspect of a real-world problem in detail and from many different viewpoints. It does not restrict itself to a single research procedure, such as a library search or interview data —although it could use either. This is important for studies about power, as the main objective is to answer the research question rather than to be constrained by the methods to be used (Flyvbjerg, 2004). Case studies have been thought of as requiring an unmanageable level of effort (Yin, 2013). However, a case study must not be confused with certain other methods, like ethnography or participant observation. A case study can use more time-efficient methods, for example, an interview or document revision, or both.

Finally, a case study is not just a form of qualitative research, even though some have recognised the case study as part of qualitative research choices. The use of a mix of quantitative and qualitative evidence in a case study is a possibility, in order to answer the specific set of questions that the research has.

3.2.1. Concerns about Case Studies

Case studies have been described as lacking rigour, suggesting bias may occur more frequently than in other methods, and have been also deemed as creating little or no basis for generalizations (Yin, 2013). They have also been presented as unscientific, implying they do not build theory or contribute to the growth of political knowledge, and therefore should not even be considered for publication. They are often discouraged for use as a legitimate doctoral dissertation project (Schram, 2012).

However, case studies are better prepared to offer contextual knowledge and are appropriate for particular settings focused on specific problems. The focus of this research is understanding the role of power in the case studies selected and building on that understanding in order to improve local conditions. The study is not interested in big generalizations on the exercise of

power, but it is more concerned about the local realities that drive the adoption of a specific transport policy.

3.2.2. Single Cases versus Comparative Cases

Multiple-case study designs are likely to be stronger than single-case study designs (Yin, 2013). However, a single-case study can show invaluable insight, as demonstrated by the Aalborg case in Flyvbjerg's (2008) work. Although single-case studies can yield invaluable insights, most multiple-case study designs are likely to be stronger than single-case study designs, as they often reveal more information, because they activate more actors and more basic mechanisms in the situation studied (Flyvbjerg, 2006).

Multiple cases also are suggested to increase methodological rigor of the study through "strengthening the precision, the validity and stability of the findings" (Miles and Huberman, 1994, pp. 29), particularly, because "evidence from multiple cases is often considered more compelling" (Yin, 1994, pp. 45). There are practicalities and limitations to including several cases in a research, such as time and budget. However, the use of a "two-case" design is a worthy objective when compared to doing a single-case study (Yin, 2013).

Increasing the number of sites does not necessarily allow for generalisations, particularly if the cases are not in the same context. The focus of this investigation is to provide in-depth descriptions and analyses of two case studies within their contexts. In this research, comparisons are made through cross-cutting themes, see Chapter 8, that can help understand existing similarities between the two cases through cross-case analysis, after each case has been studied individually and separately.

3.2.3. Selecting the Case Studies

Selecting the appropriate case studies was a challenge for this research. The exercise of power is unique for any moment in time. Each case represents a particular exercise of power and is therefore expected to be different for the cases selected. Exploring the actual exercise of power required access to the people involved in the various stages of the planning process. Access to key stakeholders is critical to the selection of case study sites in order to examine power (see Section 4.2.3, in the next chapter). Three criteria were used for selecting the case studies. First, a list of existing BRT systems was identified (as defined in section 2.5.1). Second, from the list, the countries with access to participants were analysed. Finally, from those countries, the cases where access to participants involved in the decision-making process of the BRT were chosen.

The selection of the cases was made by choosing from the existing database in BRTdata (BRT Centre of Excellence, 2017). BRTdata is a project of Across Latitudes and Cultures – Bus Rapid Transit' (ALC-BRT), a Centre of Excellence (CoE) for Bus Rapid Transit. The platform construction and data collected are the result of a partnership that includes the ALC-BRT members, the International Energy Agency (IEA), and the Latin American Association of Integrated Transport Systems and BRT (SIBRT). The CoE for BRT is located in Santiago de Chile and financed by the Volvo Research and Education Foundations. The CoE is a consortium of Pontificia Universidad Católica de Chile, Massachusetts Institute of Technology, Technical University of Lisbon, University of Sydney's Institute of Transport and Logistics Studies, and Embarq —The WRI Centre for Sustainable Mobility (BRT Centre of Excellence, 2017).

The systems that are part of the database are included based on defined similarities, particularly the fact that all systems have some kind of bus priority measures. The database contains a complete listing of BRT systems in the world, in over 400 corridors, in 207 cities, in 45 countries, and on 5 continents (BRT Centre of Excellence, 2017).

For this research, the list was first limited to Latin America and Europe, as these areas offered more proximity to any possible informants. Next, Ecuador and the UK were selected, because the researcher and his supervisors were more confident about finding suitable participants for the research. Ecuador is the researcher's home country and the UK is the country where the research was being conducted. The cities of Quito and Cambridge were then selected based on the characteristics outlined next.

The first case study selected was Quito, which has the first BRT system to be fully implemented outside of Brazil, which is considered the "cradle" of BRTs. Planning in Quito began almost a decade earlier than Transmilenio, BRT system in Bogotá, Colombia that is considered the "gem" of BRT systems in the world (Bocarejo et al., 2012) and the reference point for almost every new system that is implemented. The Quito case study helps understand the creation of new policies before they become trends.

Today it is easier to justify the adoption of BRT systems based on the existing evidence of more than 400 systems around the world. The early adoption of BRT in Quito offered a unique opportunity to learn about the mechanisms of power that were used for its development and how the exercise of power continuously shaped the systems.

In Quito, as in many other countries in the world, transport has been and keeps being a matter of public concern. Quito managed to plan, implement, and start operation of a transformational transport system in a relatively short time. The changes happened in a

context of constant conflict between actors and institutions responsible for the provision and control of transport (Chauvin, 2006). This case study, therefore, offers the opportunity to understand how power is exercised in a difficult political context while novel and innovative practices are accepted by the general population.

The second case study selected was Cambridge in the UK. The BRT in Cambridge is the largest BRT system in the UK and is the longest kerb-guided system in the world (BRT Centre of Excellence, 2017). Kerb-guided buses have small guide wheels attached to the bus. These wheels guide the bus by pushing the steering mechanism of the bus, keeping it centralised on the track. The system permits high-speed operation on narrow guideways and precise positioning at boarding platforms, which facilitates access for the elderly and disabled. The Cambridgeshire system started operation in 2011 after 12 years of planning and construction. Part of the system was built in an area of limited space, on an unused railway track that connects the villages of St. Ives and Cambridge.

The Cambridgeshire Guided Busway System was a national government initiative to help solve congestion problems on the A14, a key point of the national road network. As part of the study to solve this congestion, the government suggested implementation of the guided bus. This case provides an opportunity to understand the exercise of power in a context of Central Government decision-making over a local government.

Both Quito and Cambridgeshire systems are characterised as BRT systems, however, there are important differences between them. In Table 1, some of the characteristics of the systems that help delineate the differences between them are presented. Quito is a city-wide system that consists of five corridors that have been implemented incrementally since 1995; Cambridge has only one corridor that started in 2011, however, new bus priority measures are being considered for new corridors (Huges, 2014). The five corridors in Quito move about 833,000 passengers daily and the corridor in Cambridge moves around 12,000 passengers every day. The standard fare for Quito is US$0.25, while in Cambridge it is US$ 3.55. GDP per capita in Cambridge is US$43,734 compared to US$6,248 in Quito. Both systems have partially dedicated rights of way that run on historical sites with small roads containing little space for segregated systems. The Cambridgeshire right-of-way has kerb-guided systems in the dedicated sections (see section 3.4). Both systems have level access. However, Quito, has a high-level platform and Cambridgeshire a low-level platform.

	Quito	Cambridge
Corridors	5	1
Year system commenced	1995	2011
Daily demand (pass. per day)	833,095	12,000
Standard fare US$	0.25	3.55
GDP per capita US$	6,248	43,734
Dedicated right-of-way	Partial	Partial (guided)
Busway alignment	Kerbside & Median	Kerbside & Median
Off-board fare collection	Partial	Partial
Intersection Treatments	Partial	Partial
Platform-level boarding	High-level platform	Low-level platform

Table 2 Quito and Cambridgeshire - Systems Comparison

Source: (BRT Centre of Excellence, 2017)

Although the planning systems, the jurisdictional systems, and the history of the cities selected are very different in general, both cities implemented BRT systems. The Cambridge system was the result of a long planning process where many different actors got engaged for decision-making that included representatives from government officials, bus operators, the county council, the district council, development agencies, the environmental department, the highways agency, railways representatives, and a regional planning group.

In Quito, the system had substantial political support from the city Mayor with the help of a strong planning team (Hidalgo and Graftieaux, 2008). In Quito, major levels of conflict with the transport operators put the project at risk, but planners managed to overcome these tensions and implemented the system.

This case study research within two different contexts provided an opportunity for contrast and comparison. The mechanisms of power used were expected to differ because the network

of actors was diverse. However, a deep understanding of both case studies provided information that can result in useful tools of understanding for planners in other parts of the world for the planning and implementation of Bus Rapid Transit systems.

Each city will now be considered individually, beginning with Quito followed by the Cambridge case study in Section 3.4.

3.3. Quito - City Context

Quito, is the capital of Ecuador, it is located at an altitude of 2,800 meters above sea level in a narrow and long valley of the South American Andes. The population in 1991 was 1.4 million people, in 2011 it increased to 2.2 million inhabitants (see Table 3) and it is expected to grow to 2.7 million by 2020, (INEC, 2015). The city centre is one of the most extensive and best preserved 16th century sites in Latin America. It was designated as a World Cultural Heritage site in 1978 by UNESCO.

The city centre is both an important tourist attraction and an employment destination. Many political and historical institutions remain in this area, including the presidential residence and office “Palacio de Carondelet” as well as the Municipality headquarters. The historical centre maintains its original Spanish layout of small street grids that are more suitable for pedestrians than large vehicles. The fact that the city sits in a long and narrow valley has constrained the urban growth northward and southwards; today the city is approximately 44 km long and 3 to 8 km wide. In the past decades, however, the city has been growing outwards towards the surrounding valleys, producing urban sprawl into Los Chillos, Cumbayá-Tumbaco, Calderón-Carapungo, and Pomasqui. The city centre and its immediate extension remains the heart of activities in the city, see (Figure 1).

	1952	1962	1974	1982	1990	2001	2011
Quito	209,932	354,746	599,828	866,472	1,104,958	1,413,694	1,619,146
Metropolitan District	275,399	446,375	742,537	1,083,528	1,371,461	1,841,200	2,239,191
Pichincha Province	386,520	587,835	988,306	1,382,125	1,756,228	2,388,817	2,576,284

Table 3 Evolution of Population in Quito

Source: INEC, 2015

In the past five decades, the size of the city expanded considerably. The urbanised area grew approximately 500% between 1962 and 1980, whereas the levels of density decreased from 213 to 68 inhabitants per hectare (Carrión and Erazo Espinosa, 2012). However, during these years, new residential alternatives for lower-income segments of the population appeared in the peripheries of the city, while a complete relocation of industrial, commercial, and administrative activities took place (Carrión and Erazo Espinosa, 2012).

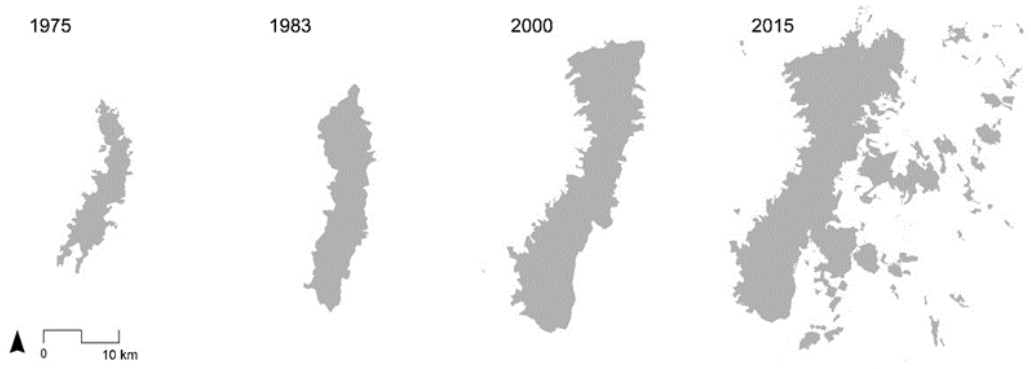

Figure 1 Quito - Urban Growth

Source: (Guzman and Figueroa, 2016)

The central area remains the most vibrant part of the city. The centre includes the historic town and its immediate surroundings and is also known as the extended centre, see Figure 2. The extended centre is a rectangle in the city delimited to the south by Ambato Street, to the west by Av. América- Imbabura Street, to the north by Av. El Inca, and to the east by Av. 6 de Diciembre-Av. 12 de Octubre-Av. Gran Colombia (Quito, 2014). Although the city keeps developing services, jobs, and opportunities in the rest of the city, it is in the extended centre where the majority of the opportunities are still found.

The extended centre has an increasing number of services in health and education; it is also the area with better-paid jobs, as well as quality of life with large well-equipped and maintained places for leisure (Carrión and Erazo Espinosa, 2012). On the other hand, the peripheries, diverse in nature, have a concentration of population with the lowest-level quality of life, education and jobs. Their settlements and areas of leisure are characterised by overcrowding, abandonment, or absence (Regalado, 2015).

Figure 2 Extended Centre (dark grey)

Source: (Guzman and Figueroa, 2016)

In recent years, in suburban areas, new infrastructure has been developed based on individual transport and supported by new highway infrastructure, with the added development of new real estate in the form of gated communities for higher-income segments of the population. Such a model of development generates a scenario that favours capital investment, including urban renovation of the existing centralities, with an intensification of land use that has higher revenue for capital and land owners, and a more speculative market for land in the peripheral areas (Carrión and Erazo Espinosa, 2012).

Likewise, in consolidated zones, a concentration of services is found along with a resident population decrease, while in the underdeveloped zones there is a constant growth of the population with low provisions of opportunities (Metro-de-Quito, 2011). The consequence of this reality in terms of transport is the need for high mobility so that more people can access opportunities in the centre of the city. Communities where people do not have access to a car and are poorly served by public transport have constant difficulties accessing better opportunities in the labour market, as well as education, cultural, and leisure activities.

3.3.1. Transport in Quito

The urban transport history in Quito goes back to the early 1900s when the first national train line was built, connecting Quito with the port city of Guayaquil. The arrival of the railway from Guayaquil in 1908 created a need for a public transport solution from the railway station Chimbacalle, located at the south side of the city centre to the commercial centre of the city. The North American owned Quito Tramways Company started operating an electric tram system in 1914 and operated two routes for 34 years. In 1946, the tram lines were closed and a new transport era began.

According to Carrión (2005), the disappearance of the tramways meant the appearance of "the problem of transport in Quito", as the transport service was put into private hands that used inefficient means of management. In Ecuador, transport production has taken —historically— the legal form of both cooperatives and transport companies. In both cases, they are organisations of individual vehicles (buses) with owners that operate under these denominations in order to collectively run bus routes without losing the private property of their vehicles.

Carrión (1995) noted that the organisational abilities of the transport providers were low and unsuitable for providing good-quality transport. The problem of transport providers being unprepared to provide high-quality services has been constantly repeated until now. For example, the transport diagnosis, made by the Municipality in 2014, mentioned the organisation of operators as one of the causes for low-quality services in the city (DMQ, 2014). There is a general idea that bus operators are not fit for providing transport, although they remain responsible for over 60% of the public transport trips in the city (MDQ, 2012).

In 1949, the first urban transport cooperative was established in Quito and the first transport union was formed (Vásconez, 1997). The Union of Transport Providers became quite influential and gained high political influence. In 1963, during the Junta Militar (Military Government), the first transit law was brought forward in the country. The government, influenced by the lobbying power of the transport union, enacted a law that granted the introduction of new services only to professional drivers, and gave the responsibility of the formation and acceptance of all new professional drivers to the same union (Vásconez, 1997).

With the introduced law, transport providers and the government set the basis for an implicit agreement, in that the transport providers had the responsibility of providing public transport for the city, in an unregulated way, where the only criteria for operation were the maximisation of profits. On the other hand, the government guaranteed a low price for petrol

and little interference in the service. The main influence from the government was the imposition of a single transport fare that was held constant until the late 1970s (ibid). This agreement hardly changed until the reorganisation of transport in the city, as will be explained later in section 3.3.2.

Given the size of the city and the population at that time, existing services managed to provide transport without the need for large improvements. However, after city growth in terms of size and population, see Figure 1, the transport situation became a growing problem for the city. Additionally, between 1977 and 1983, there were five fare increases that caused severe conflict between transport providers and public transport users. The most severe conflict recorded is known as the “40 Cents War” (Guerra de los Cuatro Reales). It was a series of social unrest events that began because due to the government’s intention of increasing bus fares by 40%. Particularly students were the main protagonists in these conflicts (Vasconez, 1997).

The situation became very unsettling for the Central Government and the city. During the 1980s, some attempts to change the transport situation described in section 3.3.2 were delivered. However, no real or substantial change was achieved at this time.

Until the beginning of the 1990s, the authority for transport planning and management in Quito was the Consejo Provincial de Tránsito, the provincial division of the National Transport Council (Consejo Nacional de Tránsito y Transporte Terrestre, CNTTT). The national transport authority effort was concentrated on the generation of operation permits and the establishment of transport fares (Arias, 1991). The transport routes were determined by the existing demands of cooperatives without any participation of local governments or users. However, the fares were controlled by the Central Government. In essence, the system operated in a totally deregulated way.

Fare setting, until the early 1990s, was still done through a political agreement between Central Government and transport providers. The situation described earlier for the late 1970s and early 1980s had not changed; every fare increase had strong opposition from the population, but mainly from high school students. Considerable opposition from students meant massive street battles between the police and the students.

Opposition was felt throughout the country; however, Quito —being the capital and the centre of all public activities— had a level of discontent that was considerably higher than in other cities. The Municipality had very little participation in these disagreements. During the early 1990s, the conflict between the transport providers and the government concerning fares and fare subsidies were frequent (Chauvin, 2006). Even with the introduction of new fares, no

improvements to the quality of service were made, this resulted in more dissatisfaction from transport users and greater hopelessness from local authorities.

The service was still provided by both cooperatives and transport companies, however, as noted by Chauvin (2006), these groups were neither cooperatives nor companies. As mentioned before, bus operators were associations of individual bus owners who collectively ran bus routes. The operation of buses —in practice— was carried out by vehicle drivers who were hired by the bus owners on a daily basis and resulted in intense competition at bus stops. This phenomenon repeated in different parts of Latin America and is known as the “Penny Wars” (“la guerra del centavo”) (Chaparro, 2002).

Additionally, the drivers had no contracts; this meant no labour rights were given, no minimum or maximum hours stated, and the drivers and the vehicle owners agreed on a fee that needed to be covered daily. Different types of buses with varying passenger capacities supplied all bus services. These included “colectivos” (regular buses) and “busetas” (smaller buses) that were different in their size and the “quality” of service. Busetas originally only carried seated passengers while colectivos also carried standing passengers.

The services were divided into several types, with various fares depending on the type of service, bus age, seating, and routing. The bus fleets were old; in 1991, buses averaged 18 years, with a large number of buses exceeding the scrapping age of 20 years (Chauvin, 2006). Also, the low quality of diesel and the old and poorly maintained buses operating at 2,800 meters above sea level resulted in high levels of emissions as well as noise problems. The services were low-quality, slow, and limited in time and coverage.

By 1990, public transport in Quito was provided by 68 lines of colectivos and 18 lines of busetas. The Historic Centre of Quito was served by 75% of all services, which caused severe congestion problems. Three major bus stops were in the city centre, including Plaza la Marin that was historically the point of return for many routes that served the north and south of the city (25% of colectivos and 95% of busetas) (Arias, 1991).

The estimates for the operational bus fleet at that time vary; a World Bank fact sheet showed figures from three different authors ranging from 2,500 buses to 6,000 buses in the 1980s. All authors agreed that there was a difference between the numbers of officially licensed buses and the actual number of buses operating. The official number of vehicles in the national registry for 1988 was 2,110 vehicles of public transport (Arias, 1991). It is noted by Arias (1991) that 80% of vehicles were not roadworthy and did not maintain conditions to offer an adequate level of service. Additionally, financial difficulties, including the constant fluctuation

of international currencies, limited the capacity of transport operators to renovate the bus fleet.

The plotting of routes responded to the longitudinal configuration of the city, with transversal services being almost non-existent. The scattered nature of the organisation of transport providers did not allow for a coordinated operation of services. The services did not respond to the city's mobility needs; instead it responded to the intuition of the providers in search of more profitable routes, thus leaving many areas of the city unattended because they were unprofitable (Arias, 1991).

The lack of transport in certain areas of the city gave rise to other services to fill the existing gaps. First, unlicensed operators started to operate in areas where official services did not reach and during the times of day official services did not operate, usually after 8 p.m. Second, the Municipality started a service, with a reinvigorated Municipal Transport Company (EMT for its acronym in Spanish), to cover the areas of the city that lacked transport. This service covered about 5 to 10% of the existing passenger demand (Arias, 1991). Areas covered by municipal services included marginal areas where private operators did not serve given the low profitability (Chauvin, 2006).

Services provided by EMT were of higher quality compared to the existing private services, as the buses were new and comfortable. The buses had been bought by the Central Government and given to the Municipality (INEC, 2010). The operating conditions were also better than the private operators because the buses had fixed frequencies and determined stops.

The population demanded more services to be provided by the EMT, but the legal framework at the time limited its activities. Starting in the 1980s, successive mayors of the city, hearing the public outcry for an improvement, began to act with little success. In 1988, Mayor Rodrigo Paz, after running a public poll, understood that transport conditions were the highest public concern at the time. The Mayor decided to work on finding a permanent solution to the existing situation.

3.3.2. The Basis for Change

In order to deal with the transport reality described above, various plans were presented. In 1980, the Plan Regulador, a regulatory plan for Quito, was published by the local Municipality. The plan was centred on the task of organising the transport services by establishing adequate coordination between the Central Government and the Municipality. The plan set out to explore the legal and administrative mechanisms for the Municipality to adopt the planning of

transport services and infrastructure, leaving control responsibilities to the existing transit organisations.

The idea of creating a Metropolitan District of Quito (DMQ for its acronym in Spanish) law was part of this plan. With the proposal of the DMQ and the help of a master transport plan, the Municipality wanted to manage the coordination of routes and permits, as well as new lines and the introduction of new services (Arias, 1991). However, the Plan Regulador was never implemented.

In 1986, the Unidad Ejecutora de Transporte, a Central Government agency, published an exploratory report for options available to design a transport solution for the city of Quito. In the report, a variety of options were explored, such as subway, tramway, express corridors for buses, and aerial buses. The report concluded that there was not a single best solution for the city and that the integration of several alternatives was needed. However, articulated buses in express corridors were suggested as the most viable solution for a city like Quito, given its geographical characteristics and the financial limitations of the country (UET, 1986).

At the end of the 1980s, the Municipality reinvigorated the idea of establishing the DMQ. The establishment of the DMQ was intended to generate more fiscal and administrative powers over the jurisdiction of the city. The DMQ Law No. 46. RO/345 was approved in December of 1993. This new law changed the jurisdictional administration of the city and provided for the devolution of certain responsibilities, including transport and the environment. The approved law had a small paragraph about public transport responsibilities (Chauvin, 2006).

Under the new normative of the DMQ, the city regained planning, regulation, and coordination of public and private transport inside the city. However, the Central Government still had responsibilities for control of operations, permits, and budget (Vallejo, 2009). The DMQ Law allowed a transition of two years for the complete devolution of transport responsibilities, whereas other areas, such as the environment, were almost immediately devolved (Metzger and Bermúdez, 1996).

The final transfer of transport responsibilities was given in December 1995, with the promulgation of National Decrees No. 3304 and 3305, in which the National Transport Council passed to the city the following assignments:

- Organise, regulate, plan, and have technical oversight of the activities, operations, and services of public and private ground transport.
- Determine and commission routes and frequencies of public transport.

- Award, change, renovate, and revoke permits to public transport companies, for the use of public roads.
- Establish a Metropolitan Registry of Operating Permits for Transport of Passengers and Freight.
- Set and revise the transport fares of the public transport service in the city of Quito.

A few months before the approval of the DMQ Law, and with the perspective of its approval, the Mayor started to explore options for a transport solution in the city. During this exploration phase, the Mayor and the Municipality implemented three programs that were key in the development of any transport systems. One was the reestablishment of the Municipal Transport Company (EMT) (Arias, 1991a); another was the establishment of a Transport Study Unit (TSU) (INEC, 2010); and later, the third was the creation of an emissions control entity (Gómez Villagómez, 2015).

As previously mentioned, the EMT began to provide services to areas that were lacking transport in the city and started operating in direct competition with private providers. The buses given for the operation of the Municipality by the Central Government (INEC, 2010) were newer and more comfortable, and the operating conditions were better than those of private operators. The service was reliable, with a subsidised fare that was free for children under 6 and elderly people with mobility needs (Chauvin, 2006). All these characteristics were well received by the general population and showed that good quality transport was possible. Closer to the approval of the DMQ Law, and as preparation for the devolution of transport to the city, the TSU was established (INEC, 2010). The main responsibility of the TSU was to design a transport solution for the entire city. An efficient, affordable, “clean” public transport option was sought to address public discontent (Resumen Ejecutivo Trole, 1992).

The TSU was a small unit with five urban and transport planners who designed and clarified a proposal for an integrated transport system for the city (Resumen Ejecutivo Trole, 1992). After 18 months of work, the TSU presented plans for a complete transport network based on bus services with segregated lanes, commonly known as Bus Rapid Transit. The transport network included a design with seven corridors and several feeder services. The first part of the system to be implemented was the first line of the “Trolebus” system. A detailed description of that system follows in Section 3.3.3 below.

The implementation of the Trolebus and the application of the new law competences caused large conflicts and resistance from the transport providers. They protested against the new

responsibilities given to the Municipality, the introduction of the new transport system, the age limit for the vehicles (that meant taking out of circulation over 1,000 buses), and the emissions control scheme. In an attempt to force the Central Government to recall this transfer of responsibilities, the transport providers triggered strikes and demonstrations.

The opposition reached high levels of conflict that was eventually resolved due to strong political intervention by the Municipality, that eventually ended with the “buserato” (Chauvin, 2006). The *buserato* is a term —given by a local news editor— that was used in Quito to describe when more than 1,500 buses besieged the city, see Figure 3. The buses were abandoned by their owners in key intersections, tunnels, and bridges of the city, to prevent the circulation of any form of transport for three days. At first, the Central Government left the Municipality to sort out the issue with the operators. However, given the magnitude of the problem, military intervention had to be used to move the buses. As will be explained in Chapter 6, Section 6.3.2, Central Government reached a final agreement with the operators and the first BRT line started operations.


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Figure 3 El Buserato

Source: (El Comercio, 2011)

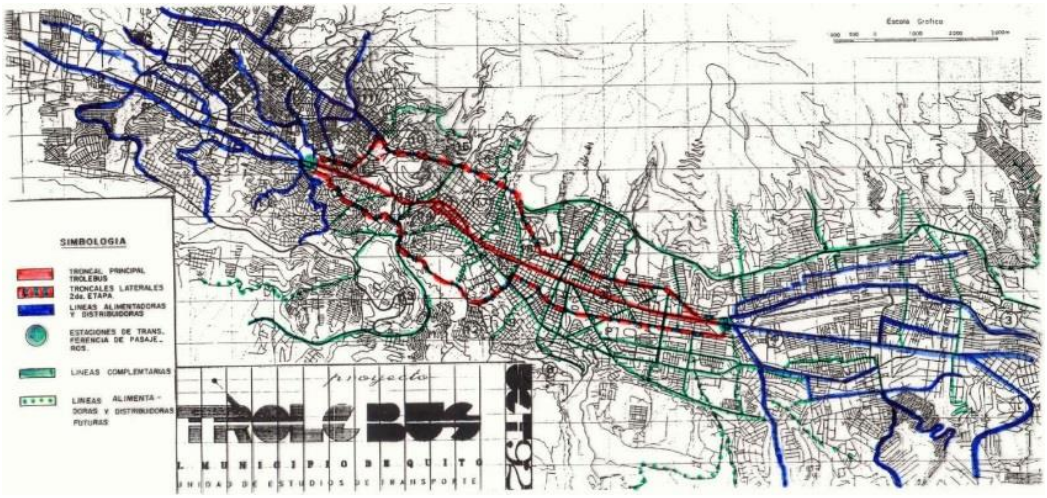
The beginning of operation of the new system meant the completion of the devolution of transport responsibilities to the city. The TSU became the Unidad de Planificación y Gestión del

Transporte (UPGT), the entity responsible for planning and management of transport in the city, including BRT system. The success of the system was immediately felt. From the beginning of operations, the system carried 170,000 passengers per day, 35% more than expected (Chauvin, 2006). The introduction of the new system dramatically changed both transport conditions and expectations of the people in the city.

3.3.3. The "Trole"

The first corridor, commonly known as "Trole" (see Figure 4), consisted of a trolleybus system that was implemented in three stages. The first was in 1995-1996; the second, an extension in the south, was commenced in 1999 and has been operational since June 2000. Later, the third stage, a 2 km extension from Morán Valverde Avenue to Quitumbe, was implemented, connecting the original system to a newly developed area and an important intercity bus terminal in the south of the city.

The Trolebus system uses hybrid engines. They are electrically powered trolleybuses and have auxiliary diesel engines, for use in case of electricity blackouts. They operate on segregated busways located in the centre of a wide arterial road (10 de Agosto Avenue and Maldonado Avenue). Given the narrow right of way of the road, the city centre is crossed by the Trolebus using standard traffic management and exclusive bus lanes.



Key:

Red: Main BRT Corridor, Red-Blue; Lateral Corridors (second phase); Blue: Feeder Services; Green Dot: Transfer Stations; Green Line: Complementary Lines; Green Dotted Line: Future Feeder Services.

Figure 4 Original Trunk and Feeder Lines - Original Proposal

Source: (Arias, 1991b)

The exclusive busways comprise one lane in each direction; this does not permit overtaking at stops. The stops are island platforms and the vehicles are high-floor vehicles with level, gap-less boarding for passengers achieved at stops through raised platforms. The buses have access to stops on the left-hand side, which means each stop only serves the direction the bus is going. The busways operate as a trunk and feeder system, wherein passengers pay before entering the buses and are able to transfer, in specific transfer stations, between feeder and trunk line buses without further payment.

The services started with 58 articulated trolleybuses and feeder services were provided at the terminals by 64 conventional buses. The articulated bus fleet added 55 buses and 36 feeder buses with the completion of the route. During the first years of service, the systems operated until 20h00; today the system offers 24-hour transport. The success of the new and improved transport system secured Jamil Mahuad re-election as Mayor of the city and as a consequence continuity of the transport policies (Chauvin, 2006).

In 1998, in the half term of his second mandate, Jamil Mahuad left the Municipality and ran for presidential election. He won the presidency and his Vice Mayor, Roque Sevilla assumed office for the two remaining years of the term. Roque Sevilla implemented the second stage of the first line and started the construction of a second line; he also began the normalisation of the bus fleet in Quito and introduced the Bus TIPO.

The Bus TIPO is a bus that was designed for operation in the city. It was developed in a participative way with local industry, transport providers, bus users, and the Municipality (Chauvin, 2006). The objective was to change the pre-existing colectivos and busetas into a single type of vehicle. Every new bus in the city had to fulfil certain mechanical, operational, and design characteristics in order to operate in the city.

Figure 5 Ecovía System Quito, Ecuador

Source: ITDP, 2015

The second BRT line, called Ecovía, brought important changes to the system in comparison to the Trolebus (see Figure 5). First of all, the corridor was diesel run and the stops were situated at the centre of the runway allowing each station to serve both directions of the system. Another important difference to the Trolebus was the management of the system. The introduction of the new BRT meant the elimination of redundant services. The Municipality wanted to avoid problems that the previous administration had with the operators. At the beginning of construction, it was announced that operation of the system was going to be awarded to transport providers affected directly by the introduction of the new line.

Regardless of public scepticism about reaching an agreement with the operators, a consortium of eight operators was formed and awarded the operation of the new line (Chauvin, 2006). The infrastructure was completed in 1999, shortly before the end of Mayor Sevilla's term. A severe financial crisis in the country[1] impeded the acquisition of buses, which meant Mayor Sevilla did

[1] Crisis in Ecuador - The 1998-1999 financial crisis was a period of economic instability that resulted from a combined banking crisis, currency crisis, and sovereign debt crisis. President Jamil Mahuad announced on January 9, 2000 that the US dollar would be adopted as the national currency. Poor economic conditions and subsequent protests against the government resulted in the 2000 Ecuadorian coup d'état in which Jamil Mahuad was forced to resign and was replaced by his Vice President, Gustavo Noboa.

not complete implementation of the line. Sevilla's mayoral term was over, and the beginning of operations had to wait for a new Mayor. Sevilla ran for a second term, however Paco Moncayo won the election as Mayor.

Mayor Paco Moncayo continued with the implementation of the original plan. Although a new team was brought in for TSU, nevertheless the corridors were implemented.

Today, the system formally known as "MetroBusQ", consists of five BRT corridors with a total length of 69 km, 101 stations and 11 transfer stations (BRTData, 2016). Every Mayor in Quito has implemented a new BRT line. Each administration had its own peculiarities, which made it interesting for an analysis of power relations during the generation of BRT ideas in Quito and the spread within the city. It is in this context that this study is set to explore and analyse how power mechanisms shaped the system in Quito.

3.4. Cambridge - City Context

Cambridge is an urban district in the UK that covers approximately 4,100 hectares. The city is situated in the county of Cambridgeshire, in the south east of England, approximately 80 kilometres northeast of London. Its main geographical feature is the Cam River that runs through the eastern and northern sections of the city. The Cambridge sub-region includes the smaller cathedral city of Ely and market towns such as Huntingdon, Newmarket, Royston, and St. Neots, as well as a large number of smaller settlements (Ogilvie et al., 2010). Cambridge, together with East Cambridgeshire, Fenland, Huntingdonshire, and South Cambridgeshire, comprise the five districts that form the Cambridgeshire County. Cambridge, the administrative centre of the county, is surrounded by South Cambridgeshire district. A BRT system was implemented in 2011 to connect the city of Cambridge with Huntingdonshire, serving all the villages between the two points (see Figure 6).

The history of Cambridge is long and rich. Archaeologists have found evidence of 3,500 year-old settlements in what is known today as Cambridge. Successive waves of occupants, including the Romans and the Normans, shaped the city. More recent history describes Cambridge as a market and university town. In the past six decades, since Cambridge was incorporated in 1951, the city has become a global centre of excellence for high technology industries.

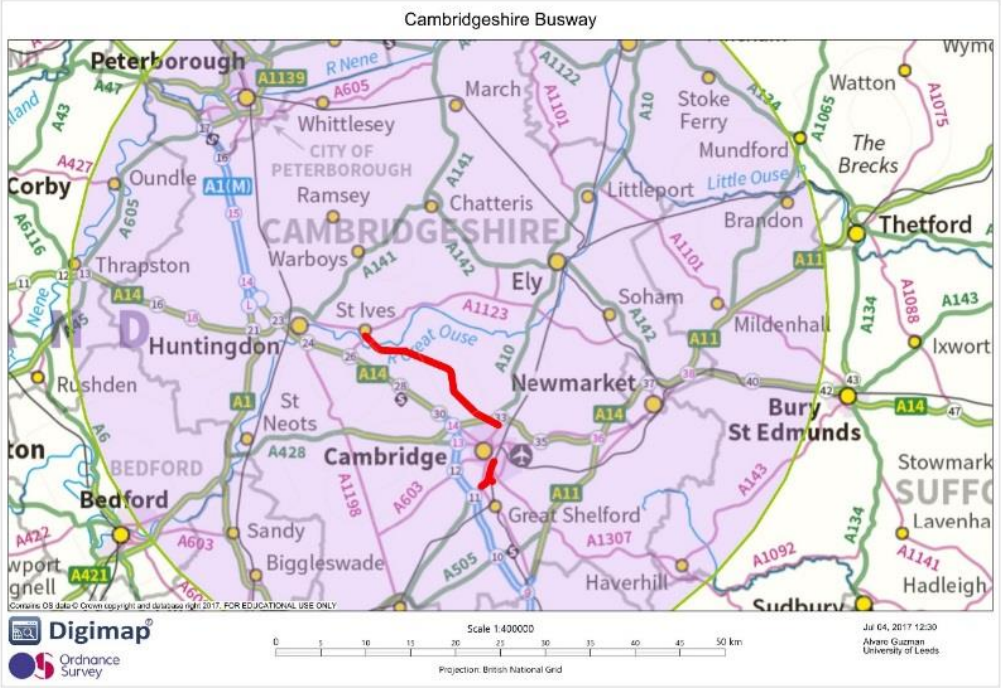


Figure 6 Cambridgeshire Busway

Source: Digimap, 2017

A diverse scientific park is based in the region, with specialities in aerospace, technology, biotechnology, information technology, and nanotechnology. Biomedical research and clinical excellence in Addenbrooke's Hospital is an important feature of today's activities in the region of Cambridge. The implemented busway serves the scientific park and has been extended to Addenbrooke's Hospital. The dramatic change from a university and market town into a hub of technology innovation has brought many challenges to this historic city.

In terms of population, when Cambridge became a city in 1951 the population was 91,000. In 2011, the population in Cambridge was estimated at 123,900 that accounted for 20% of Cambridgeshire's total population; a 9% growth (9,900) was experienced since 2001 (CCC-Atlas, 2016). These are actually the second lowest growth figures in Cambridgeshire itself, both in total and percentage terms. However, Cambridge percentage growth was higher than elsewhere in the region and England as a whole. High growth, above the national average, has been seen in four of the five Cambridgeshire districts; only Huntingdonshire, with a 5% population growth is below the national average of 7.06% (Champion, 2014). A further 25.9% growth is predicted for Cambridge during the 2011-2031 period. The expected growth comes from two causes: 56% is due to natural change (the difference between births and deaths), whereas 46% will be attributable to net migrations (the difference between people leaving and

arriving in the area). The existing population growth creates pressure on housing provision and housing prices in the county.

In 2001, there were 232,100 dwellings in Cambridgeshire; by 2010, the number had increased to 260,200 (CCC-Atlas, 2016). The Strategic Housing Market Assessment (SHMA) of 2013 identified a requirement for 93,000 additional market and affordable dwellings across the Cambridge housing market area between 2011 and 2031 (Baker, 2013). The proposed town of Northstowe, with up to 10,000 new homes is now situated five miles north-west of the city of Cambridge, inside the administrative district of South Cambridgeshire.

Although the district has a good record in building new dwellings, the shortage of housing has put high pressure on housing prices in the area. According to SHMA, Cambridge prices are significantly higher than the rest of the region. The average house in Cambridge City was £321,189 in 2010, while the national average was £240,333 (Baker, 2013). In the immediate surrounding district of South Cambridgeshire, the average price of a house was £275,086. Research reveals that house prices are lower at the north of Cambridge and provide more affordable housing for those priced out from the market closer to Cambridge, including those working in or near the city (Baker, 2013).

The historic nature of the city as a university town, together with its more recent success as a technological hub, makes the city an attractive centre for a new population that —in turn— puts high pressure on the housing market and the development of new housing both inside and outside of the city. Therefore, the transport demand for travelling into Cambridge is growing, as more and more commuters from the nearby villages need to get to the city every day. As a consequence, there has been a huge rise in motor vehicle journeys, filling the historic city roads that are not designed to take high volumes of traffic.

Over 200,000 motor vehicles go in or out of the city of Cambridge every day. Cars come from all the districts, using the available road network including the A14, one of the main roads in the area. The A14 not only serves an important part of the county, but also is an important route joining the east coast port of Felixstowe and the M1/M6 motorways. It is a strategic route of the Trans-European Network and the north-south route of the country by connecting with the M11 at Cambridge. At the local level, it is used as a distributor road, especially for trips between Huntingdon and Cambridge, as well as the villages in between. The high levels of congestion on the A14 diminish the smooth operation of this economically important area. Additionally, the local roads are also congested due to continuous searches for shortcuts to avoid traffic, causing pollution and affecting public safety, as well as delaying local bus services.

The county council responsible for the transport of the region has been proactive in creating policies to manage the growing transport demand in the region and the effects on the A14.

Since 1997, Cambridge has repeatedly introduced traffic management measures in the centre of the city to create an environment where the use of non-car modes become a more attractive choice (Huges, 2014). Cambridge has the highest modal share for cycling to work in the UK (29%), substantially higher than that for the locations with the next highest modal shares, Oxford, 17% and the Isles of Scilly and Hackney, 14% (ONS, 2011).

Additionally, park and ride (P&R) schemes have been regularly introduced as an alternative for car users in order to avoid congestion in the city centre. Seven P&R sites are connected to the bus network into the city centre. The quality of the bus network, known as “Citi”, varies. Corridors that run close to a railway line have long journeys and infrequent services. The new busway operates at 10-minute frequencies. There are additional community transport schemes, such as voluntary car schemes, dial-a-ride services, and a taxi card scheme. The purpose of these is to provide door-to-door services for people who have difficulty accessing traditional bus services, those who do not have access to a car or bus services, and those who suffer from poor access to basic services, which are limited and are not integrated with the bus network. In 2011, Cambridge introduced a guided busway as part of its transport strategy, after a Central Government led multi-modal study for the A14 corridor.

3.4.1. Transport in the UK

Transport policy in the UK has suffered through many transformations in the past seven decades. In this section, a review of the evolution of transport policy in the UK is presented. The 1960s are well remembered in UK transport history by the publication of the report “Reshaping of British Railways” (BRB, 1963), also known as the “Beeching Report” (Patmore, 1965). However, even before the Beeching Report, many rail lines had already been closed. In 1955, “The Railway Conversion League”, a group interested in promoting the use of disused railway tracks, promoted the conversion of disused lines into facilities to be used by pneumatic vehicles (Lloyd, 1955); this discussion was maintained for several decades. The Beeching Report outlined plans to close more than 5,000 miles of track and more than 200 stations. Amongst the many lines shut down, the Cambridge-St. Ives railway line for passenger service was affected. However, it remained open for freight services, until the mid-1990s.

During the 1970s, most cities in England had completed land use transport studies that provided a vision for their transport requirements for the next 20 years. Local government reform had introduced Transport Policies and Programmes (TPP) in 1974 that led to

Metropolitan County Councils to be responsible for transport planning in cities (May, 2013). The government set a new system of supplementary transport grants to assist cities. The system promoted comprehensive transport plans.

To eliminate bias towards particular forms of expenditure (capital or revenue), they distributed grants in a way that reflected the needs of individual areas. Higher tier authorities bidding for grants had to submit transport objectives for a 10-15-year period, a 5 year expenditure program with post-expenditure, and detailed progress towards meeting its objectives on an annual basis. The program encouraged local authorities to recognise factors such as the environment, land use, and social equality in access to transport (May, 2013).

At the end of the 1970s a new set of ideas for transport were introduced gradually, dismantling the TPP. First, because of financial difficulties, the government rolled back and stopped funding fare subsidies and parking provision. Second, during the conservative years, several initiatives that led to the privatisation of bus services were implemented. The 1980 Transport Act deregulated express coach services and liberalised some aspects of bus operation. The 1984 London Regional Transport Act nationalised all buses in London and initiated a system of tendering for services. This was followed by the 1985 Transport Act that deregulated all services outside of London (Preston, 2005). During that period, the metropolitan regions were abolished, local authorities were no longer able to plan multi-modal solutions, and their action was limited to a small set of initiatives around road building.

The transport policies pushed on local governments during the first ten years of conservative government generated strong resistance from local authorities. Major conurbations realised there was no reason to keep spending money on more roads, particularly when there were more cost-effective solutions to their transport problems, like buses or rail (May, 2013). As a result, several initiatives took place in the new decade. During the 1990s, local and international initiatives were promoted in the UK, increasing the pressure on the Central Government for a more sustainable approach other than road building.

At the beginning of the decade, a number of transport authorities demanded from the government the need to develop integrated transport strategies and the need for higher flexibility with funding for all modes and management as well as infrastructure. Additionally, the Department of Environment Transport and the Regions had published a document entitled “Keeping Buses Moving”, in which some policies to generate bus priority measures were recommended (DETR, 1997). The Standing Advisory Committee on Trunk Road Assessment (SACTRA) published a report, noting that the construction of new roads could generate more

traffic (Sactra, 1994). The impact transport had on the environment, economy and society, led to the publication by policy experts and politicians; in 1996 the report “Consensus for Change”, which urged changed of transport policy to a more sustainable approach to travel (Docherty and Shaw, 2008).

Surrounded by this context, the conservative government became convinced that it needed to have a multi-modal approach for transport and started working on what became the Green Paper on Transport. However, it was not applied because a national election took place in May 1997 putting labour into government. After this, all parties started re-evaluating transport strategies.

In 1998, the White Paper a “New Deal for Transport” was published by the new labour government (DETR, 1998). The White Paper represented the first multimodal policy document in over 20 years and found a consensus of ideas among policymakers, academics, and commentators that had been arguing for changes in transport policy (Docherty and Shaw, 2011). This consensus was built around a more multi-modal approach for transport and a general rejection of the idea of providing more road space to alleviate congestion problems (idem). The labour government also reviewed the “Roads for Prosperity” program and made important changes to that initial proposal. From the review in 1999, 22 multi-modal studies were developed by the Central Government. In 2001, the Cambridge to Huntingdon Multi-Modal Study was presented to the Cambridgeshire County Council and they were asked to build the proposed guided busway. In December 2005, the Cambridgeshire Guided Busway received government approval for funding and construction of the system. This is described in the next section.

3.4.2. Cambridge to Huntingdon Multi-Modal Study (CHUMMS)

The Cambridge Guided Busway is part of a series of recommendations made as a result of the Cambridge to Huntingdon Multi-Modal Study (CHUMMS) commissioned by the Department of the Environment Transport and the Regions in 1998. However, the story of the Guided Busway goes back to 1963 when the report “Reshaping of British Railways” determined the closure of several miles of railways in the UK (British-Railways-Board, 1963). As previously noted, amongst the many lines closed, the Cambridge-St. Ives railway line passenger service was affected. However, because the line remained open for freight services, until mid-1990, informal discussion about what to do with the existing railway line had been common in the area for years (CCC, 2004).

In 1989, the Conservative Government published its White Paper, “Roads for Prosperity”, setting out a £17 billion trunk road expansion (Marsden, 2005). This policy package covered 500 road schemes, including widening important motorways like the M1 and the M25. Other trunk roads such as the A14 were also considered. Before all the road expansion was executed, however, a more multi-modal approach to transport solutions was taken by the new labour government.

Multi-Modal Studies (MMS) represented an expanded view on how all modes can contribute to the solution for the transport problem identified; they attempted to move away from traditional forms of easing problems of congestion, environment, and safety on the road network that would generally have led to proposals that increased road network capacity. A multi-modal study examined the role of various modes of transport and produced policy recommendations in terms of the contribution that the different modes have. The interrelationships between land use planning and transport provision were also considered. The idea was to achieve national, regional, and local objectives. Of the 22 multi-modal studies to be carried out, one was the CHUMMS. This required a MMS to consider solutions to the problems of congestion and safety in the A14 corridor where there were also substantial development pressures.

The CHUMMS area of study considered the inner areas of Cambridge, Huntingdon, St. Ives, and Godmanchester that together accounted for 27% of the population of the county (DTLR, 2001). The study followed the government guidance methodologies for MMS. It was completed under the guidance of a steering group, with representatives from government officials, bus operators, the county council, the district council, as well as a development agency, the environmental department, the highways agency, railways representatives, a regional planning group and road issues representatives. The steering group function was to ensure that the study was carried out in a correct manner and that the conclusions reached from the study were justified.

As a result of the study, three main recommendations were given to the Cambridgeshire County Council in order to improve the existing situation on the A14. This suggested road improvements on the A14, integrated policies to promote public transport and other nonmotorized modes, and the implementation of a guided bus scheme along the disused Cambridge to St. Ives railway line, with extensions to Trumpington and Addenbrooke’s Hospital as well as Huntingdon. The guided busway is a form of BRT that runs on its own right of way with wheels with kerb guidance.

The Cambridgeshire County Council accepted these findings. The package was endorsed by the Secretary of State in December 2001. At that point, the County Council requested preparation of a full appraisal of the guided bus scheme for submission with its 2002 Local Transport Plan Annual Progress Report. An appraisal was needed for the viability of the scheme and to bid for government funding to implement it (CCC, 2004). Cambridgeshire County Council together with Atkins Consultancy worked on feasibility studies for the busway.

The assessment included an environmental impact assessment, transport impact and decongestion benefits, economic and financial appraisals, engineering feasibility assessments, and capital costing. Public inquiries, held in September and October 2004, provided a major opportunity for groups and individuals to have their objections heard and for questions to be put to the Cambridgeshire County Council's witnesses (CCC, 2004).

Total of 2741 objections were received. The objections were varied and included: the lack of justification for the Cambridge Guided Bus in transportation terms; the economics of the scheme; the preference for alternatives, particularly heavy rail; ecological impacts in both rural and urban areas, and property matters. The objections were reviewed by the Secretary of State for Transport; however, none of them were deemed significant enough to stop the project. The scheme was approved by the government in December 2005.

3.4.3. The Guided Busway

The Guided Busway is an idea that was first developed in Essen, Germany. It was developed by Daimler-Benz AG and Ed. Zublin, and was the result of a project financed by the Federal Ministry of Research and Technology (Boegner and Koch, 1984). Mercedes-Benz demonstrated the concept at the 1979 International Traffic Exhibition in Hamburg. The objective was to design a bus system that could share the space used by rail systems in cities, that is, buses running on the same right of way as trams.

Initially known as O-Bahn, the system enables normal street buses to travel on a restricted width track by means of a simple mechanical guidance system. The first system, built in Essen in 1980, had 5.9 km of guided busway (GBW) and was constructed over three different segments. The GBW concept did not develop further in Germany, from that small section in Essen, but instead it was in Adelaide, Australia where Mercedes-Benz was able to implement a larger GBW project. It consisted of 11.8 km of guided way connecting a suburban neighbourhood of Adelaide with the city centre. The Adelaide system remained the longest GBW in the world until the implementation of the system in Cambridge.

In the UK, the concept was first implemented in a small 600-metre section of Trackline 65 in Birmingham in 1984 (Bain and Tebb, 2002). The guideway was an experiment in bus transport that intended to test if the implementation of a series of improvements along a specific route, which led to faster journeys and a generally higher quality of service to passengers, would be possible to attract more people to bus transport. The route was closed after deregulation because a rival company was awarded the contract for the Sunday service and was not willing to spend money equipping vehicles with guide wheels. After that, more permanent systems followed in the UK, the Leeds GBW was the first to be implemented; it is still in use.

Leeds first GBW, branded as Superbus, was implemented in 1995. It was located on Scott Hall Road, a radial corridor of dual carriageway status to the north of the city. The guided way created does not run continuously along the road, but at relatively small stretches of guideway adjacent to the road at strategic locations where traffic congestion occurs. The operator has recorded increases in the patronage of over 75%, with 50% reductions in peak journey time since the opening of the first section of the guideway in 1995 (Bain and Tebb, 2002). The increased ridership and reduction of journey times led the operators to help fund a second guideway scheme in Leeds along the A64/A63 corridor.

A few other systems followed in Bradford, Edinburgh, Crawley, and Luton; Leigh recently implemented a 7 km guide way. GBWs are part of a series of operating BRT schemes in the UK such as Tyne & Wear, Fast Link in Glasgow and Crawley, as well as developments in Belfast, the West of England's MetroBus, and the Smart Scheme in Berkshire among others (BRTUK, 2016).

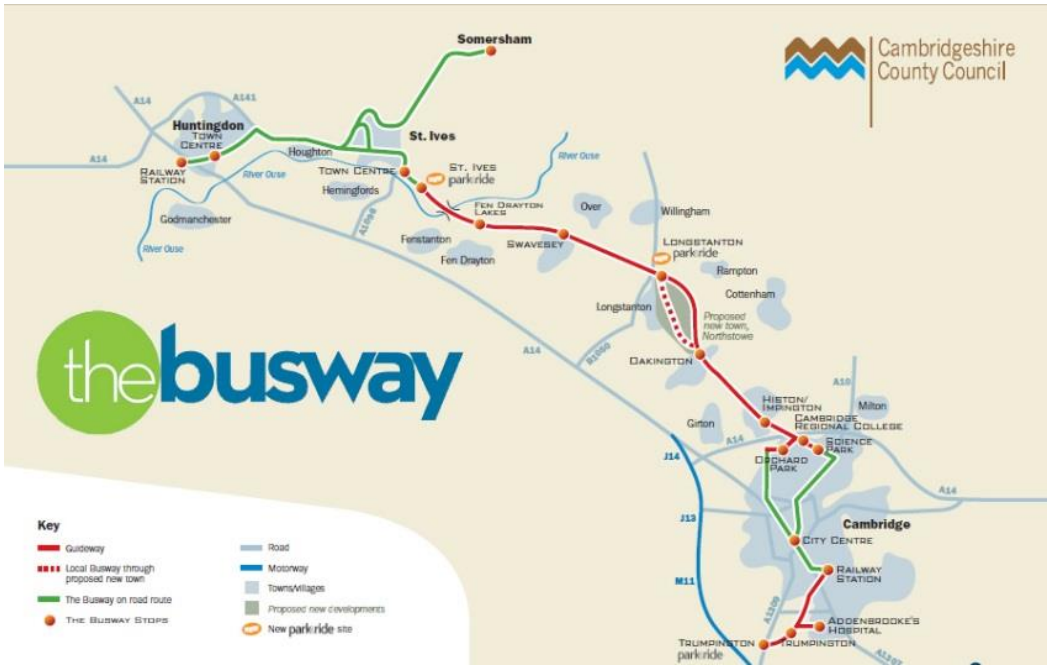


Figure 7 Cambridge Busway System Map

Source: CCC, 2016

3.4.4. The Cambridge Guided Busway

The GBW in Cambridge is a mixed 40 km route, of which 25 km is guided (see Figure 7). The buses are kerb-guided like the ones used in Essen, Germany; Adelaide, Australia; and Leeds, UK. The guided stretch of the route uses the land of the unused railway line between St. Ives and Cambridge to the north of Cambridge and from the railway station to Trumpington. The guided bus connects the towns of Trumpington and Huntingdon as well as the villages and towns on that corridor, including the new town of Northstowe. The system also has a combined walking and cycle path that runs parallel to the busway, see Figure 8.

Figure 8 Cambridgeshire Busway Section

Source: BRTdata, 2016

The Cambridge Busway project is different from the Leeds scheme due to the power conferred by a Transport and Works Act Order; this gives Cambridgeshire County Council power to construct and operate the GBW. In this case, the Cambridge County Council can exercise control over matters including service patterns, the level of service, availability of multi-operator ticketing, quality of service, and age and quality of buses (LGB, 2017). Cambridge County Council has signed an access agreement with the operators so that the rules for the use of the guideway are agreed. The agreement includes a minimum level of service and the payment of a fee to use the guideway.

It was forecast that the Cambridge Guided Busway would have a patronage of 3.5 million passengers per year, achieving that after three years of operation. In the first year, 1.75 million passengers were expected; however, 2.4 million passengers actually used it, 43% above the forecast. In 2014, 3.6 million passenger journeys were made on the Cambridge Guided Busway (CCC, 2015). It is a popular system and it has already exceeded the original planning expectations, though not without problems.

Construction began in 2007 and it was announced that it would open in 2009. However, construction problems with the contractor delayed the project and is was open in August 2011. The project was budgeted to cost £116.2 million with Central Government providing £92.5 million. The difference would come from developers in the area who are building proposed new houses. In 2004, the cost of the proposed scheme was estimated at £86.4m, by 2006 the cost estimate had already risen by close to £30m (BBC, 2007). An independent review stated that the cost by August 2014 was £147 million. Although the Guided Busway started operation, the Council has not formally accepted the busway as there are still serious defects that need to be corrected. The County Council has agreed to proceed with legal action against the contractor regarding defects in the design and construction of the Guided Busway.

3.5. Quito and Cambridge Observations

There are 9,243 km between the cities of Quito and Cambridge, but it is not only distance that keeps these two cities apart. Many differences, such as their scale, geography, governance, finance and others are present. For example, Quito is almost 18 times more populated than Cambridge. Cambridge is situated in a flat terrain in the south east of England while Quito is in a valley in the middle of the Latin American Andes. The governments in both cities are also very different.

Quito has a Mayor who has autonomy over Central Government in almost all city issues, except those of national interest such as health, education, or energy. On the other hand, Cambridge is run by a City Council, Councils are run by committees that are responsible for policy making in the city. In spite of the existing differences, both share similar challenges with respect to their urban development. Both cities are historical sites, which implies big difficulties in terms of possibilities of infrastructure that may be install. They are both big generators of employment opportunities that have important repercussions on the transport in the city and the region.

Although their views regarding existing challenges differ between both cities, they have implemented important BRT projects as one of the policies to tackle existing mobility challenges.

3.6. Summary

In this chapter the relevance of the use of case studies has been addressed, particularly when dealing with contextually sensitive research, such as studies of power. The chapter presented —in a descriptive way— the context of each of the cities selected and the transport conditions before the implementation of BRT systems. A description of the existing institutional arrangements was also presented. There are clear differences between both case studies selected, mainly in scale, governance system, and the institutional arrangement of transport management. In both cases, it was clear that a series of interventions were needed to solve the identified transport problems. However the most visible aspect of the interventions was the introduction of a BRT system in both cities.

There are some similarities observed in both case studies, including saturation of the road network in the centre of the cities and poor quality of the public transport options. There is high pressure to access the centres of both cities as they are also the centre of activities, mainly jobs, education, services, and leisure. In Cambridgeshire, the main road for access from the north-east is the A14, which is also a strategic road connecting important logistic destinations of the country. The existing transport systems could not cope with the growth of the regions in both case studies. Under this scenario, both cities implemented important changes to tackle the situation.

In Quito, the local Municipality led a process of institutional change that modified the transport management situation. The city implemented important changes that needed the intervention of all government levels, including the Central Government, National Congress, and the police. In Cambridgeshire, the implementation of the system was the outcome of the CHUMMS. This study was part of a series developed by the Central Government to find the best way to tackle congestion in strategic points of the road network. One of the conclusions of the study was to implement the Guided Busway. The study was handed to the County Council to lead its implementation. The development of the systems in both case studies have significant differences; nevertheless, some emerging similarities were found as the research prospered.

In both cases it was expected that power would be exercised to emphasise the importance of improving the efficiency of the network. This has been the main objective of transport

planning where the systems have been implemented. In the literature it was also observed that —for Latin America— the poorest segments of the population are not served by the systems (Bocarejo and Oviedo, 2012), therefore it was expected that power relations in the planning of the systems might not take into account these segments' needs, particularly in Quito. In the UK, benefits of implementing BRT was seen as a high-profile rapid transit mode, offering an innovative solution to traffic problems (Deng and Nelson, 2011), therefore it was expected that power relations in Cambridge would emphasise the capacity of the BRT to attract car users into the system.

Although the descriptive elements of each city vary widely from each other, this research study looked more closely at the power relations that were revealed to take place during the planning and implementation of both BRT systems.

4. Methodology

4.1. Introduction

In the previous chapter, a justification for the use of case studies and the selection of those for this research was presented. In this chapter, the methodology used to understand how power is exercised in the development of BRT in the case studies selected is presented.

Phronetic research methodology —as developed by Flyvbjerg (2001)— was chosen, and the chapter begins with a presentation of the concept, some examples of its use, the guidelines for its implementation, a critical analysis of the methodology and its usefulness for research. The chapter continues with a description of and justification for the methods selected to answer the research questions previously presented in Chapter 1. Qualitative and quantitative methodological approaches are used in this research for data gathering and analysis. A qualitative study is developed to understand the role of power in the planning process of the BRT and a quantitative approach is used to characterize the cities and to analyse spatially the deficiencies of the two BRT systems.

4.1.1. Phronetic Methodology

In his book, "Making Social Science Matter" (MSSM), Flyvbjerg (2001) argues that social science has failed in its attempt to be as "scientific" as natural science (Ross, 1996, Bucchi, 2004). In the introduction of the book, he notes the existing conflicting paradigms between the social and the natural sciences that have been described as the "Science War". Natural science has been extremely successful in its ability of creating predictive theory, what Aristotle called

“episteme”. In contrast, according to Flyvbjerg, social science has attempted to appear as epistemic as natural science for too long, whilst largely failing to do so. He suggests that this conflict emerges from a confusion about the role that each science can and should play within society.

In order to overcome this problem, Flyvbjerg proposes, as an alternative to the existing conflict, a methodology by which social science can be more epistemically guided. He develops what he calls phronetic planning research. Phronetic planning combines Aristotle’s and MacIntyre (2013) idea of phronesis, the phenomenological perspective of the Dreyfus Brothers on human learning (Dreyfus and Dreyfus, 1986) and Foucault’s conceptualization of power/knowledge (see section 2.3.2, in Chapter 2).

For Aristotle and Macintyre, phronesis means a science that is practical, prudent, and capable of making a difference in the world. It can also be understood as the virtue of practical wisdom and is concerned with practical knowledge (Ross, 1962). “Episteme”, “techne” and “phronesis” are the three intellectual virtues described by Aristotle. The first two have been highly acknowledged by modern sciences, however, phronesis has not been given the same level of importance (Flyvbjerg, 2004). Episteme concerns universal, invariable knowledge, or “know why”; techne, arts and crafts, concerns the instrumental application of technical knowledge, or “know how”; and phronesis concerns prudence, or practical common sense. Phronesis requires experience and offers knowledge of how to behave in particular situations that cannot be explained by universals, i.e., grand narratives. Phronetic research does not try to develop either a theory nor a universal method.

The Dreyfus model of human learning describes how individuals progress through various levels in their acquisition of skills, and then incorporates ideas with regards to how individuals learn. The Dreyfus model operates in a five-level scale of the human learning process: novice, advanced beginner, competent performer, proficient performer, and expert (Dreyfus, 2004). The first level of learning, novice, is achieved by following a simple set of rules that work for almost everyone. This means that a large number of people achieve this early stage. Not many people achieve the highest levels in activities such as chess or instrument playing. In almost all daily activities people are novice or even advanced beginners; almost everybody can apply a plaster, however, to become an experienced surgeon, there is not only reliance on a given set of rules but also decisions are based on intuition and recollection of countless experiences more than simple rules.

The Dreyfus scale contests the cognitivist model that states that human beings can only act either rationally —as analytical problem-solvers— or irrationally (Falk et al., 2009). Flyvbjerg builds from this argument to state that for social science, the epistemic aims at predictive, rule-bound, context-independent theory of natural science will never work. In fact, the social world must be understood as intuitive and phenomenological; it requires a different rationale for its understanding. According to Flyvbjerg, phronetic research can help understand the social world.

A phronetic social science is strong, where natural science is weak, because it involves the reflexive analysis of values and power, essential to social and economic development of any society (Flyvbjerg, 2004). The episteme virtue has dominated science since Plato and subsequently in the enlightenment tradition (Flyvbjerg, 2001). The purpose of bringing back Aristotle's idea of phronesis and introducing it to the social sciences can balance the now dominant *instrumental* rationality with greater focus on *value* rationality. Flyvbjerg (2001) states: "One task of phronetic research is to provide concrete examples and detail narratives of how power works… and to suggest how power might be changed" (p.140). Phronetic social science is designed not to substitute for, but instead to supplement practical wisdom and to do so in ways that can improve society (idem).

Flyvbjerg (2004) notes other planning research has focused on practical experience (Forester, 1999, Throgmorton, 1996) and could be said to contain elements of phronesis in this sense. The main difference between such research and the approach developed by Flyvbjerg lies in the concept of power. The phronetic researcher develops the sensitivity needed to study how power is exercised in modern societies by breaking with the tradition of understanding power from a Hobbesian perspective, and instead putting emphasis in the ideas of power relations developed by Foucault described in Chapter 2, section 2.2.2.

The phronetic approach in planning practices is interested in topics that matter, such as inequality, poverty, social exclusion, etc. and in finding ways to improve the existing situations (Flyvbjerg, 2001). Public transport, as discussed in the literature review section 2.3.5, is in a constant state of contestation. A phronetic approach to the analysis of BRT creates an opportunity to review the existing schemes in order to understand and improve current practices.

4.1.2. Phronetic Research in Practice

Phronesis has been around for many years, however it had not been organised, recognised, and structuralised as such before (Flyvbjerg, 2001). The phronetic methodology was developed

by Flyvbjerg after 15 years of work in the Aalborg City Council, in Denmark, where he had the opportunity to be directly involved with the matter of what later became his research. Flyvbjerg's contribution to social science is not only the effort he makes to understand power, as he is not the first nor the only one who has attempted to study power before, such as David Harvey, Henri Lefebvre, Neil Brenner, Christine Boyer, etc. However, he offers a systematic approach to researching power, that can be replicated by other researchers interested in the topic.

After Flyvbjerg, various authors have followed the phronetic approach and have proven the methodology useful in such diverse disciplines as human rights (Landman, 2012, Olsen et al., 2012), environmental management (Griggs and Howarth, 2012) and urban planning (Sandercock and Attili, 2012, Basu, 2012). Each discipline is distinct and a variety of methods and analyses are utilized for different applications. Case studies are most commonly used for power studies based on Flyvbjerg (2001), however, the methods used for data gathering and data analysis vary greatly.

Landman (2012) relies on narratives complemented by journals, field notes, letters, conversations, interviews, photos and other artefacts, as well as video and film to delineate phronetic analysis to more than thirty "truth commissions" around the world. Sandercock and Attili (2012) use ethnography, historical strategies, and film as models of inquiry to draw on the importance of power as well as story and storytelling when working with communities using collaborative planning, especially on a difficult public policy concerning both urban planning and racism in rural Canada.

Griggs and Howarth (2012) applied discourse and discourse analysis to explore the role of power in framing the policy formulation for the expansion of the third runway at Heathrow Airport in London, UK. The methods used included media statements, interviews given by elite actors, articles and reports in major newspapers, a series of in-depth semi-structured interviews with important social actors, and analysis of the consultation process about aviation expansion.

More quantitative approaches have also been used in power studies. For example, Payne et al. (2012) used a cross-national database of strategies for dealing with human rights violations in transitional justice. The authors of the study empirically evidenced how the use of trial over amnesty had become more popular in countries of transitional justice, despite the existing empirical evidence that a mixture of trial and amnesty was more successful in preventing

human rights violations in the future. Basu (2012) uses a case study to critically assess the use of “GIS” systems for targeting poverty reduction strategies in Toronto, Canada.

These studies follow the general idea that more important than applying any particular methods is to answer the research questions set by the phronetic approach, (presented in section 4.1.2). Both qualitative and quantitative methods are used with the objective of bringing out the effects of different policies over marginalised groups or communities. The methods help understand how certain powerful groups exclude other marginal groups from the decision-making process. It also helps to understand how certain ideas are accepted over others by the exercise of power in policy processes without the empirical based required.

4.1.3. Methodological Guidelines

The methodological guidelines (Flyvbjerg, 2001) are not developed as some kind of standardised methodology but rather as guidance on the overall direction of inquiry for studies of power. The approach begins by asking four “value rationale” questions that must be answered for problems that matter to society:

1) Where are we going?
2) Who wins and who loses, and which mechanisms of power are used?
3) Is this development desirable?
4) What, if anything, should we do about it?

The questions stated seem very standard for social policy research; however, Flyvbjerg not only formalises them but, with the second question, puts power at the heart of the research. Researchers following a phronetic approach are aware that there is no universal answer to these questions. What is understood as positive by one group may be negative to another. Perspective is highly important for phronesis along with an understanding that there is no neutral ground for its work.

Researchers with a phronetic approach are well aware that the questions reflect the views of the group answering the questions and their world views, which will differ from the answers of other groups, and that there are no guiding principles by which these differences can be resolved. Consequently, phronesis is a fertile ground to analyse relations of power and to evaluate their results in relation to specific groups and interests (Flyvbjerg, 2005).

The questions may be answered, and research developed, using different methodologies. The most important issue is not the individual methodology involved, even if methodological questions may have some significance (Flyvbjerg, 2005). The process of answering questions

should generate an ongoing debate about the problems, possibilities, risks faced and about how things may be done differently. Flyvbjerg (2001) develops some guidance to answer the questions, but emphasises that it is more important to answer the questions than follow his guidelines.

The guidelines developed by Flyvbjerg (2001) to answer the four questions, include the following nine points explained in table 4.

The methodology developed by Flyvbjerg and outlined above helps planning researchers understand the reasons behind the adoption of a decision and the segments of the population that benefit from its introduction. It can help raise questions regarding many taken-for-granted "truths" about transport and to revaluate such "truths" in a context of power so as to understand who wins and who loses by those "truths" and then start imagining how things could be done differently (Flyvbjerg, 2004).

These guidelines force the researcher to focus on concrete examples of practice and to interact with people making the decisions. Interactions with policy makers help understand the reasons behind the adoption of a particular decision and why other options are not considered. Understanding the decision-making process inside circles of power can give clues for different options and strategies to design policy by understanding the problems, possibilities, barriers, and opportunities planners face and then start thinking of strategies to develop new and different avenues for policy making. They can also help design better tools and techniques to integrate empirical evidence with the existing circles of power.

Finally, the guidelines can help understand the segments of the population that do not win with the implemented transport policies. A phronetic approach to planning aims to integrate marginalised groups into the decision-making circles, and create opportunities to challenge existing power relations, in the pursuit of more democratic decision-making processes.

Flyvbjerg's Guidelines	
1. Focusing on values	Considering the Aristotelian classic value-rational questions: Where are we going? Is it desirable? What should be done? They force the researcher to "face the question of foundationalism versus relativism —that is, the view that there are central values that can be rationally and universally grounded, versus the view that one set of values is as good as another—" (Flyvbjerg, 2005, p.40). Phronetic research rejects both of these ideas and replaces them with contextualisation or situational ethics. History and context are the only solid arguments humans have. Validity is open to other interpretations. Every interpretation must be built on claims of validity, and these claims depend on basic ground rules of a community of social scientists.
2. Getting close to reality	The researcher tries to get as close as possible to the context being studied, to the phenomenon of the group being studied during data collection, data analysis, feedback, and publication of results. Achieving the goal of getting close to the phenomenon can involve getting away from the theoretical and scientific literature.
3. Placing power at the core of analysis	Additional to the value rational-question, power and outcomes are essential for contemporary phronesis. With value questions and power questions, phronetic methods explicitly frame the research in a context of values and power. The analysis of power is guided by a conception of power characterised by Foucault and the ideas presented in Chapter 2, section 2.3.2.
4. Emphasize little things	The researcher should focus on the small while looking for the great. For too long, conventional wisdom has focused on "important problems" (p. 133), however phronetic research believes that small questions often lead to big answers. The researcher looks for detailed descriptions of the phenomena under study; this requires a large accumulation of material.
5. Looking at practice before discourse	Focus has to be on practical activity and practical knowledge in everyday situations. The phronetic researcher does not accept the idea that there is nothing outside the text or outside discourse. The analysis of text or discourses has to be contrasted with the analysis of practices. Focus is needed on practical activity and practical knowledge in everyday situations in the area of interest.
6. Studying cases and contexts	Emphasis is on the importance of focussing on the particular and the concrete. Studies of power and phronesis are context dependent; however, there is space for larger generalizations. Such generalizations are perfectly compatible with both cases and narratives.
7. Asking "how?" Creating narrative	The purpose is to create the narrative without any theoretical assumptions. The narrative helps with the development of descriptions and interpretations of the phenomenon from the perspectives of participants, researchers, and others.
8. Joining agency and structure	Actors and structures are studied both separately and together. That is, actors and their practices are studied in relation to structures in order to go beyond dualistic interpretations.
9. Dialoguing with a polyphony of voices	A fundamental objective of the research is a contribution to practice, which expresses itself as public dialogue. Successful phronetic research encompasses different voices, including the researcher's voice without it claiming final authority.

Table 4 Methodological Guidelines

Source: Flyvbjerg, 2001

4.1.4. A Critical View of the Phronetic Methodology

The work of Flyvbjerg has been critically evaluated. As noted before, there is a strong argument against predictive capacity of the social sciences; however, that is not always the case. Social sciences can be successful and have been proven successful in explaining the rules governing or constituting social practices (Falk et al., 2009). Where social sciences struggle is in the attempt to find rules that govern expert behaviour (idem).

Flyvbjerg (2001) argues that social science has had limited success in generating theory and argues that, in order for social science to be important, it should enable us to make a clear improvement in the world. With this argument, Flyvbjerg wipes out all the previous attempts made by social scientists whose efforts have been put into simply understanding how the world works (Falk et al., 2009). There is also a lack of reference to previous scholars who have worked with a phronetic approach such as Manuel Castells, David Harvey, Michael Harloe, and a whole school of people who consider themselves to be critical policy analysts (Fainstein, 2015).

In order to link Foucault's ideas of power with the Aristotelian concept of phronesis, Flyvbjerg (2001) uses Nietzsche, stating that Nietzsche's debt to "Aristotle's *Ethics* is considerable", and that Foucault, in turn, was thoroughly influenced by Nietzsche. This philosophical grounding is weak and underdeveloped according to Falk et al. (2009). Flyvbjerg's work, Falk argues, would have benefited by explaining how Foucault's work is related to Aristotle more directly. For Aristotle, ethics is an emancipatory practice of the self, in that the constant evaluation of one's own practice translates into a social outcome that is good for society, whilst for Foucault the evaluation of one's own practice includes knowledge of the existing power relation that determines those practices (Foucault, 1984). Good outcomes for society are realised by understanding the consequences of those power relations.

The existing questionings of Flyvbjerg's phronetic approach do not diminish in any way his effort to "decolonise" social science from natural science. To place social science, not in a war with natural science, but instead on a level playing field —where all sciences can interact and expand scientific thought in a complementary non-competitive way— makes the argument of Making Social Science Matter about the value of social science reasonable and valid. What is more important for this thesis is his interest in bringing a balance to policy practices, such as transport planning. The phronetic research approach has the potential to complement current instrumental practices of transport planning with a more value rational-view.

The phronetic methodology, as proposed by Flyvbjerg, does not necessarily mean a radical introduction of new methods to be used for the understanding of power. The methodology suggested by Flyvbjerg makes use of traditional qualitative methods, such as historical analysis, interviews, document revision, etc. It does not limit itself to qualitative methods because quantitative methods can also be used. As stated, what is important is to be able to answer the four value-rationale questions proposed in the phronetic approach.

4.2. The Methods

As presented in Chapter 3, section 3.2, case studies have the characteristics needed to develop research that the modern exercise of power requires. A case study is also consistent with the phronetic methodology outlined earlier in this chapter, as it allows focus on the particular and the concrete by getting as close as possible to the phenomenon under study (Flyvbjerg, 2006). Within the case study, a mix of methods are used in order to answer research questions presented in Chapter 1.

Qualitative analysis helps us understand, in the context of the selected cases, the role of power, how the exercise of power shaped the systems, and how the existing relations can be challenged in order to improve the design of the systems. A quantitative approach is used alongside the qualitative data in order to understand the spatial deficiencies of the implemented BRT systems in the two selected case studies. The idea is to distinguish the cities in terms of where are the systems located, what are the characteristics of the area that is served by the systems, and who is served and who is left out by the system. The mixed method approach selected can help challenge the current state of practice as it aims to bring together the technical views of transport with a value-based approach, which is the main objective of phronetic research.

4.2.1. Data Gathering

In order to answer the research questions, it is important to understand where the data came from. There were two main sources for the qualitative part of the research: existing planning documents and semi-structured interviews with local actors that participated in the planning processes of BRT systems.

The quantitative analysis as presented in section 4.8 below, relied on existing census data and GIS data about the cities and their transport systems. The examination of planning documents helped define the context of the study and to identify the participants who were to be contacted for the interview process.

Semi-structured interviews gave the interviewer an opportunity to reconstruct the events in which he did not participate. The census and GIS data were collected from official secondary sources, such as transport departments and national statistics departments. Figure 9 represents the different steps of the methodology and how each step helped answer each of the research questions. The process began with a literature review which helped developed the research questions. The dotted line in figure 9 connecting the research questions with the literature review intends to explain this process.

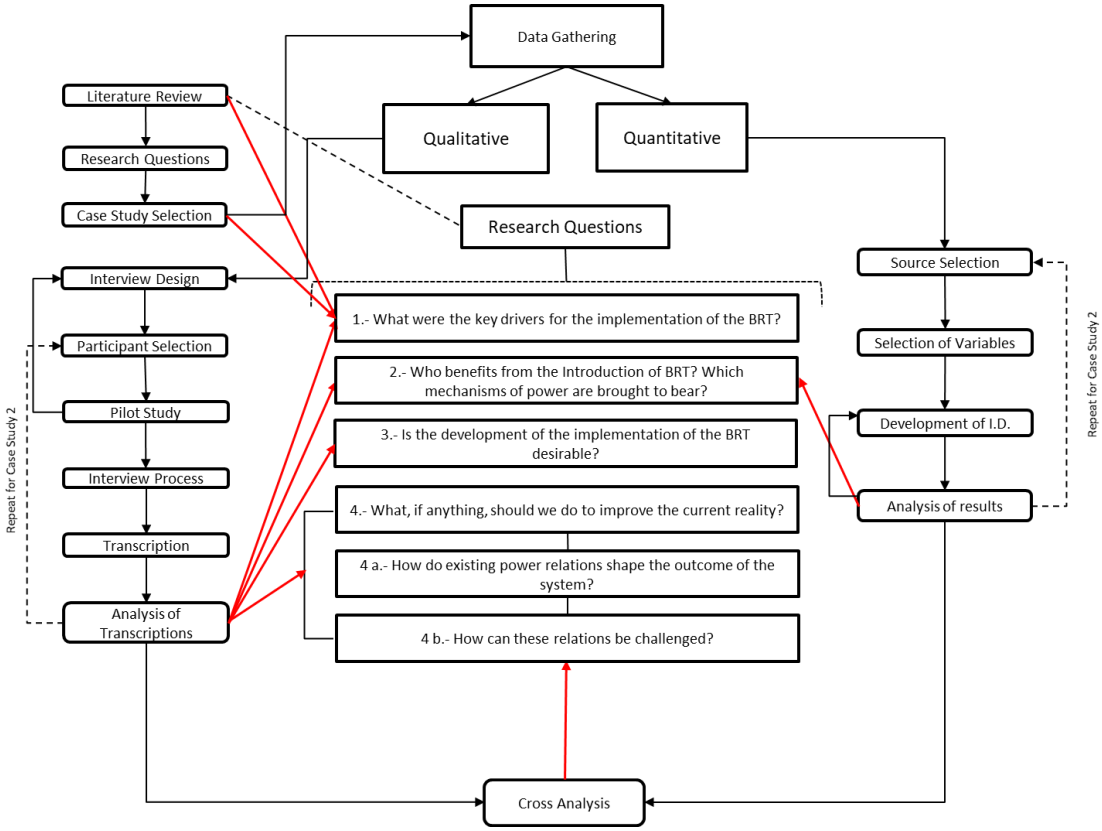


Figure 9 Methodology Flow Chart

Source: Own Elaboration

4.2.2. Interview Design

The interviews were devised to last one hour. This included a brief introduction, by the researcher, about the research to participants and a review of the consent form. The nature of the participants, as high-level officials and planners, introduced in section 4.2.4 below, meant that the time for interviews was limited to fit their agendas. The intention was to get as much

information as possible within one working hour from each participant. An interview is understood as a method of data collection in which one person asks questions to another person; interviews are conducted either face-to-face or by telephone (Polit et al., 2006), as well as today using computer-aided software such as Skype. Interviews are one of the most commonly used methods of data collection. Structured and semi-structured interviews are used; however, for qualitative research, semi-structured interviews are most common (Mason, 2002).

Semi-structured interviews were selected for this research because they allow all participants to be asked the same questions within a flexible framework. This allows maintaining focus on the interests of the research, but it also allows for further exploration of unexpected themes if they are brought up in the interviews, according to the participant's experience in the project. This important characteristic entails great challenges for the interviewer who needs to have the ability to listen, to handle emotional situations, and to remain patient. The interviewer also needs to have enough knowledge about the topic in order to frame the discussion in advance. Particularly important for qualitative interviews is the construction and flow of the interview. This does not mean preparing a static structure for the semi-structured interview, but instead uses development of mechanisms, intellectual and social skills in order to maintain the conversation (Mason 2002).

For the purpose of the research here conducted, it was crucial to capture as many actions as possible that led to the development of each BRT system in order to understand how and why the system was implemented, and what were the outcomes of the implementation of the scheme. It was also important to understand how effective the system has been, who it is working for and how it could be improved. Semi-structured interviews offer a unique opportunity to explore such complex issues and enable probing for further information, challenging the participants when disagreement appears and clarification of answers. It allows the researcher to reconstruct events in which he did not participate. The interview also becomes the preferred method when it can produce more or better data at a lower cost.

The interview questions were developed in three stages. First, an introduction to the systems, which meant how, why and by whom the systems were selected. The second stage addressed how the system got implemented. Finally, questions regarding the vision of how the system has performed from both the participant perspective and for the future of it in the city. The outline for the interview questions is presented in Appendix 1.

4.2.3. Participant Selection

The phronetic approach requires an understanding of the definite views of a specific group of people about a particular phenomenon. The phenomenon under investigation required people who were either directly involved, or had some influence and clear knowledge of the planning of BRT systems in the two case study areas to be approached. The participants that were selected were policy makers, transport planners, and bus operators. On the other hand, different authors have discussed that, in order to capture the complexities of reality, the researcher has to ensure that contradictory views and understandings are accounted for. One of the ways of achieving this is by using a good sampling strategy (Rubin and Rubin 2005). This limits the participants to actors that participated in the planning events of the BRT and any antagonist voices to the same process.

A careful selection of the participants was made, which started with a review of original planning documents (DTLR, 2001, CCC, 2004) and previous research (Chauvin, 2006) about the selected projects. This was the initial point in order to identify the key personalities involved in the planning process of the systems. The previous experience of the researcher, working on the implementation of BRT projects in other cities in Ecuador, helped with the identification of "gatekeepers" who were contacted via email.

It is important to mention that having worked with some of the actors on other projects, was of great help to get them to agree on participating, as they did not view the researcher as someone from outside, but rather as one of their peers. Interviews with peers can bring some difficulties; for example, the interviewee can assume that the interviewer knows certain aspects of the topic and may forget or avoid talking about them (Platt, 1981). Therefore, the interviewer needs to be sharp and develop the abilities needed to make sure as much as possible is said during the interview. The multiplicity of voices selected also helped in finding certain areas that some actors may have forgotten or want to avoid talking about.

In the UK, the supervisor's previous experience with some actors in Cambridge was used to identify suitable participants. The gatekeepers were contacted via email and telephone. The research was explained and they were asked to provide any contact details for other actors that, from their perspective, might be helpful for the research.

The final participants selected are presented in Table 6. In the case of Quito, participants include former mayors, heads of planning departments, former transport secretaries, planners, and transport operators. For the case of Cambridge, they include former heads of

planning departments, city council members, planners, transport operators, representatives of rail advocates groups, and academics.

Quito		
Participant	**Institution**	**Role**
HP	Unidad Estudios de Transporte	Head of Planning Team
TP1	Unidad Estudios de Transporte	Transport Planner
TP2	Secretaría de Movilidad	Transport Planner
M3	Municipio de Quito	Mayor of Quito
TP3	Unidad Estudios de Transporte	Transport Planner
M5	Municipio de Quito	Mayor of Quito
CT	Secretaría de Movilidad	Chair of Transport
TP4	Secretaría de Movilidad	Transport Planner
TP5	Unidad Estudios de Transporte	Transport Planner
LP1	Municipio de Quito	Land-use Planner
TP6	Unidad Estudios de Transporte	Transport Planner
TO	GlobalTrans	Transport Operator
CC	Municipio de Quito	City Council Member

Table 5 List of Interviewed Participants Quito

Source: Own elaboration

Twenty-two participants were interviewed, thirteen from Quito and nine from Cambridge, including one female, see Table 6 and Table 6. The gender bias is not surprising given the dominance of male positions in the transport arena. In Quito, although a woman was involved in the early process of the BRT, she was not available for an interview when contacted. In Cambridge, there was the presence of one female participant, the leader of the Council, who was one of the key players in the implementation of the system. As the leader of the county

council, she used her position to advocate for the systems at both the local and at the national level.

Cambridge		
Participant	**Institution**	**Role**
HD	County Council	Head of Delivery
CC	County Councillor	Backing of the Project
MD	Stagecoach	Managing director
BOM	County Council	Bus Operation Manager
CI	Cast.Iron	Chairman
TP1	First Group	Implementation of Leeds Busway
TP2	Leeds City Council	Implementation of Leeds Busway
PE1	ITS – UoL	Transport Policy Expert
PE2	ITS – UoL	Transport Policy Expert

Table 6 List of Interviewed Participants Cambridge

Source: Own elaboration

4.2.3.1. Ethical Review

Of particular importance for any research are the ethical concerns about the research and its participants. Because of the nature of some of the participants, a few of them high-level officials, including former mayors, it was not possible to maintain anonymity. It was clearly explained to them about the difficulty of maintaining their responses as anonymous and this was included in the consent forms. Electronic correspondence was sent out to the selected participants. For the participants who agreed to participate, information sheets were sent out together with consent forms that were signed and given to the researcher at each interview. As mentioned before, all participants' interviews were digitally recorded; this was agreed to in

the consent forms. All digital records were stored only on the University's server and have only been used for the purpose of this research.

4.2.4. The Interviews in Quito

The participants in Quito were all directly linked to the development of the BRT. Some of the participants, such as HD, TP1, TP3, and TP5, were involved in the development of the project from its conception until the implementation of the first two lines. TP1, from the Transport Study Unit was interviewed first, he served as a pilot interview. This helped to test the chosen questions and to understand the sorts of answers the questions might trigger. It also helped measure the time needed for participants to complete all the questions.

However, in practice some of the participants in Ecuador did not limit themselves to the one hour planned and were willing to talk about the project for longer periods of time. The use of the first interview as a pilot study also helped to decide the final order of the questions and showed it was best to put them in chronological order that was in line with the history of the process. The original structure of the process was aligned with the research questions.

The researcher had limited time to undertake the interviews in Quito. Only 45 days in the months of December 2014 and January 2015 were available to travel to Quito. Therefore, the planning of the interviews was confirmed 6 months in advance. An introductory email was sent to the participants, asking if they could provide the names of others whom they felt would be relevant to interview. This helped in two ways: to verify the validity of the chosen participant's and to check if there were important actors missing.

A second email was sent to the people who answered. This email had a detailed description of the research. It also asked for their participation and to provide a date within the time frame available. The complete process of sending emails and getting answers with possible meeting dates took around four months. Most of the participants offered their mobile numbers and asked to be called closer to the date.

Once in Quito, a new email was sent attaching the consent and participation forms. Personal calls were made to agree on the exact time of the meetings. All the meetings were held in the place the participants suggested. Ten meetings were held in the participant's office, one (TP3) in a coffee shop, and two (TO and TP6) were held via Skype. The Skype meetings were held after a first round of interviews as the names of these two actors were mentioned several times during the interviews. TO's participation was important to understand the perspective of the transport operators, the main antagonistic group during the process of the BRT in Quito.

As mentioned before, the interviews were designed to last one hour; nevertheless, four of the participants gave more time. HD, TP1, TP3, and TP5 who were all part of the original planning team talked for more than one hour. Two participants, a former land-use planner at the Municipality of Quito and a former City Council member, agreed to talk for only 30 minutes, but they ended up talking for the complete hour. One participant, M3, a former mayor and a business person, answered all the questions in 23 minutes.

All the interviews were digitally recorded. On one occasion, one of the participants asked for the tape recorder to be turned off in order to give off the record comments. This shows that, in general, the participants were comfortable talking about the topic, which made the interviewing process a pleasant experience for the researcher.

4.2.5. The Interviews in Cambridge

In Cambridge, the same approach was taken to find the participants; however, the process was far more time consuming than the process in Quito. In the existing planning documents for Cambridge there is very little information about specific actors. Finding a "gatekeeper" was problematic at the beginning. Many professors and colleagues at the Institute for Transport Studies at the University of Leeds (ITS) collaborated by providing contacts with transport planners in Cambridge.

Several emails were sent out and a few positive answers were received. The head of delivery of the project was identified and contacted. He accepted participation and recommended asking with former Cambridgeshire County Councillor and the Managing Director of Stagecoach in Cambridge. The operation manager was also interviewed. All the initial participants showed strong support for the implementation of the BRT. However, it was desirable for some antagonistic voices to be introduced to the study. From the first interviews, Cast Iron association was identified as antagonistic, and later the chairman of Cast Iron was contacted and interviewed.

A small sample of participants were expected, as there are not many people who are aware of the planning process for a scheme such as the BRTs studied in the research. However, in Cambridge, it was particularly difficult to find more participants for a variety of reasons. For example, apart from the County Council servants, the other group of people who were involved in the process from the beginning were the council members, but many of them were no longer active and thus difficult to contact.

Some of the planners involved in the beginning of the planning process maintained, when contacted, that they were no longer involved in transport planning and as a consequence did not want to participate. Another reason given was that different stages of the planning process had been outsourced to other entities. For example, the CHUMMS Report was commissioned by the Department of Environment, Transport and the Regions (DETR), and the County Council was instructed to implement the findings recommended in the CHUMMS Report.

The civil servants at DETR, at the time of the implementation, had moved on to other non-transport related jobs and, when approached, their recommendation was to talk with the Head of Delivery and the Councillor who backed the project from the beginning. Given this limitation, and in order to understand and find clues on how the guided bus became a prominent idea for the CHUMMS Report, additional interviews were done with people responsible or with knowledge about the implementation for other guided buses in the UK.

Therefore, similar interviews were arranged with people who were responsible for the implementation of guided busways in other projects in the UK as well as UK policy specialists, in order to understand further how the concept was adopted and later implemented in the UK. Personnel from First Group and from Leeds City Council were approached and interviewed for their experience in the Leeds Guided Bus System and other projects in the UK. Additionally, two policy experts from the Institute for Transport Studies at the University of Leeds were interviewed, in order to understand the wider transport policy context at the time in the UK.

The process of the interviews was similar in the UK and in Quito. The interviews were designed to last one hour, none of the participants talked for more than 60 minutes; however, CC, the former leader from the County Council in Cambridgeshire, talked for 38 minutes. All the interviews were held at the participants' offices. The language was not a barrier, however, there were moments when the participants asked for some clarifications to specific questions.

4.2.6. Quantitative Approach

An analysis of power helps understand the decision-making process of BRT, however, it says little about the consequences of the implementation of a policy like BRT. As argued in the literature review, the benefits of the introduction of BRT are now being questioned (Bocarejo and Oviedo, 2012, Venter et al., 2017, Gilbert, 2008, Jaramillo et al., 2012) particularly its ability to satisfy the transport needs of the poor. The unintended consequences of the implementation of BRT systems need to be understood in order to start looking for solutions.

The Social Exclusion Unit (SEU) identified problems in the UK, including the relations between transport disadvantage and unemployment, health, education, and run-down neighbourhoods and states (S.E.U., 2003). Although the problems faced by transport systems are experienced differently in diverse contexts, there seems to be some consistency in the population groups that disproportionately suffer negative outcomes of major transport infrastructure schemes. Lucas (2012) notes it that it is usually the poorest and most socially disadvantaged within a society who also experience transport disadvantage. The reality is no different in developing countries.

Vasconcellos in (Pojani and Stead, 2017) finds that the poorer segments of the population, together with women and the elderly in Brazil, suffer the most from poor of transport systems. In cities like Bogotá, Colombia (Bocarejo and Oviedo, 2012); Mexico City, Mexico (Carrigan et al., 2014); Lima, Perú (Scholl et al., 2016); and Cali, Colombia (Jaramillo et al., 2012) it was also found that the poorest of the poor are not benefiting from the introduction of BRT.

There are different approaches in order to measure the burdens of transport among various target populations. For example, (Lucas et al., 2016) reviewing the environmental, accessibility, mobility, and affordability effects on transport poverty, however, the relation between transport and poverty remains an under-explored and poorly articulated problem.

In order to understand the effects of the implementation of BRT in the two case study areas, the research for this thesis predominantly focuses on accessibility, using an Index of Transport Disparity (ITD) first developed by Currie (2004) in a small city in Australia. The index of disparity is chosen for the following reasons. First it helps finding the existing differences between the provision of transport given by a BRT and the characteristics of diverse areas of the city that are, and more importantly are not, the ones who benefited from the introduction of the system. Second, the index of disparity helps to find the existing gap between provision and needs, using existing secondary data —mainly census and transport provision. Third, the methodology has been used in both developing (Jaramillo et al., 2012, Delmelle and Casas, 2012) and developed countries (Currie, 2010) and for small (Currie, 2004) and large cities (Farbiarz, 2013), which increases the validity of the methodology used and at the same time creates space for comparisons. Fourth, the index allows use of existing secondary data and allows the flexibility needed for these two case studies, where the type of data gathered varies considerably.

The ID is a composite index that calculates the differences between the Index of Transport Needs (ITN) in a set area and the Index of Public Transport Provision (IPTP) for the population

in that area. The IPTP is a measure that quantifies the level of public transport offer. The index quantifies the "opportunity" of transport users to access the service in a chosen area. The ITN is a measure that quantifies the needs of transport in a determined area based on its socio-economic characteristics.

The calculation of the index includes a series of factors that are available for analysis, most commonly census data. When the needs are higher than the provision of the service, there is a deficiency in the system. Alternatively, when provision is higher than the calculated needs, they are more than covered, and thus, there is over-provision.

The ID was first used in Hobart, Australia by Currie (2004) to evidence the existing gap between provision of transport when comparing zones with high need of travel to the high cost of travel to different locations. The ITN used the following categories of travellers: adults without access to a car, accessibility to the Central Business District (CBD), people over 60 years old, people with disabilities, adults with low income, unemployed adults, and students. The cost of transport was based on a matrix of costs of travelling from each of the zones of analysis to fourteen diverse locations according to different activities or trip purposes (study, work, health, and leisure, amongst others).

The same author, a few years later, (Currie, 2010) suggested a variation of the index for the city of Melbourne, Australia. The ITN for Melbourne is calculated using an existing Index of Relative Socio-Economic Advantage/Disadvantage (IRSAD) developed by the Australian Bureau of Statistics. The ITP incorporates access-by-foot to public transport stops, and the level of service measured by the number of arrivals per week. The IRSAD and the ITN combine over thirty variables each with calculated weighting. The changes incorporated after analysis resulted in satisfactory new measurements concerning the existing gap of transport provision and transport needs in a bigger city.

In the Latin American context, Jaramillo et al. (2012) used the same approach in Cali, Colombia. The difference between the ITN and the IPTP helps identify the existing spatial gap between transport need and transport provision. The actual operationalisation of the method is slightly different in the case studies of Quito and Cambridge, due to data differences. A detailed explanation of how this is done follows in section 5.2.5.

The indexes are difficult to adopt for policy makers in their daily practices, due to their complexity and the lack of adequate data for their implementation (Lucas et al. 2016). Another problem of the index is the level of disaggregation in the census areas, therefore it assigns a measure of transport provision to each census area, without specifics about the spatial

distribution of the population, and it assumes an even spatial distribution of residents within the area (Currie, 2010).

The supply of transport is measured as a total of supply without analysis of the destination of transport. Overall, it is a simplistic approach for a complex reality; however, it is an easy approach to illustrate the effects of the existing provision of transport on different socio-economic groups.

4.3. Summary

Flyvbjerg (2001) tries to re-position social sciences in the "scientific" world by bringing balance between the "know why" or "episteme" and the "know how" or "techne" traditions with the long forgotten Greek concept of phronesis or prudence and practical wisdom. He does so by developing the methodology called phronetic planning research. Phronetic research incorporates ideas of cognitive development established by Dreyfus and Dreyfus (1986) to illustrate that humans do not act in a binary way between rationality and irrationality, but instead achieve higher levels of progress by incorporating elements of intuition and recollection of experiences. Finally, phronetic research incorporates elements of power adopted by Michel Foucault (Foucault, 1978, Foucault, 1982) to illustrate that most human activities are a consequence of the constant exercise of power.

The methodology was developed with non-restrictive guidelines to begin understanding how power is exercised in current planning practices. The established guidelines have been previously applied in different fields and some examples are presented in section 4.2.1. The methods used for the application of the phronetic approach are multiple and varied. There is a rich mixture of qualitative and quantitative methods, making it clear that even more important than the methods used is to answer the phronetic research questions in the selected contexts.

The methodology has been critically evaluated. It was found that there is little reference to scholars whom, for many years, have committed to the development of critical policy theories and analysis, such as Manuel Castells, David Harvey, Michael Harloe, amongst others (Fainstein, 2015). It was also found that the philosophical grounding of the methodology to link Aristotle's idea of phronesis with Foucault's understanding of power is stated as weak by Falk et al. (2009). The existing critics to the phronetic approach, all valid and important, far from discrediting it, enrich and praise the methodology in its ability to explore an underdeveloped topic, such as the exercise of power in modern practices of transport planning and policy (Marsden and Reardon, 2017).

Using the phronetic approach as framework, the second part of the chapter describes the methods used to begin collecting the data needed for the analysis of understanding the role of power in the implementation of the selected BRT systems.

To answer the research questions posed, qualitative methods were used to explore the exercise of power and quantitative methods to understand the spatial deficiencies of the systems in both case studies selected. Semi-structured interviews were the main source of qualitative data. They were found to be the most appropriate for the study, as they allow maintaining focus on the interests of the research while keeping the flexibility needed to explore unexpected themes that may appear with each of the participants during the interview process. The interviews were augmented with official reports, planning documents, and previous existing research on the systems.

As stated in section 3.2.3 of Chapter 3, a critical issue for the selection of each case study was access to persons who were directly involved in the planning process of the system. Former mayors, former council members, agency directors, heads of planning departments, and transport operators were amongst the participants selected for the interviews process. These actors provided first-hand information about the actions that came into play during the development of the systems and the reasons for any decisions taken. The interview processes were similar in the sense that, in both cities, pleasant conversations about the development of BRTs were carried out. However, the process of contacting and selecting the participants in each place was dissimilar. The previous experiences of the researcher in Quito were helpful in having less time-consuming arrangements, more collaboration from the selected actors and a higher number of participants involved in the interviews compared to Cambridge.

The qualitative part of the research is enhanced by quantitative assessments of the spatial deficiencies of both systems. It is found in the literature that transport investments do not necessarily satisfy the transport needs of the more deprived segments of the population. An accessibility assessment is proposed for both case studies in order to understand what segments of the population are benefited the most with the introduction of BRT systems. All data for this part of the research was obtained from official governmental sources, such as transport agencies and national statistics offices. With all the data obtained and the methodological framework set, the following chapter presents how the analysis was developed.

5. Approach to the Analysis

5.1. Introduction

This chapter presents the approaches taken to interpret meaning from the content of the interviews and the spatial analysis of the case studies. The transcribed interviews were analysed using content analysis, which is a flexible method for data analysis (Cavanagh, 1997). The specific type of content analysis chosen by any researcher varies with the theoretical and substantive interest of the researcher and the phenomenon being studied (Weber, 1990). Tesch (2013) notes that the flexibility of content analysis has proven useful for a variety of researchers in different areas of study, however, the lack of a clear definition has potentially limited its application.

Conventional content analysis refers to an inductive approach where limited prior research or theory of the phenomenon being studied is available (Hsieh and Shannon, 2005). Direct content analysis is a deductive form of analysis and is mostly applied when theory or prior research about a problem exists, yet would benefit from further description (idem). In this research, a mixture of inductive and deductive approaches was taken. An inductive approach was used to understand the context of the study and a deductive approach was used to understand the exercise of power, following the categories of power previously described in the literature review, Section 2.3.3.

A description of all the steps taken to analyse the data is presented here. Five levels of analysis, including linear, relational, emotional, analytical, and spatial analysis were developed to build a comprehensive case and start answering the research questions. This chapter concludes with remarks about validity and reliability, as well as the advantages of the selected framework being presented.

5.2. Transcription of the Interviews

In order to start analysing the interviews, the first step was to transcribe them. As mentioned before, the interviews were digitally recorded. All the interviews were transcribed by the researcher. This was a long and time-consuming practice, but it allowed the researcher a very high level of familiarity with the material. Every hour of interview took about six hours of transcription. The transcription was done using NVivo software. NVivo is one of many computer-based software created for data analysis, such as Ethnograph, Atlas/ti, and Nudist. All these packages facilitate analysis by retrieving and organizing data, searching for terms faster, and linking terms or actors. The possibilities appear to be endless, but they will never

actually do the analysis that is the researcher's task (Ezzy, 2013). NVivo software also has the ability to slow the speed of the recording and allows the creation of quick access keys for variable speed playback. These features facilitated the transcription process.

A total of 22 recorded interviews were conducted, thirteen of them were in Spanish. All the transcriptions were first written in their original language and the appropriate information was then extracted and finally translated into English. Thus, the analysis of the interviews was done in the original language of the interviews. Once the interviews were transcribed into text, it was easier to make sense of the data.

5.3. Developing a Narrative

An important characteristic of phronetic research is developing a narrative. One purpose of semi-structured interviews is to help in developing a narrative so that the researcher can look for themes around the exercise of power. The analysis for this study used the different mechanisms of power identified in the literature review (see section 2.3.3) as its starting themes. A story that included the genesis of the project, the actual planning, and the implementation of the systems was required.

The intention was to build a history of the different events and value rationales that shaped BRT systems, in order to understand how those events shaped the decisions made, and to discover the rationalities that sustained those decisions. The researcher built this material to start the analysis in search of power mechanisms based on the participants' own narratives. A good narrative typically mimics or comes close to the complexities and contradictions of real life (Flyvbjerg, 2001). It is in these complexities and contradictions where power becomes recognizable and where the analysis takes place.

As mentioned before, the interview was developed in four stages: the origins of the process, the planning process, the implementation process, and a closing stage when the participant was asked to describe how he/she imagined the city would be if the BRT system had not been implemented. The interviewer does not stress any of the stages in particular, but rather lets participants answer as freely as possible within the time set for each interview. The objective of the design of the four stages was to capture the whole process of BRT systems, including the original ideas, how those changed over time, and why and how the future of the system is understood. It also created an opportunity to compare with any original documentation.

The final texts were the stories constructed by analysing those interviews that described the process of the various events that connected the causes and effects of the planning and

implementation of BRT systems in Quito and Cambridge. These stories often reflected any deep structure of the narrative and were used to help understand the surface structure of the text (Pentland, 1999).

The narratives revealed the answers to who, when, for how long, to whom, why, and how things happen. They can unveil the most fascinating facts about people's lives and stories. When a story is about a specific event, it not only describes the event but also explains the reasons behind an event unravelling the way it did. When each story was combined with a set of stories from all participants of the same event, the richness of details allowed the researcher to understand more thoroughly the many compromises, choice points, and backroom conversations that allowed the systems to adopt the shape it took (Trickett, 1998).

The task is to go beyond what is evident and superficial in the narrative, such as the people, places, and actions that are described in the texts. Although these are important, it is essential for the analysis to go beyond that descriptive side of the phenomena and to explore the underlying structures and patterns of power that gave rise to those events. There are several ways to extract this understanding through qualitative analysis. An explanation of the selected option follows.

5.4. Content Analysis

There are many analytical strategies for using transcribed interviews. A mixture of inductive and deductive approaches was taken for the analysis of the interviews. First, an inductive approach was used in order to understand the story, by coding all the dates, actors, and events that are particular for each context and not present in previous narratives. Later, a deductive approach was used for understanding the mechanisms of power present during the planning processes of the BRTs. After the research questions were answered, an inductive approach was applied to both case studies in order to find emerging themes and develop a cross analysis of the cases.

Content analysis is a method of analysing written, verbal, or visual communication messages (Cole, 1988). It analyses both the form and substance of communication. Underlying meanings and ideas are revealed through analysing patterns in elements of the text, such as words or phrases (Miller, 1998). This is a deductive form of analysis, which means that it is theory and data analysis arising from pre-existent theoretical understanding. Categories of analysis are developed through logical deduction from pre-existing theory. Then it is tested against empirical data, for example, the evidence generated in interviews or in focus groups.

When the researcher's questions are clearly defined and the categories of analysis have been well established by pre-existing research, content analysis results in a useful method of data analysis. However, content analysis is not good for building new theory. It assumes the researcher knows what the important categories are prior to the analysis. It restricts data to what was asked and answered. It is normally used with other more inductive methods and is sensitive to emerging categories and interpretations.

The ideas about power described by Foucault (presented in section 2.2.1) as well as the mechanisms of power (from section 2.3.5) were used to identify power in the narratives created; however, the researcher was open to finding new tools or mechanisms of power. It is typical for researchers to come to the analysis stage with their own pre-conceived ideas and at the same time be able to allow the data to speak for itself (Riley and Hawe, 2005). It is during the comparison process when new categories will emerge, which allow the researcher to evaluate the data and come up with new interpretations and understandings (Ezzy, 2013).

5.5. Five Levels of Analysis

Five levels of analysis were applied (see Figure 10). The first four levels were applied to the narratives and the fifth level consisted of performing a spatial GIS-based analysis to augment the previous four levels. The first four levels are: linear, relational, emotional and analytical. Linear, relational, and emotional were applied to every individual story. The fourth level of analysis, the analytical analysis, was applied to a single, comprehensive story that was built from combining the narratives of each of the individual stories.

This comprehensive story became the narrative that included all actors, events, times and places, as well as the existing relationships that were described by the participants in each case. The intention was to find converging points amongst the narratives and the nature of any conflicting points, including any resolution or lack of it. These points gave clues about where and how to start understanding the exercise of power. Finally, a fifth level of analysis was applied using a spatial approach with GIS support. What follows is a description of each of the levels.

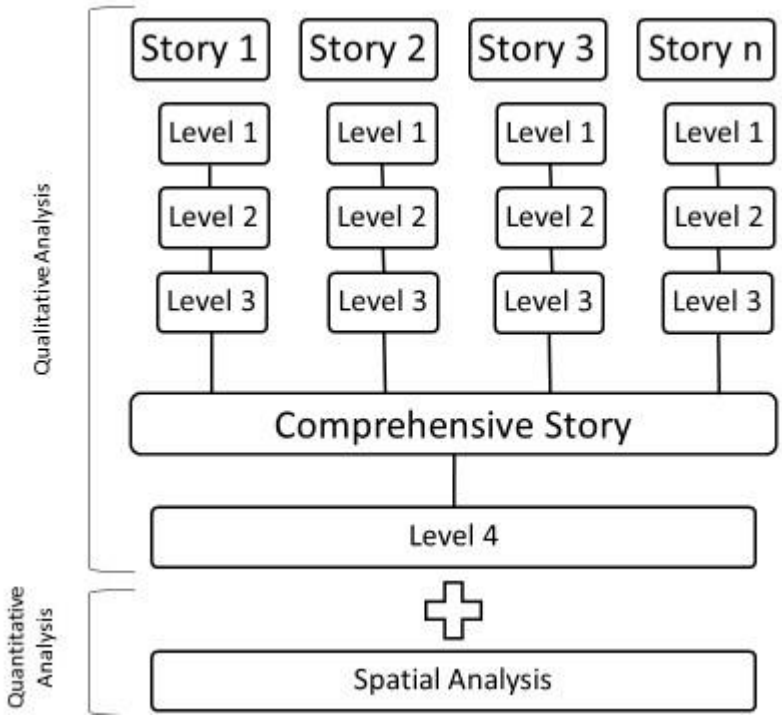


Figure 10 Five levels of Analysis

5.5.1. Level 1 – Linear Analysis

The analysis began by creating a time frame. The information from the interviews along with some historical data for each country and city was used. Mapping events was the first task. For the participants, it was easier to remember the general timing of events rather than the actual date that they happened. Events are understood as a series of actions or practices that produce a difference between the past and the present for specific people in a specific context, and thus they constitute one of the "seeds" for new relations and events in other space-times (Landman, 2012).

Such events can be understood as either "corrigible" or "incorrigible". Corrigible means things that are verifiable as a matter of fact, for example, the election of a Mayor, the signing of a contract, recruitment of a person, inauguration of a scheme, etc. The opposite of these are incorrigibles, which in principle are unverifiable because they are matters of self-knowledge, e.g. opinions, attitudes, beliefs, and understandings (Roger, 2004).

For this research, the major national events were mapped first. General elections, government crackdowns, and inauguration of BRT lines were mapped on the initial timeline. These events are identified as macro events because they are easier to recognize and help set the bigger context of the timeline. Smaller events found in the narratives were mapped next into the timeline. These are called micro events and include such things as attendance at academic

conferences, local and international site visits, educational trips, personal selections, formal or informal meetings, agreements and compromises, resolution of conflicts, public displays of support, etc. (Landman, 2012).

Macro and micro events have starting dates and finishing dates; the difference between both provides the duration of an event. These dates were then mapped on the timeline. As mentioned before, the exact dates were harder to remember for the participants, and some suffered from what is called retrospective recall bias, which can be partially avoided by making before and after collection of data (Roger, 2004). The information given by each respondent was later verified using two techniques. One was the use of external sources, such as newspaper articles and historical recorded data, and the other by comparison and triangulation with the information from all other respondents.

Mapping events, time, and space helps with the first level of analysis, the linear level. These set the basic structure of the narrative that relates the basic "facts" as they are understood by the storyteller, and will include the sequential nature of the story (Landman, 2012). In linear analysis, there is no particular effort to recover or explore the details of any moral or values-based context that gives the events meaning for the participants.

This first level of analysis generally allows putting together all the existing elements in the story. As an example of a macro event mapped in the timeline, the election of a president or the coup of the same person —which was a singular characteristic of Ecuador during the period in which the BRT system was implemented— would be a main event. This then permits the researcher to understand the importance of key micro events, for example, the attendance at a transport congress where the concept of segregated bus lanes was presented. All these details allow a reconstruction of the story of the development of BRT systems. It was on this narrative and timeline that a deeper and more meticulous analysis could be made to discover different mechanisms of power used by various actors in each case study.

5.5.1.1. Events

There are two types of events:

- Macro – Elections, social protests, government crackdown, etc.
- Micro – Raids, bribery and other corrupt acts, denial of access to services. Agreements and compromises, bargains.

5.5.1.2. Duration

The difference between the onset and the end of an event is the duration of the event.

- Onset – Beginning of event
- Finish – End of event

5.5.1.3. Actors

Persons or institutions that are part of the event.

- Individuals – Mayor, planner, transport operator, council member, etc.
- Institutions – Municipality, Police Congress, Central Government, etc.

A myriad of actors appeared in the narratives, from presidents and prime ministers to university students. Each actor had a different level of influence on the planning of the system, ranging from generating knowledge to approving financial grants. All the actors mentioned by the different participants were coded. If the participants did not remember a name, the existing literature was used to find one. Individual actors and groups of institutional actors were found. Two levels of actors are mapped, first the presidents and mayors, and second the additional actors. This helps in the creation of a timeline.

5.5.1.4. Actors Activity

The things that actors do and the things that happen to the actors.

- External – Action during the event
- Internal – Happens to them

With every actor, there are both, things they did (external) and things that happened to them (internal). All the above information helped set up the timeline of the project. Each case study has its own timeline, which will be presented separately in each case study analysis chapter.

5.5.2. Level 2 – Relational

Building on the basis of the first level of analysis, a second level called relational analysis was undertaken. At this level, the existing relationships between the storyteller and other actors were identified. This allowed identification of all actors included in the story as well as any other actors that were absent (not named) in the story, and also the roles that these actors

have in the story (Riley and Hawe, 2005). The actors can have different roles and they can evolve during the story. The roles define who does what and when. The way the story is told can provide additional information about the social world, such as any relationships between other actors. These other actors have been described as supporting cast; these are actors who form part of the story and only become protagonists if they are part of the narrative.

Actors can be individuals (planners, mayors, government officials, etc.), or groups (municipality, congress, police, transport providers, etc.). In the story created, actors can appear as those who make something concrete or can be described theoretically as in what they might do or think (Riley and Hawe, 2005) . All the different actors, including the interviewees, can be identified as part of an event, in that they can participate directly (internal) or when something happened to them because of an event (external).

Actors can be external for some events and internal for others. The relational level also allows an ability to generate relations in terms of time and space of the different events and other contextual dimensions. This analysis seeks to show how the persons, dates, places, and actions link to one another in a story and help provide a thread of continuity and meaning (Pentland, 1999).

Understanding the identities and the relationships of the different characters in the stories is extremely important in order to identify the configuration of the different networks of actors (Pentland, 1999). It is in these networks of actors that power is exercised (Flyvbjerg, 2001), as well as a variety of other social activities. This leads us to the third level of analysis.

5.5.3. Level 3 – Emotional

The third level of analysis is called the emotional level. The narratives created, besides describing what happened, express emotions, feelings, and interpretations. At this level the researcher develops an understanding of the feelings involved for each story teller, such emotions as fear, acceptance, rejection, and happiness as well as the subjective understanding of the narrated event as to how it was developed and was experienced by the story teller. This allows comprehending the story through the story teller: what they think and what they value. This clears the way to analyse what the story teller understands as good or bad, and how the different actors engage in power practices, so that their ideas or proposals are the ones that prevail and finally get implemented. It unveils what each actor sees as “right” or “wrong” or the only way of doing things.

5.5.4. Level 4 – Analytical

The fourth level of analysis that was implemented is the analytical level. All the stories are brought together and connections are made to search for points of convergence. The analytical level explores how different actors guide action, and how that action may be a consequence of the exercise of power. It is important to discover any events where a high level of agreement amongst the different players is evident and ensure any controversies are limited.

Agreements are fundamental to understanding how power has previously generated rationalities with which the world is constructed and that are widely accepted. Next, is an analysis of areas where controversies are present, and the discovery of what rationalities are used to find solutions. More importantly, it is a search for the mechanisms of power used to enforce those ideas.

It is at the analytical level where there is a search for the elements of the exercise of power that were previously discussed in the literature review, (see section 2.3.5. in Chapter 2). In Table 7, with the help of a dictionary the typologies of power previously found have been expanded, outlining the different forms that those typologies can take. The column on the left shows the typologies covered in Chapter 2. The following columns are the words or actions to look for in order to identify each of the typologies found. For example, hierarchy, knowledge, respect and prestige are all modes of exercising Authority. The purpose here is not simply to label or describe the mechanisms of power but rather to search for the explanations behind those mechanisms. Each mechanism of power is coded as a relationship type. For example, “authority” is a relationship type.

In the interviews, elements of the relationships were identified, the actors involved were selected, and a relationship was created. This was systematically done for each interview, with all the possible relationship types: authority, persuasion, coercion and manipulation and intimidation. This same process was repeated for both case studies. The analysis and interpretation of the results are expanded in the case study analyses Chapters 6 and 7.

Typologies of Power	Words / Actions to look for			
Coercion	Force	Compulsion	Constraint	Duress
The action of Persuading someone to do something by using force or threats.	Enforcement, harassment, insistence, deman, armtwisting, pressure, influence.	The action or state of forcing or being forced to do something; An irresistible urge to behave in certain way.	A limitation or restriction.	Threats, violence, constrainst, or other actions used to coerce someone into doing something against their will or better judgement.
Manipulation	Direction	Handling	Control	
To control or play upon (information, actor, process, etc.) by artful, unfair, or insidious means so as to serve one's purpose.	The management of guidance of someone or something.	Manage a situation or a problem.	The power to influence or direct people's behaviour or the course of events.	
Intimidation	Frightening	Menacing	Alarming	Daunting
The act of making timid or fearful or of deterring by threats	Make someone afraid or anxious.	Suggesting the presence of danger; threatening.	Make someone feel frightened, disturbed, or in danger.	Seeming difficult to deal with in prospect; intimidating.
Persuasion	Argument	Entreaty	Expostulation	
To move by argument, entreaty, or expostulation to a belief position or course of action.	A reason or set of reasons given in support of an idea, action or theory.	An earnest or humble request.	To reason with the purpose of dissuasion. To argue strongly against someone doing something	
Authority	Hierarchy	Knowledge	Respect	Prestige
Power to influence or command thought, opinion, or behaviour: authority can be related to hierarchical position, to knowledge, to respect, or to prestige.	A system in which members of an organization or society are ranked according to relative status or authority.	Facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject. Awareness or familiarity gained by experience of a fact or situation.	A feeling of deep admiration for someone or something elicited by their abilities, qualities or achievements.	Widespread respect and admiration felt for someone or something on the basis of a perception of their achievements of quality.

Table 7 Typologies of Power

Source: (Albrechts, 2003, Flyvbjerg and Richardson, 2002)

5.5.5. Level 5 – Geographical Information System (GIS) Level

The above described qualitative analyses were complemented by a quantitative GIS descriptive data and an index of accessibility of the systems in the cities explored. Quantitative analysis allowed an expansion of the generated narratives, with quantitative evidence exposing the results of the implementation of BRTs in both spatial and demographic terms. Additionally, the selected calculations permitted answering the second research question, regarding who benefits from the introduction of BRT systems: for which segments of the population does the implemented BRT system works best (winners) and who are the ones not being served by the systems (losers).

It helped comprehend if the way transport practices are being executed at present, in the two areas of study, has the potential to eventually integrate the actual losers, and/or if there are possibilities of actually generating new areas of exclusion and deprivation. It helped with the understanding of what the impact in a change of power relations can be in terms of reducing the negative impacts of the implementation of the system. It alerts transport planners and transport practitioners to the positive as well as the negative impacts of BRT implementation. The accessibility analysis performed in both cities varied based on the available data and tools to perform the measurements. In Quito, ArcGIS was used for the calculations and mapping while in Cambridge TRACC-Basemap was used. An explanation of these two approaches follows.

5.5.5.1. The GIS for Quito

In Quito, a transport deprivation index was calculated based on previous research (Jaramillo et al., 2012, Currie, 2004, Currie, 2010) presented in section 4.1. The calculation of the index of deprivation for Quito began by selecting the units of analysis.

Units of Analysis

The smallest unit of analysis with existing data is the Census Area (CA), which is the geographic region defined for the purpose of taking a census. This was also the unit of analysis in the original studies (Currie, 2004, 2010). This was the lowest level of disaggregation that could be analysed using the existing secondary data.

The District of Quito (DMQ) is divided into 5,993 CAs. According to the Statistics and Census Bureau of Ecuador, a CA (sector censal) is a statistical division defined for the purpose of taking a census. Each CA at the urban level is composed of one or two residential blocks. The number

of inhabitants that are declared as living in each CA on the day of the census has a maximum of 2,033 inhabitants, a minimum of 0, with an average of 371 persons.

The Index of Transport Needs (ITN)

In Quito, following Jaramillo et al. (2012) the ITN was calculated using the Index of Unsatisfied Basic Needs (IBN). The IBN is a composite measure of poverty based on different levels of deprivation, which was developed by the Economic Commission for Latin America and the Caribbean (ECLAC) during the 1980s. Calculating measures of deprivation is perhaps one of the commonest uses of census data. It is a way of collecting data on, for example, housing, employment, social status and availability of cars, to create a single measure of how deprived an area is.

Basic Needs	Dimensions	Census Variable
Access to dwelling	Quality of the dwelling	Construction material of the floor, walls and roof
Access to sanitary services	Access to drinking water, Excreta elimination	Source of supply of water, access to sewage
Access to Education	Children between 6 to 12 years who do not go to school, Scholarity level of the head of the household is less than 2 years	Age of dwellers, assistance to education
Economic Capacity	There are more than 3 persons per working person in the dwelling	Age of dwellers, highest level of education, number of dwellers, economic activity
Overcrowding	Number of persons per bedroom is more than three	Number of people, number of rooms

Table 8 Index of Unsatisfied Basic Needs – Dimensions and Variables used in Quito, Ecuador

Source: (SNI, 2017)

The IBN is an index that is calculated for all the member countries of ECLAC (all South American Countries and the Caribbean) and is calculated by a system of weighting that combines various indicators. Depending on the country, the number of dimensions vary; for example, Costa Rica and Honduras use only four, Venezuela and Colombia use five, Uruguay six, Ecuador and Paraguay seven, and Bolivia ten (Hicks, 1998). Each variable is defined in terms of a normal range, so that the measured result can be transformed into an index number. This facilitates combining with other variables. The dimensions and variables used in Ecuador are presented in Table 8. The IBN is calculated by the National Statistics Bureau of Ecuador and the indicators are selected from the census data of 2011.

There are some differences between the approaches taken by Jaramillo and those applied in this research. The ITN developed by Jaramillo et al. (2012) used district level data, while for this research, as mentioned before, CA data was used. CA data provides a greater level of disaggregation, thus giving more detail about the area under study. Information regarding car ownership and security, also used by Jaramillo et al. (2012), was not available at the CA level for Quito. Although lack of car ownership is understood as a predominant factor for the experience of social exclusion in a developed country context, like the UK (SEU, 2003), in Quito, public transport and non-motorized modes are still responsible for over 75% of all transport trips in the city.

The IBN helped categorise the city into areas of high transport needs based on their socio-economic characteristics. This index needs to be contrasted with the provision of public transport in order to understand what the socio-economic characteristics of the areas served by the existing transport system are.

Indicators for the Index of Public Transport Provision (IPTP)

The IPTP were produced with information from data provided the Municipality of Quito, which was formally requested from the Transport Agency of the city. The IPTP measures the availability of public transport based on the frequencies and capacity of available services. Following (Jaramillo et al., 2012), it is measured by the sum of the stops for the district by each service or mode available weighted by an indicator of capacity of the vehicles and also the average frequency of the service for each stop.

The mathematical calculations for this information are as follows:

$$IPTP_j = \frac{1}{A_j}\sum_{i=1}^{n} S_{ij} W_{ci} W_{fi}$$

$$W_{ci} = \frac{ci}{cmin}$$

$$W_{fi} = \frac{fi}{fmin}$$

Definitions of Terms for Calculations:

IPTPj	The index of public transport provision for each census area
J	Each census area
A	Area of the census area
N	The number of services of public transport available
Si	Number of stops for mode i
Wcj	Weighting factor for the capacity of mode
Wfi	Weighting factor for the frequency of mode i
Ci	The capacity of the vehicle of mode i
Cmin	The smallest vehicle of the modes available
Fi	The frequency for mode i
Fmin	The lowest frequency of the modes available

Source: (Jaramillo et al., 2012)

The calculation of the IPTP for each CA will show areas with low public transport provision and with high transport provision. The provision of transport was calculated for a weekday.

Index of Disparity (ID)

The ID measures the gap between needs and actual Public Transport provision. The ID is the difference between the IPTP of the CA and the ITN of the same area. Negative values of ID show a disparity in the provision; needs in that CA are higher than the public transport provision. On the other hand, positive values present an overprovision of public transport.

$$ID = ITN - IPTP$$

The ID was mapped using ArcGIS software. The software allowed visualisation of the data and illustrated the areas of the city based on the level of provision of public transport.

5.5.5.2. The GIS for Cambridge

Units of Analysis

In Cambridgeshire, the unit of analysis was the CA. The county has a total of 2,540 CAs, with an average population of 316 inhabitants, the median is 311 and 90% of the CAs have less than 450 inhabitants. The total population of the county is 804,841.

The Index of Transport Needs (ITN)

As mentioned before, calculating measures of deprivation is perhaps one of the commonest uses of census data. In the UK, according to the 2011 Census, a household is classified as deprived if it meets one or more of the following conditions in any combination:

- Employment: where any adult member of a household, who is not a full-time student, is either unemployed or long-term sick.
- Education: no person in the household has at least level 2 education and no person aged 16-18 is a full-time student.
- Health and disability: any person in the household has general health that is “bad” or “very bad” or has a long-term health problem; and
- Housing: the household’s accommodation is either overcrowded, with an occupancy rating -1 or less, or is in a shared dwelling, or has no central heating (ONS, 2014).

This data is publicly available via the UK data service website.

(https://borders.ukdataservice.ac.uk/easy_download.html)

Accessibility has been calculated using Tracc Software. Tracc is a GIS-based software that uses publicly available data from the UK to calculate accessibility levels of public transport and road access. The data was obtained from the follwing sources.

- Public transport stops data was accessed from the National Public Transport Access Nodes (NaPTAN), the national systems for uniquely identifying points of access to public transport in England, Scotland, and Wales.
  (http://naptan.app.dft.gov.uk/)
- The bus schedule was accessed from Traveline, a parternship of public transport operators, local authoritites, and passenger groups, formed to provide impartial and comprehensive public transport information.
  (http://www.travelinedata.org.uk/)
- The road network was downladed from Edina Digimap, as an ordnance survey (OS) for Cambridgeshire. (http://digimap.edina.ac.uk/)

- Census data, household information about car ownership, and deprivation levels have been added to the software from In Fuse, part of the UK census data service. (http://infuse2011.ukdataservice.ac.uk/InFuseWiz.aspx?cookie=openaccess)

All the information collected was uploaded into the software for modeling the accessibility to the centre of Cambridge.

This software simulates traveling in Cambridgeshire on a Monday from 7 a.m. to 9 a.m. for bus transport access including the Guided Busway, the software considers 600 meters of walking catchment area and a walking speed of 4.2 km/h. The software also gives a five minute interchange penalty.

Two scenarios were calculated: one for the entire Cambridgeshire county with a second scenario that did not include the households in Cambridge city. When comparing the city of Cambridge with the county, a big difference was found regarding car ownership. The city of Cambridge has a lower car ownership, with 33% of households not having access to a car, while the total for the county is 17% of households without access to a car. The levels of deprivation and car ownership were then recalculated without taking into consideration Cambridge city, in order to understand the differences.

The GIS calculations presented in this section above helps understand what the planning impacts are of the existing relations of power in terms of the level of accessibility created for the different segments of the population in the two cities. The purpose is to illustrate in a descriptive way the areas of the city where transport is provided and to search for the unintended consequences of the implementation of the BRT. The illustration of the areas of the city where transport is lacking can suggest ways into how the existing relations of power need to change in order to improve quality of transport in the areas where there is little or non-transport provision.

5.6. Conclusions

The phronetic approach to analysis presented in Chapter 4 sets the framework for selecting the methods and the appropriate processes of analysis in this chapter. Some comments about validity and reliability as well as the advantages and disadvantages of the approach selected, are presented now as the concluding remarks for this chapter.

Validity is defined as the degree to which the researcher has measured what was set out to be measured (Smith 1991, p.106 in (Kumar, 1999)). Validity and reliability are used to establish the quality of any empirical research (Yin, 2013). In terms of validity, phronetic research is

based on interpretation and is always open to new interpretation, however that doesn't mean that one interpretation is as good as any other. New interpretations must be made in terms of validity. If an interpretation demonstrates the previous interpretations to be merely interpretations, the new interpretation remains valid until another interpretation is produced (Flyvbjerg, 2001).

The exercise of power is a complex phenomenon that is difficult to identify, measure, and localize (Lukes, 2005). As mentioned before, the phronetic methodology used has been applied before to complex studies of power in planning practices in other fields and it has proven useful when helping to understand how power is exercised. The exercise of power and the concept of power that were used in this research have been described in the literature review. The mechanisms of power were also brought from the existing literature about power in planning practices. Building up the methodology from previous power studies using phronesis increased the validity of this research. Additionally, other measures have been adopted to increase the validity of the study.

Two types of triangulation have been used. The first was used as a validity procedure, in which the researcher looked for convergence among multiple and different sources of information in order to form themes or categories in the study (Creswell and Miller, 2000). This approach was used to complement and corroborate the information given by the participants. The existing planning documentation and press pieces were used to add any missing information in the narratives.

A second type of triangulation was used to corroborate the interpretations of the researcher. A copy of transcriptions of some of the interviews were distributed among fellow PhD students. They were given the different themes to be looking for in the interviews. A session with each of the students was held to compare their interpretations with the ones of the researcher. This exercise helped the researcher to identify some existing flaws within the interpretation. For example, it was discovered that the definitions given for the different mechanisms of power needed to be reviewed and enlarged; different types of coercion were added like harassment, intimidation, and oppression in order to illustrate the different forms that coercion can have. This helped the researcher identify further the mechanisms in the literature review.

Each chosen case study participant had knowledge of at least one of the different stages of the process of BRT systems. These included planning, implementation, or operation of the process. This increased the reliability of the research because all participants were involved with the

systems. Regarding the quantitative data, all data used is published Ecuadorian and UK data from official sources. The index of deprivation was used as a measure of the impacts of the power relations; the shortcomings of the index, previously mentioned, do not bias the purpose of this study.

The analysis developed for this research offered many advantages that are common in narrative analysis, but are central in a phronetic approach. The stories were told by people who were close to the implementation of the BRT, therefore, it was full of details and anecdotes of the processes, from which many insights can be drawn. Having the opportunity to talk directly with many of the people responsible for planning the systems, as well as those directly involved with the implementation of the BRT processes, created a unique opportunity to obtain first-hand impressions of the systems, as well as the reasons behind the adoption of specific decisions that shaped the BRTs as they were finally implemented.

A second advantage in the analysis selected was that the semi-structured design of the interviews created a sequence that allowed the participants to keep in line with the main story, with enough freedom to give insight to impressions and feelings that can bring new topics of much interest to the research. With other methods, particularly those that need large population samples, e.g. closed-question surveys and quantitative analysis of predetermined multiple answers, there is no room to capture the subjective and intersubjective understanding needed for the analysis of power. Given the intrinsic characteristics of the methods used for the development of the BRT systems' stories, the participants can give details about the areas they feel are important, as well as research documents to argue or counter argue any parts of the process.

Finally, the interview process was developed in the most traditional way of communication amongst humans, and because all the participants selected are or have been really close to the process, they developed the narrative in a very natural way. The narrative was created through talking and was during these conversations that the analysis material was generated. It was in this created narrative where discovery happened encompassing the perceptions, experiences and feelings about power, power relations and institutional limitations and how they were confronted (or not) through political or social engagement (Landman, 2012).

Although all these advantages are central to phronesis, there are two important disadvantages to the approach. First, in moving between the different narratives of a variety of actors searching for equivalences, common ideas, and intersubjective understandings, each story can begin to lose sense. Certain important ideas, feelings, or concepts can only be understood as a

whole. Once broken into pieces for comparison amongst the different narratives, those ideas, feelings, or concepts can also start to lose sense. In order to maintain coherence and understanding of all the stories, a limited number of voices will be needed to maintain the same story.

This suggests a second disadvantage of the phronetic approach as proposed by Flyvbjerg, the matter of representativeness. Given that actors can hardly be randomly chosen, there will be bias from that selected group. In the selected participants for this research there is a strong bias towards a male-dominated group. An effort was made to include women's voices, however, very few women participated in the development of the projects. It was also difficult identifying the groups who were non-represented or marginalised during the planning process. The process of identifying the participants described in Chapter 4, section 4.2.3, did not revealed the participants on the fringes of the planning process. Power studies are interested in the forms of understanding within the groups selected. Therefore, this research shows how a male-dominated group of planners developed a BRT.

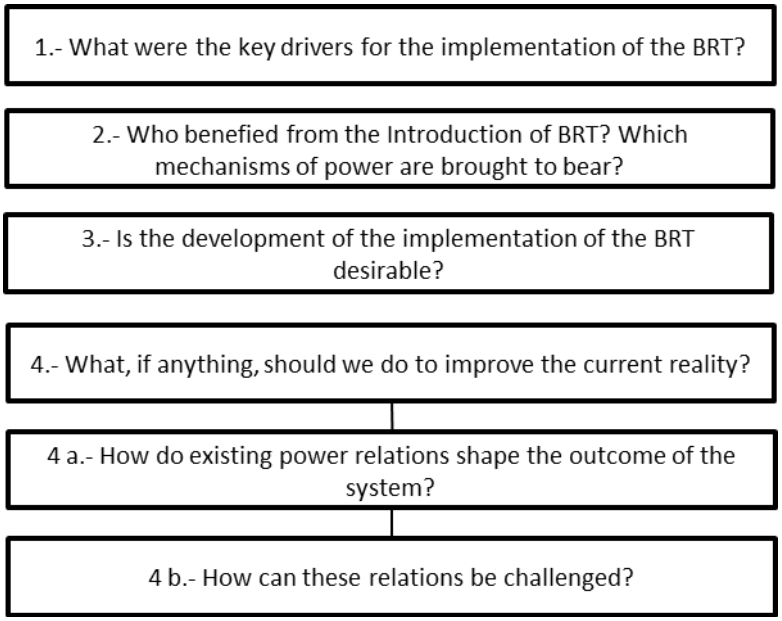
6. Quito – Answering the Research Questions

6.1. Introduction

Power is exercised in the planning process of any transport scheme and Quito is no exception. However, the implementation of transport projects has unintended consequences that are rarely attributed to power. This chapter presents the empirical findings of the Quito case study pointing out the unbalanced implementation of the BRT and the role of power in the planning of the system. Actors, relations, and mechanisms of power found in the case study are tangled together to design a system that leaves many segments of the population excluded from the benefits of BRT. In order to understand the role of power during the planning process of the system in Quito, the methodology developed and presented in Chapter 4 was implemented.

This chapter is divided into two sections. The first section presents the development of the five levels of analysis described in Chapter 4 for the Quito case study. The second section answers the research questions introduced in Chapter 1 and repeated in Table 7 below.

Table 9 Research Questions



6.2. Description of the Analysis

Before answering the research questions, a description of the findings of each step is presented. These descriptions helped to build the resources needed to answer the research

questions. The first level of analysis shows key events and actors as the participants described theme during the interviews. In the second level, the relationships between all the actors and events were mapped; at this stage, no interpretation was made on the relations found. For the third and fourth levels of analysis, a deeper examination of the relations was performed and gave meaning to the relations that were found. These meanings were based on the underlying emotions of the participants, what they understood as the right or wrong thing to do, and the actions performed to do or to stop any specific action.

The literature reviewed on power (presented in Chapter 2 section 2.3.2), was used to understand the mechanisms of power present in each of the actions identified. As seen in the review of power, it can be used to block, prohibit, and invalidate potential voices and knowledge (Elden, 2017). The analysis produced evidence about the actors and events, that shaped BRT system conformation in Quito, but most importantly it tried to shed light on some of the voices and knowledge that were absent in the planning process, and to understand how it affected the implementation of BRT in Quito.

The fifth and final level of analysis contrasted the qualitative analysis of the first four stages with a geographical assessment of the system. This revealed understandings about the areas of the city that are better served by the new systems, as well as the characteristics of the population based on the deprivation levels of the served and unserved areas.

6.2.1. Level 1 – Linear Analysis

6.2.1.1. Historic Transport Development in Quito

The first level of analysis was intended to situate actors and events identified in the interviews in time. Two timelines are presented. Figure 11 shows the historical transport events that took place at the national and local level in the decades before the idea of a BRT system came about. These events were important as they created the context surrounding the eventual implementation of the BRT in Quito. The timeline is a historical presentation of key events that slowly, over time, shape the idea of an improved transport system in the city. The events of the dates have been described in the case study Chapter 3, Section 3.3. The timeline begins in 1908 with the arrival of the first railway line connecting the cities of Quito and Guayaquil, the biggest port in the country, and finishes with the creation of the Transport Study Unit, the agency in charge of planning the BRT in Quito. Each of the events presented in Figure 11 were the result of a continuous exercise of power that affected the eventual uptake of BRT system.

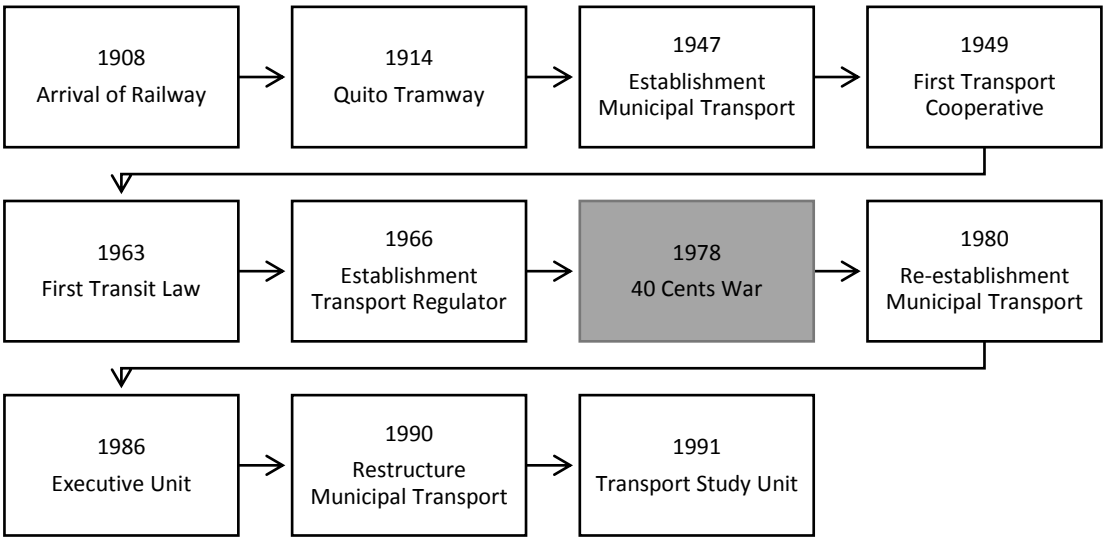


Figure 11 Timeline of Historical Transport Events in Quito 1908-1991

Source: Own elaboration, based on the interviews

The analysis of power in this study focuses on the events that led to the implementation of the BRT. However, some historical events helped understand some of the reasons for certain decisions to be made. One example is the “40 Cents War”. As mentioned in the case study chapter, in 1978, the 40 Cents War was the development of a series of events of social unrest that began due to the government’s intention of increasing bus fares. The transport operators and the Central Government had agreed on a general fare rise of 40 cents, which was a 40% increase in the fares at the time.

During these events, the population, led by high school and university students, demanded a better transport system and opposed the increase in fares. The Government did not listen to the public demands. Public demonstrations escalated and violence became part of the complaints. The response from the Government at the time was the use of police force and violence. The transport operators joined the police and used firearms to fight the population. The police besieged high schools and universities. The population, led by the students, organised with deprived neighbourhoods and resisted the Government’s interventions. After a few days of strong resistance in the city of Quito, other cities joined the movement. In spite of this, the Ecuadorian Government never revised the decision. Public peace was brought only after thousands of students were detained, hundreds were injured, and some people died (Gonzales, N/D).

To solve the disputes, the Government made it mandatory for public and private employers to provide free transport for their workers. The public complaints had been raised to achieve no increase in the fares as well as an improvement in the whole transport system. However, the answer from the Government was to provide free transport for people who were already in the labour market; without implementing fares to help the segments of the population that did not have access to jobs or that were self-employed. The transport needs of such groups simply were not part of the decision-making process by the Government at the time.

This event established two issues relevant to the modern-day transport system in Quito and Ecuador: the difficulty of increasing transport fares and the exclusion of certain groups during the planning processes of transport policy. Although violence and force are no longer used in the same levels as those used in 1978 events, as will be shown in Section 6.2.4, new and more sophisticated mechanisms of power have been created, which silence certain groups during the decision making of transport policies. The intention of the analysis developed in this chapter is to bring to light the mechanisms used during the development of the BRT in Quito and understand which voices participated in the planning of the system and which voices were left out of the planning process.

6.2.1.2. The BRT Process in Quito

A more detailed timeline that begins in 1978 is presented in Figure 12. It was during this time that the idea of the BRT, as it has been implemented today, started to take shape. The timeline is directly related to the electoral cycle in Ecuador. It additionally shows the political instability at the national level of the country that lasted from 1996 to 2007. During this time there were seven Ecuadorian presidents and four mayors of Quito. Not all the events and actors are present in this timeline for spatial reasons. The present events and actors are the actors and events that are later introduced and discussed in section 6.3 below.

The idea of implementing a bus system on segregated lanes began with the President elected for the period of 1984 and 1988 when the Transport Executive Unit (Unidad Ejecutora de Transporte) was established by the head of state for analysing transport solutions for the cities of Quito and Guayaquil, the most populated in Ecuador. All mayors that planned and implemented BRT lines that started in 1996 are shown. The local council was only present at the beginning of the planning process because it represents the moment the council acquired a role to play in the development of planning policies for the city.

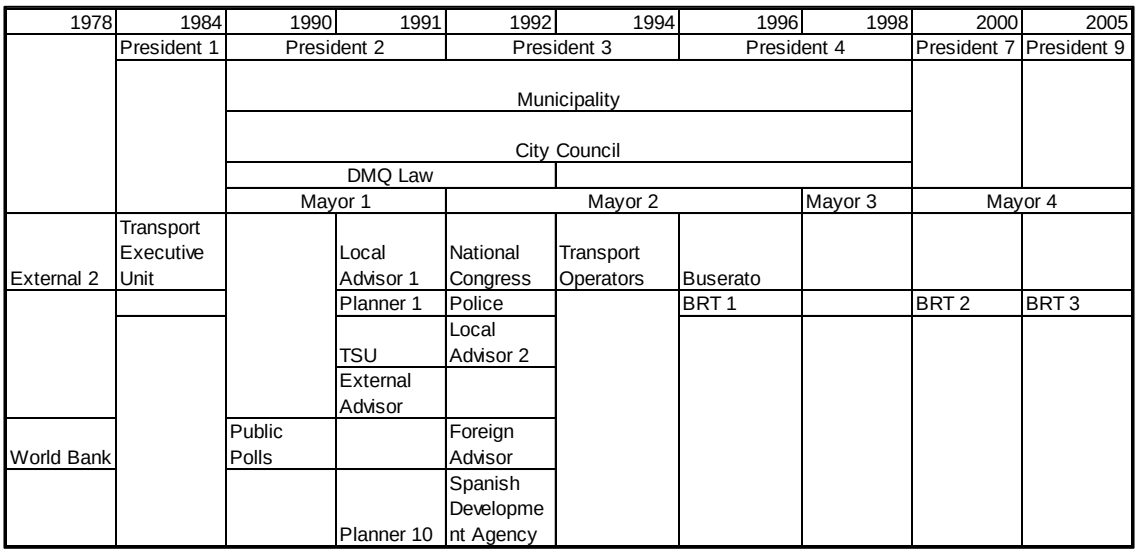


Figure 12 Timeline key events for the development of BRT in Quito 1978-2005

International agencies were also present, the World Bank developed knowledge about the benefits of segregated lanes for buses and the Spanish development agency funded the project. Planner 1, who was the head of the planning team and established the TSU, is also shown in the timeline. Planner 1 was deeply immersed in the BRT concept; back in 1978 he attended a transport congress in Medellín, Colombia, where the experience of segregated bus lanes in Porto Alegre was presented. The appearance of key advisors is also marked, such as Local Advisor 1 who invited Planner 1 to participate in the process and Local Advisor 2, who designed a strategy to build political support for the system.

The resistance that was exercised by local operators is represented in the “Buserato” (see Chapter 3, section 3.3.2). The establishment of the Transport Executive Unit by the Central Government triggered a series of actions that led the Municipality to the planning of the BRT. The description of how the events shaped the final outcome of the BRT and also the answers to the research questions are shown below.

This timeline helped to situate the appearance of the different actors when the various events took place. In Figure 13, all actors identified in the narratives are shown. The individual and institutional actors have been clustered and mapped according to their roles in the development of the BRT. Individual actors identifed include: planners, mayors, municipality employees, foreign advisors, members of the assessment committee, council members, members of congress and local advisors.

An additional group of “other actors” is also shown in the identifed clusters. All the actors that did not belong to the categories mentioned before are located in this group; for example, a foreign friend of the Mayor. Institutional actors are also shown and grouped together in four categories: transport operators, development banks, National Congress, Central Government, and the Municipality. As mentioned in Section 5.5.1.3, all the actors mentioned in the narratives were coded. It is clear that no associations of workers, unions, student representatives, representatives of the unemployed, neighbourhood associations, etc. were part of the process; they were specifically not invited as active participants in the planning process.

Once all the actors, their roles, and a timeline of events were identified, this information was taken to the second level of analysis.

6.2.1. Level 2 – Relational

In the second level or relational level of analysis, all of the relationships between actors were identified. At this level, all types of connections were found between the actors; this is illustrated in Figure 14, where some of the relationships can be seen.

At this stage, no analysis of the nature of any relationship was made and all links between the different actors were identified. Relations were identified at different levels; for example, institutions were linked with individual actors, individual actors with other individual actors, institutions with other institutions, etc. At this stage, the most important activity was to record any form of relation that might exist between any actors. In this process, not only the actors that participated in the planning process of the system were recognised, but also the absence of certain groups that did not have an opportunity to participate in the planning process of the BRT were identified. For example, there were no groups of civil society present, such as bus user groups, during the planning of the BRT.

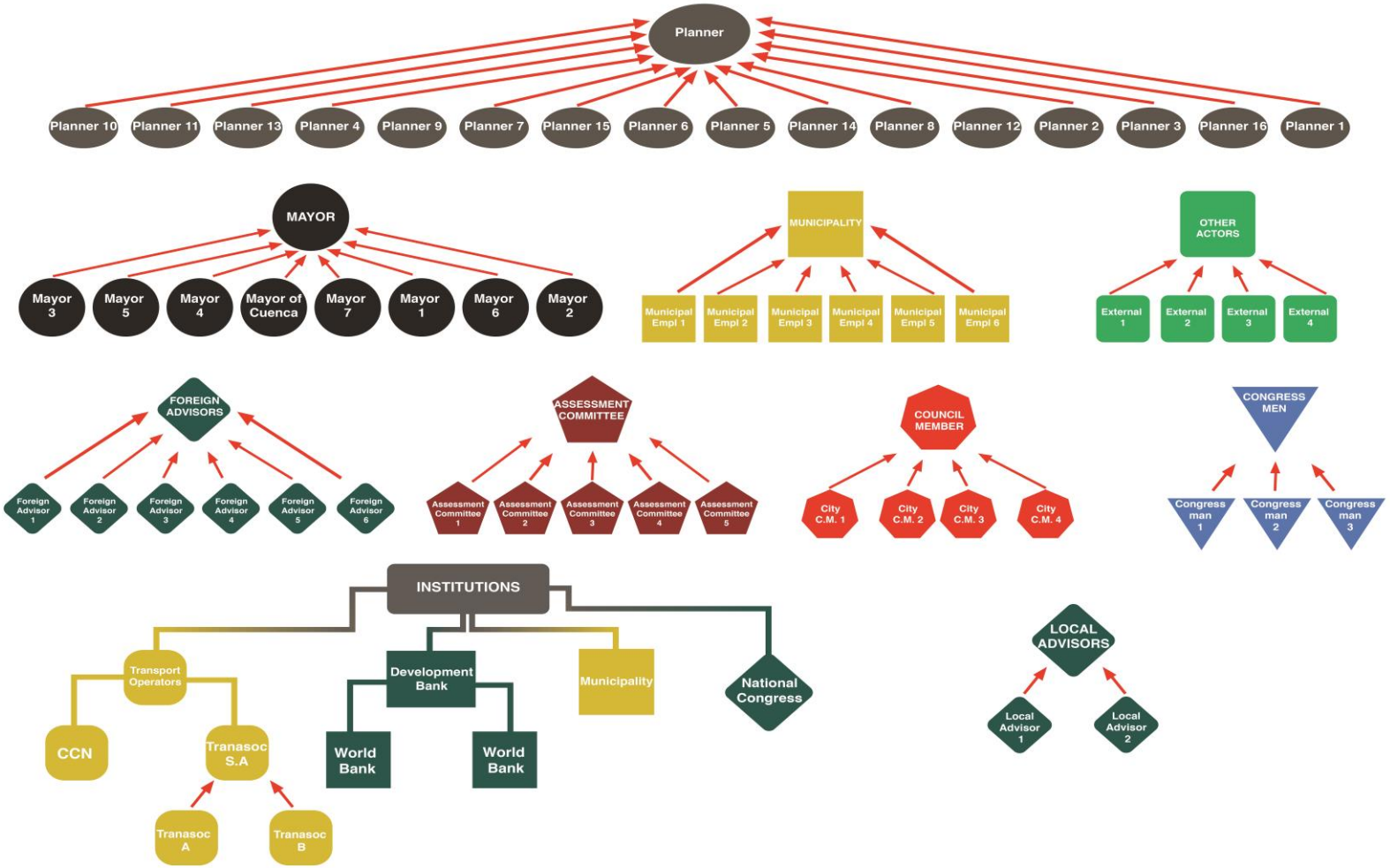


Figure 13 Individual and Institutional Actors Identified in the Interviews

On this level, previously identified actors begin to form a chain of actors that participated in the system's decision-making process. As stated above, there were groups that did not participate at all in the process. Additionally, at this stage, some of the actors identified identified in the bignning start to lose importance. For example, as illustrated in Figure 14, there were 16 planners identified in the interviews that were involved in the planning of the system in Quito; however, only two planners —as will be shown below— had the opportunity to exercise significant power during the process.

The next analysis level of existing relations begins to give clues as to which relations were the result of the exercise of power.

6.2.1. Level 3 – Emotional

The third level of analysis identifies the relations, found in the second level of analysis, from the perspective of the participants: what they understood were the right things to do, and why other things were not done. This gave the first clues about mechanisms of power being present, including the strategies used for the adoption of proposals or ideas, as well as how other ideas or proposals were halted. For example, after the Central Government set up the executive unit to start looking at transport solutions for Quito and Guayaquil, Mayor 1 began to look for options to bring transport planning back to the city, because he and his team believed that devolution of transport responsibilities to the city was the only way to address the identified transport problems. The mechanisms of power discovered behind the actions taken to stop or promote certain ideas were examined in the fourth level of the analysis.

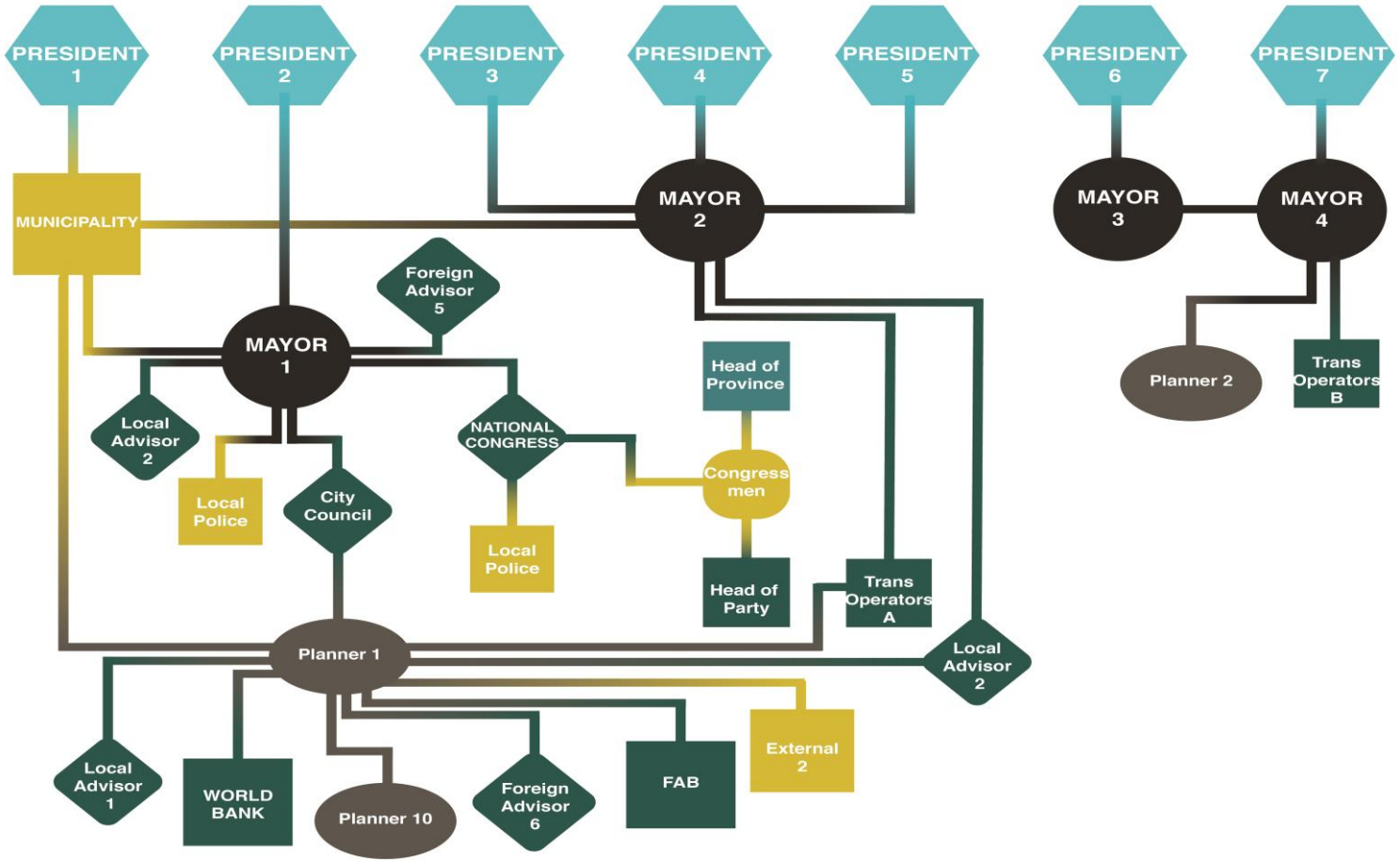


Figure 14 Relations Between Actors

6.2.2. Level 4 – Analytical

At this level, an effort was made to understand the actions that guided and led to other actions, and how those actions were the consequences of the exercise of power. As mentioned in Section 5.5.4, ate the analytical level, agreements and controversies were identified. Within agreements, mechanisms of power that enforced ideas, concepts, plans, etc. were identified; and in controversies, mechanisms of power were used to solve those controversies.

All the identified power mechanisms in the literature review were coded in this stage, including elements of coercion, manipulation, intimidation, persuasion, and authority. All the relations identified in the first levels of analysis were submitted to this scrutiny. The relations that evidenced mechanisms of power were mapped and are reported in Figure 15. How each mechanism was exerted is reported in section 6.3.2. How constraint was used as a mechanism of power to implement the BRT is presented below as an example.

Constraint, as we learned in the literature review, is one of the mechanisms of power present in planning practices and is defined as the exercise of force to determine or confine action (Dictionary, 2017). During the planning process of the BRT, there were certain moments when *constraint* was applied as shown by the red circled area in Figure 15.

The Spanish Development Bank (FAB) funded the first line of the BRT project. The funding had financial constraints, such as the amount of money to be lent, the duration of the loan, the interest rates, and the number and periodicity of payments. All these constraints are normal and do not necessarily highlight anything unusual. However, the funding had an additional clause that affected the outcome of the system.

The funding restricted materials —purchased with those funds— to be of Spanish origin. Consequently, the head of the planning team, Planner 1, needed to justify buying equipment that only Spain could deliver; the final system was designed to use very sophisticated, hybrid electric-diesel trolleybuses manufactured in Spain. This is a clear example of how power in one action —signing the lending contract— led to other actions, designing a BRT with trolleybuses, which changed the outcome of the system through the use of *constraint* —a mechanism of power.

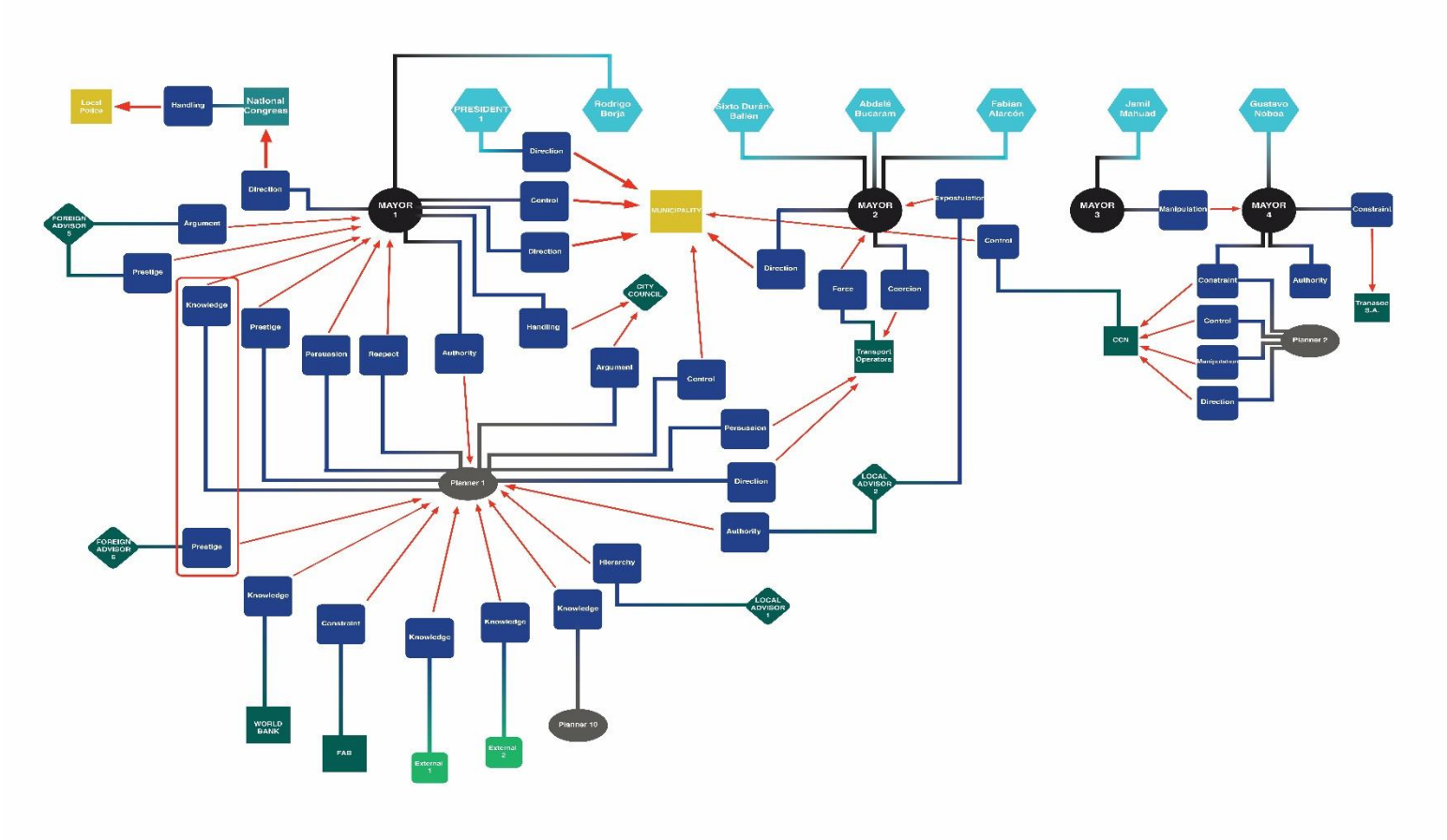


Figure 15 Mechanisms of Power for the Adoption of BRT – Quito. Constraint Highlighted in Red

6.2.3. Level 5 – The Geographical Information Systems (GIS) Level

To understand the impact that the BRT system's implementation had on the city, a spatial analysis was developed to learn where the system was implemented and what are the characteristics of the people who benefit from the implementation. This helped answer the question regarding to whom the exercise of power in the implementation of BRT matters. Figure 16 maps the results of the spatial analysis showing the DMQ, highlighting in green the area served by the municipal urban transport system. The area of study represents 93% of the population of the DMQ; additional studies are required to understand the transport conditions of the 7% of the population that is not served by the urban system.

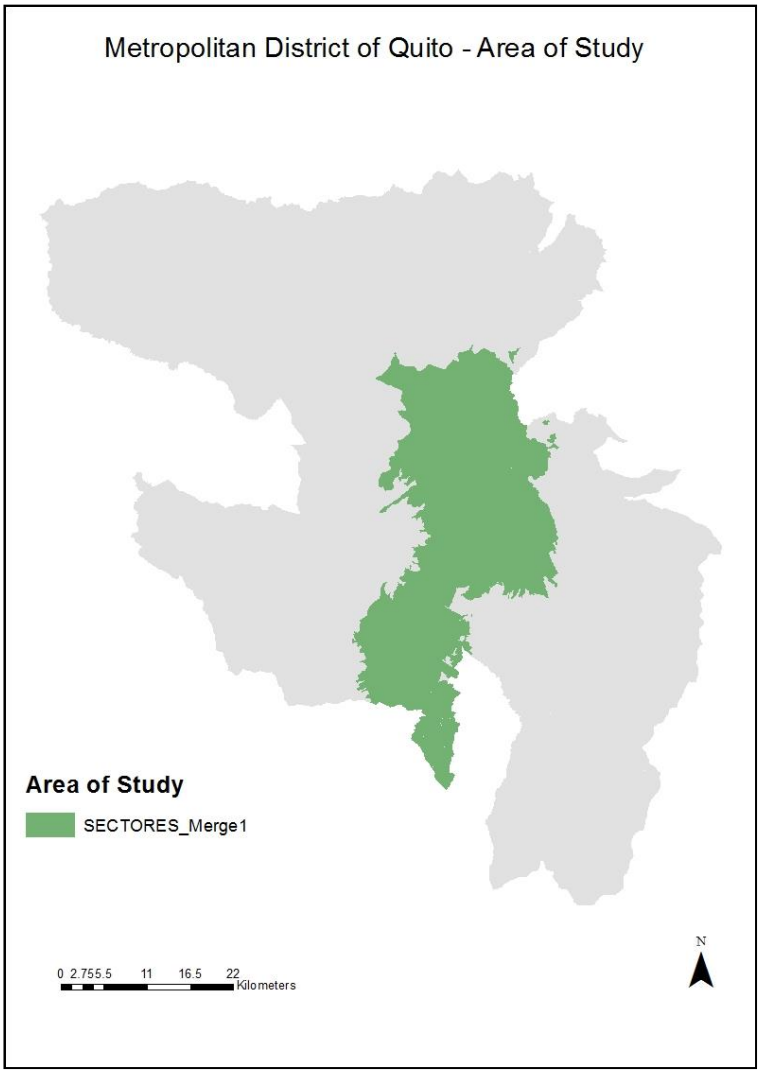


Figure 16 Metropolitan District of Quito, Area of Study

Source: Own elaboration

In Figure 17, the calculated IPTD is mapped. The areas in green are areas with lower levels of public transport deprivation and areas with red have higher levels of public transport deprivation.

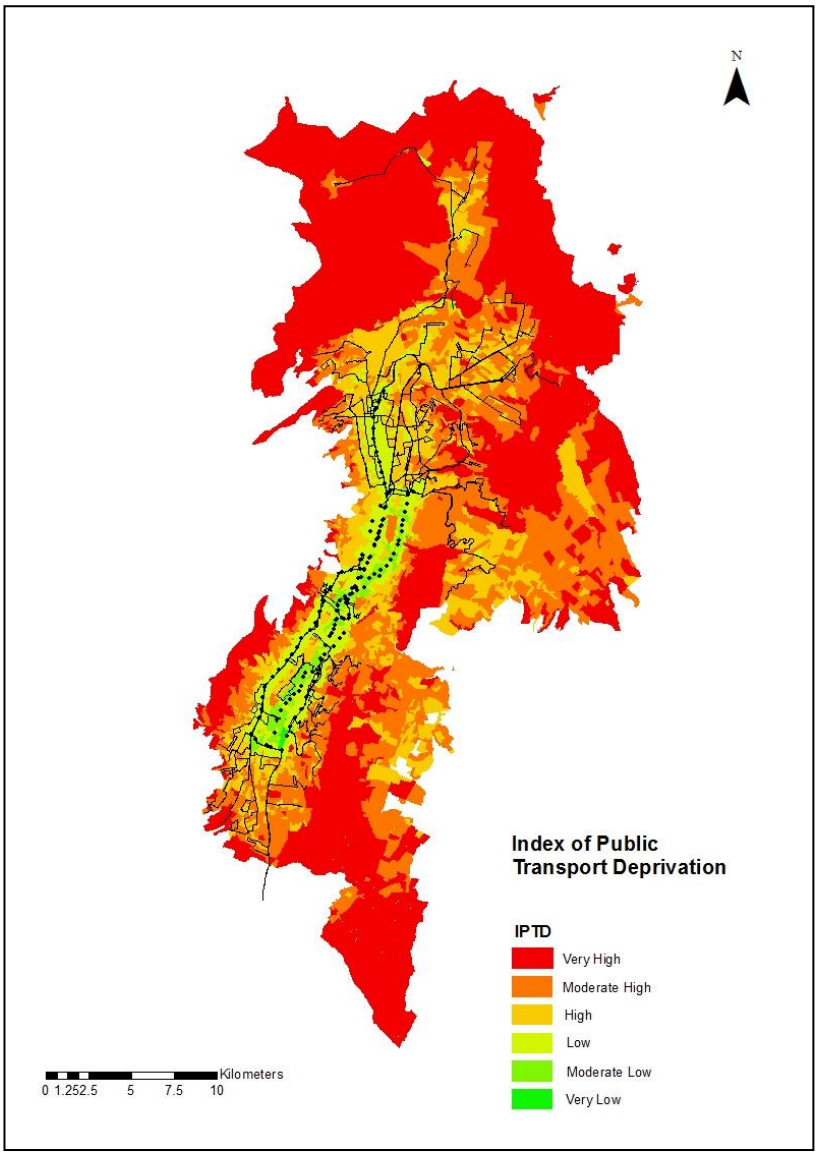


Figure 17 Index of Public Transport Deprivation DMQ

Source: Own elaboration

As shown in Figure 18, 60% of the CAs (3,612) in the city have higher levels of IPTD while 40% (2,379) of areas have lower levels of IPTD. Similar figures were found when the population living in the areas was calculated (see Figure 19), as 63% of the population lives in areas with higher levels of IPTD and 37% of the population lives in areas with lower levels of IPTD.

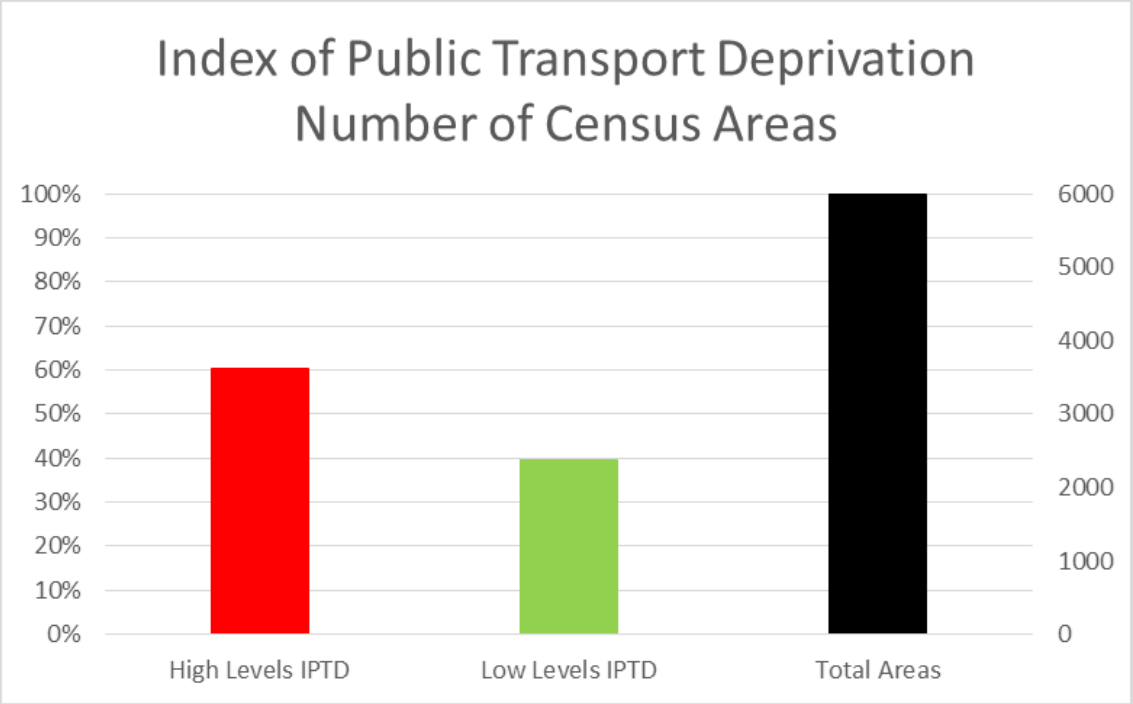


Figure 18 Index of Public Transport Deprivation per number of Census Areas

Source: Own elaboration

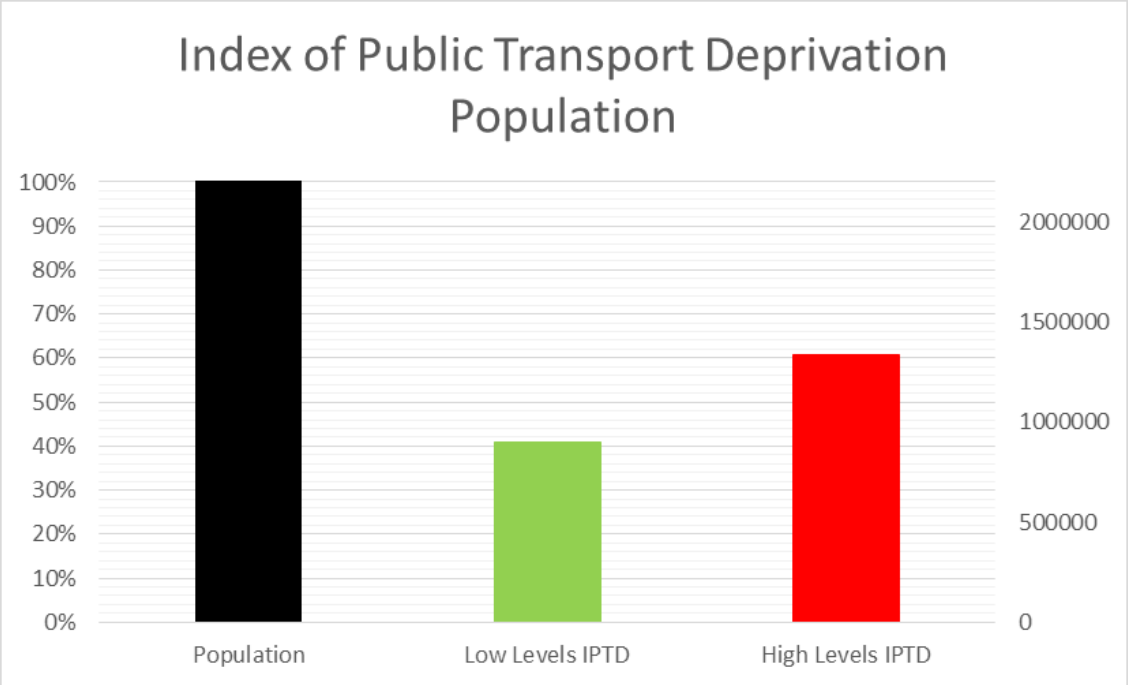


Figure 19 Index of Public Transport Deprivation by Population

Source: Own elaboration

The characteristics of the population based on the level of satisfied needs are presented in Figure 20. As explained in Chapter 5, section 5.5.5.1., the IBN is a multidimensional measurement of poverty, in which different characteristics of the population —including income, health, housing, and education— are calculated. The areas with higher and lower IPTD were analysed to understand the characteristics of the population living in those areas. As mentioned above, 60% of the population lives in areas with higher levels of IPTD. Also, 53% of inhabitants without IBN (non-poor) have low levels of IPTD, and 47% have high levels of IPTD. On the other hand, 75% of the population with IBN (poor) lives in areas with high levels of IPTD and 25% of the population lives in areas with lower levels of IPTD.

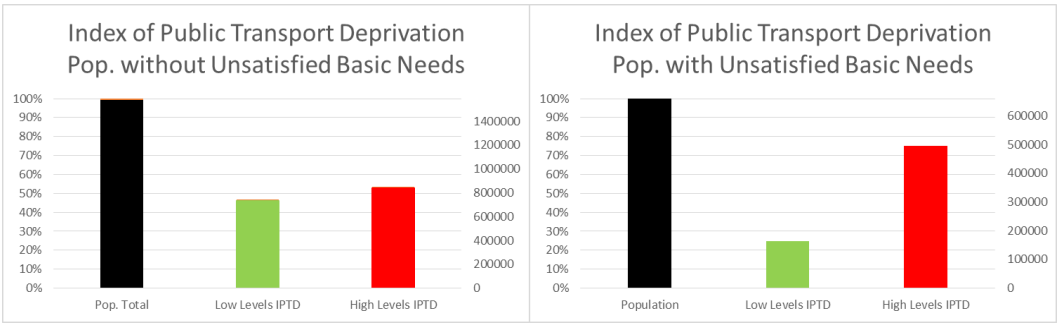


Figure 20 Index of Public Transport Deprivation by Unsatisfied Basic Needs

Source: Own elaboration

In Quito, the lower levels of transport deprivation are situated in a long corridor that stretches from north to south in the city. These are also the areas where the BRT corridors have been implemented. Although the city has made a big effort to implement and improve public transport services, there is a higher proportion, 60%, of areas with higher levels of IPTD in the city. 47% of the population without unsatisfied basic needs lives in areas with low IPTD levels. On the other hand, 75% of the population with unsatisfied basic needs lives in areas with high levels of IPTD.

The areas with high concentrations of population with IBN are less likely to benefit from the introduction of the transport system. The next section, answering the research questions, attempts to understand what the role of power was in shaping a BRT that will most likely benefit the population without unsatisfied basic needs.

6.3. The Research Questions for Quito

In this second part of the chapter, each research question was answered. Quotations are used in an illustrative way to answer the research questions. All participants interviewed helped

create the narrative of the story, however the quotes that best help illustrate the argument of each of the answers were used.

6.3.1. Question 1. What Were the Key Drivers for the Implementation of the BRT?

After the Quito Tramway company closed the last tram line in Quito in 1943 and public transport in the city received little attention from local authorities for many years; private operators enjoyed a favourable legal environment that limited both the number of companies and the number of buses that operated in the city, thus maintaining a monopoly on the services. Transport fares remained stable due to Central Government subsidies over petrol prices.

In 1963, the first national transit law was passed, and in 1966, the national regulatory agency was sanctioned. The new laws meant that the National Government now claimed full responsibility for transport in all jurisdictions, including Quito. During the 1960s and 1970s, the quality of the services remained at minimum satisfactory levels for a small city like Quito (Chauvin, 2006). However, the city grew dramatically and the existing transport operational model required improvements to manage the increasing transport needs in the city.

The Central Government withdrew petrol subsidies in 1977. Intense pressure from transport providers and opposition from the population to a fare increase caused the reinstatement of the petrol subsidies from the Central Government. However, the Central Government also raised transport fares by 40%. As mentioned before, this tariff increase led to massive public unrest that included violent encounters between students and the police in Quito, and later spread to other cities in the country; the event is known as the “40 Cents War”.

The government kept the fare rise, but made it mandatory for transport costs of workers to be paid by employers. This meant that both private and public sector institutions had to provide free transport for their employees. As previously mentioned, this decision did not consider unemployed or self-employed people. The logic of high petrol subsidies and a difficulty to increase fares remains a problem for public transport in Quito even today.

At the beginning of the 1980s, in an attempt to improve the quality of the transport system in the city, the Municipality of Quito set up the Municipal Transport Company (EMT for its acronym in Spanish). The EMT incorporated double-decker buses and articulated buses, both a novelty for the city. The new buses began by offering tourist services, but later were used to create new routes to areas of the city with a shortage of public transport. However, during the subsequent municipal administration, the EMT did not bring important and necessary changes

for public transport. The public transport conditions that had remained the same since the 1950s were not able to provide the level of service required for a city of over one million people. The decade of 1990-2000 witnessed a series of government actions as an answer to the existing public transport problems.

Authorities from those years provided clues to understand transport thinking at the time and the reasons behind the eventual implementation of a BRT in Quito as a solution for the city. The interviewed participants acknowledged the poor quality of the provision during those years and the need to improve the transport conditions.

> *At the time, everything was negative for the user. Operation speeds were low, levels of service were low, traffic saturation and travel time was horrendously long. In sum, all the indicators were the antithesis of what a transport user needs. People were tired of the existing services and were in a position of [asking] to get rid of the old buses, which were small and unable to give a proper service. (TP1)*

> *We had absolute chaos in public transport at the time. You should have seen what we had in Ave. 10 de Agosto, all its length was a continuous line of buses, one behind the other moving at less than 6 km/h. (M3)*

Additionally, there was big concern about the air quality in the city, a concern that had started a few years before, but it was during the 1980s when this issue became a public concern.

> *In 1984, we in Fundación Natura had done a study related to the quality of the air in the city. We found that the situation was dramatic because on one side we had the altitude component of the city and on the other side the quality of the fuels used still had high levels of lead. (M3)*

> *We had run some studies in the university about pollution in the city, a student of mine had done his undergraduate thesis, and we found in that study very startling results of lead on people's bodies. (HP)*

As can be appreciated from the comments given by the participants shown above, the transport problem was clearly seen as both a congestion and an environmental problem. The speed of the system and the accumulation of buses in certain areas of the city was limiting the quality and the capacity to create access and increase mobility, not only for bus users but also for car users.

At the same time, the volume of buses in certain areas of the city, as well as the old age of the buses were causing severe health problems in the community. The city as a whole suffered from the poor quality of the vehicles, however, it was the central part of the city where the congestion felt worst. Given the conditions of transport in the city and the precarious quality of the environment, the Mayor at the time, Rodrigo Paz, along with the National Government, both separately, started to look for different options to improve the existing transport and environmental conditions.

In 1986, the national government set up an agency called Unidad Ejecutora de Transporte that was intended to study different alternatives for improving the transport conditions in the two biggest cities in the country, Quito and Guayaquil. For the city of Quito, the Unidad Ejecutora issued a document called “A Solution for Urban Transport in Quito”. The report suggested a revision of the existing transport alternatives that could be implemented for the city and a brief analysis of costs and capacities to show which systems would be more suitable for a city like Quito.

In the document, bus and rail options were presented. Moreover, express buses with priority lanes were mentioned as an alternative, although not in the form of BRT. The document was written for the general population and opinion leaders, with the objective of illustrating the available options and opportunities to implement them in the city. However, it did not develop it any further into making practical proposals for implementation.

One of the participants described the time:

> *The President León Febres Cordero had formed the Unidad Ejecutora de Transporte (Transport Executive Unit)… such agency formulated different alternatives to treat the public transport matter in Quito and Guayaquil. In fact, they outlined many themes, not precisely BRT, but they delineated some future projects as the Quito Tramway, The Trolley Bus for Quito, and designed some intention line about them. (TP4)*

A few months after the establishment of the Transport Executive Unit, the local government, headed by Mayor Rodrigo Paz, had also started exploring options for the city. Rodrigo Paz had a very clear idea that for any transport initiative to be delivered, it had to come from the local Municipality. The Mayor did not make any attempts to use the national study, and there is no evidence from interviewed participants that showed the Government pushed for its implementation. The Mayor and his team saw an opportunity in an old disused railway line that could have been used to connect two areas of the city that had no public transport

connection. They prepared a technical visit to the existing line. The line was put back into use for one trip only, when different stakeholders from the national government as well as local representatives were invited with the intention of presenting the Municipality plans for the line. Cesar Arias, one of the persons invited to that technical visit, recalled the event:

> *The Mayor asked me for a technical visit to a railway project between two of the surrounding valleys of Quito, from Machachi to Cumbayá. During those years there was a proposal for the Mayor to make a rail-based system using the old railway line, he (the Mayor) thought of it as a great project for Quito. I accepted the invitation. The old railway line had been cleaned up and prepared to be used for the technical visit. On that trip, the President of the nation at the time was present, different ministers including the finance and transport ministers were also part of the tour. The line was in really poor condition, but the trip was done. (HP)*

The purpose of the trip was twofold: one aim was to get support from the national government to rebuild the rail system and the other was to get technical assistance for its design and implementation. However, the second objective changed dramatically after the visit. A close friend of the Mayor had suggested inviting Cesar Arias, a transport planner who was working as a teacher at Universidad Católica during that time. He was recommended as the person to make the project design for the rail system. As part of his work in the university, Cesar Arias had made different transport studies around the city with his students. He had previously worked on a demand study for transport on the part of the city where the Mayor and his team were thinking of implementing the rail-based transport solution. After the visit, the Mayor had a meeting with him, who recalled the discussion with the Mayor as follows:

> *University Teacher: The solution that is being proposed for that particular service could be solved with four buses. You don't need a rail system.*
>
> *Mayor: How could that be? The rail system is already a commitment! What should be done?*
>
> *University Teacher: I don't know.*
>
> *Mayor: How could you not know? I was told you are the expert.*
>
> *University Teacher: There is a need to make a study, I am giving you a fact that I thought I had to share with you immediately to alert you not to commit*

> *to a project that can be of high financial cost and that may not necessarily serve. (HP)*

The Mayor and his team realised that not only concrete technical and viable proposals were needed, but also in order to develop an efficient transport system, it was required to make changes in the existing distribution of power between national and city levels. The existing regulations of the time limited transport actions that municipalities could perform because all transport responsibilities were in the hands of the Central Government. The Mayor also understood that the changes could not be achieved in the short term; therefore, the basis, for a sustained and continuous process needed to be set up. The Mayor agreed to set up an agency responsible for making the required studies and analyses led by Cesar Arias, the university teacher who was part of the initial technical trip.

> *The most important thing to do at the time was a general transport plan, that proposal was accepted by the Mayor Rodrigo Paz, who confirmed the Unidad de Estudios de Transporte (Transport Study Unit, TSU), with Cesar as the Director. A group of technical professionals along with me and other professionals took part in that agency. (TP1)*

> *This public transport project was initiated by Rodrigo Paz. He had the right guess to appoint Cesar Arias as the person responsible for the (Transport Study) Unit and it was this agency with the support of the mayoralty that the concept of the BRT was developed… (M3)*

> *The person responsible for starting the matter was Cesar Arias, whom by 1991 was the academic director of the [transport] postgraduate programme at the Universidad Católica. He was invited by Mayor [Rodrigo] Paz to help him solve the transport problems of the time… We have to keep in mind that during that period the mobility responsibilities were controlled by the Central Government. Municipalities didn't have anything to do with that [transport]. It was with this initiative and with the effort of a small group that Cesar formed, which produced the first steps to involve the Municipality in transport matters. (TP4)*

What was agreed by many of the participants is that, with the establishment of the TSU headed by Cesar Arias, a radical transport solution started to take shape. The participants acknowledged the creation of TSU as a critical moment in development of the BRT.

6.3.1.1. Drivers for Change

Three main drivers for the implementation of the BRT system have been identified. First, the need to unlock the existing congestion in certain areas of the city, particularly in avenue 10 de Agosto that connecs the north-south areas of the city.The slow urban mobility given by old, polluting and dangerous buses was no longer acceptable. Politicians and planners understood the situation was dramatic and demanded radical change. The Central Government's form of managing public transport, limited to setting high levels of subsidies in order to maintain low fares, was no longer acceptable, and more integrated policies were required. The Municipality understood that the city needed to have control over transport to make the changes needed.

The second main driver was about overall provision. The changes demanded were structural modifications to transport provision, management, and institutional control. The Central Government had not developed the tools needed to manage a new and different transport system. It understood that they did not have the needed capability to provide these changes, so devolution of transport responsibilities became imperative in order to give the Municipality the powers to develop and manage a new system.

The main legal framework for devolution was the establishment of the DMQ. In 1990, Rodrigo Paz, the Mayor at the time, handed the DMQ law to the president of the Congress for its discussion and approval. After a long deliberation, and with many changes to the original text, the law was finally approved. The main criticism of the original project was its intention to create a new State within the State (Chauvin, 2006). It took over two years for the law to be approved. One of the more relevant aspects of the new law was devolution of planning and regulation competencies of transport.

> *It was all part of the local effort to cover the requirements for services in the city. Let's not forget a significant milestone, that is, in 1993 Quito obtained from the Central Government a national executive order, by which it became the only Municipality in the country to assume all the mobility competences. Later with the creation of the Metropolitan District of Quito Law, the law established the juridical basis for the Municipality to assume all the mobility responsibilities. (TP4)*

During continues dialogues between the Central Government, the National Congress, and the Municipality for the adoption of the new district law, the Mayor set up an agency to be responsible for developing local plans for the enactment of new responsibilities.

The setup of this agency was the main driver for the adoption of BRT in Quito. The new TSU was established. It developed a master transport plan for the city that included the first lines of BRT and travel plans for local institutions, in order to manage transport in the city. This master plan recomended the creation of a single local transport authority to be responsible for planning and regulating transport services at a local level. The plan also included the establishment of an integrated network of public transport, the strengthening of private operators, the adoption of low emission vehicles, and a centralised system of traffic lights. These policies were implemented during the following years. TSU and most of its initial members stayed in the Municipality agencies that were created exclusively to manage both the newly developed transport system and the existing conventional lines. TSU changed the way transport was managed in the city and left a legacy as to how to control it.

Summarising, a big congestion problem was identified in the extended city centre, which is an important area of the city due to high concentration of employments, hospitals, educational opportunities, and leisure activities. The legal environment at the time did not permit the city to make any important improvements to the transport systems, therefore, a change at the juridical level was needed.

The local government prepared the legal grounds for it to have the ability to implement the changes needed to solve the identified transport problem, by establishing the DMQ Law, a law that devolved transport planning, amongst other policies that were also devolved. Finally, an executive branch to deliver the change was created, the TSU, which operated the plans and actions needed to solve the problems of both congestion and environmental issues.

The design of the new system, with the BRT as the main output, drove the Municipality to design a complete transport system, see Figure 21.

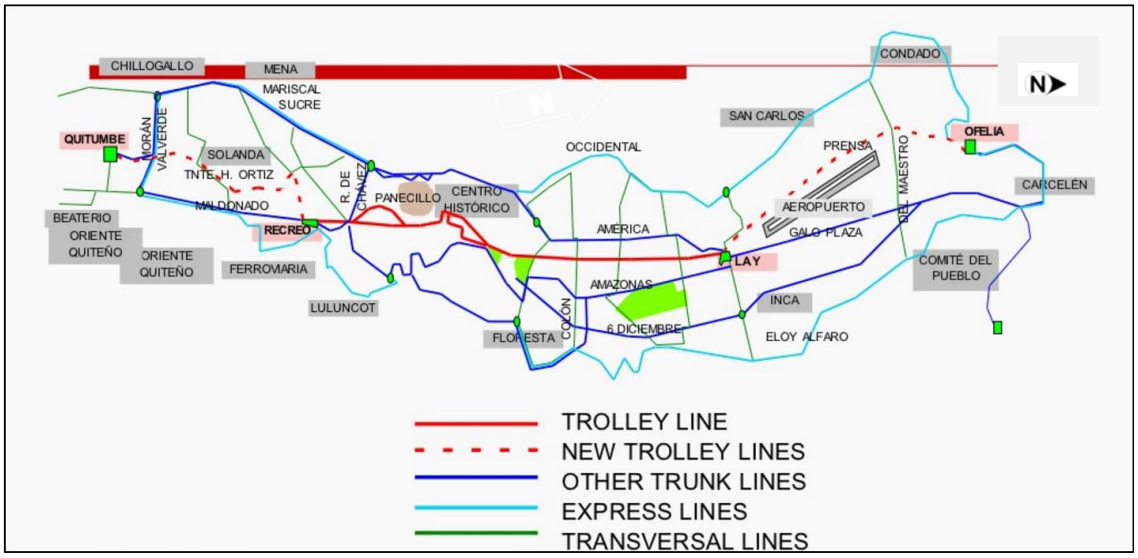


Figure 21 Original Proposal of the BRT System for the City of Quito

Source: (Arias, 1991b)

A trolleybus line covering 18.7 km from north to south dramatically changed the transport model in Quito. This first BRT (commonly known as Trole) was the answer proposed and developed by the TSU in order to reduce the level of congestion in one of the main corridors of the city. The city welcomed a system that was modern and efficient, which connected both north and south parts of the city with the extended centre in a fast and comfortable way. The participants suggested that given the success of this transport system, the political party of that Mayor managed to hold on to power for three consecutive mayoral periods. The transport planners in the TSU continued the development of the BRT system for the city, but eventually left for the development of new systems in Ecuador and other countries. However, the plan developed by the TSU was the main framework for the subsequent municipal administrations.

The original plan experienced many alterations, see Figure 22. However, the main corridor lines are the same today as the ones designed in 1993. The most important alterations from the original plan were the non-implementation of the transversal and express lines. The changes in the implemented plan mean that the three main lines are lacking integrations between them. In Figure 21 there are many lines that connect each of the corridors from east to west in Figure 22, the east and west connectors are missing and have not yet been implemented. The effort made by the original Municipality, as well as following municipalities, was in the implementation of the trunk lines that run from north to south, following the original idea of solving congestion for people who needed to access the central part of the city.

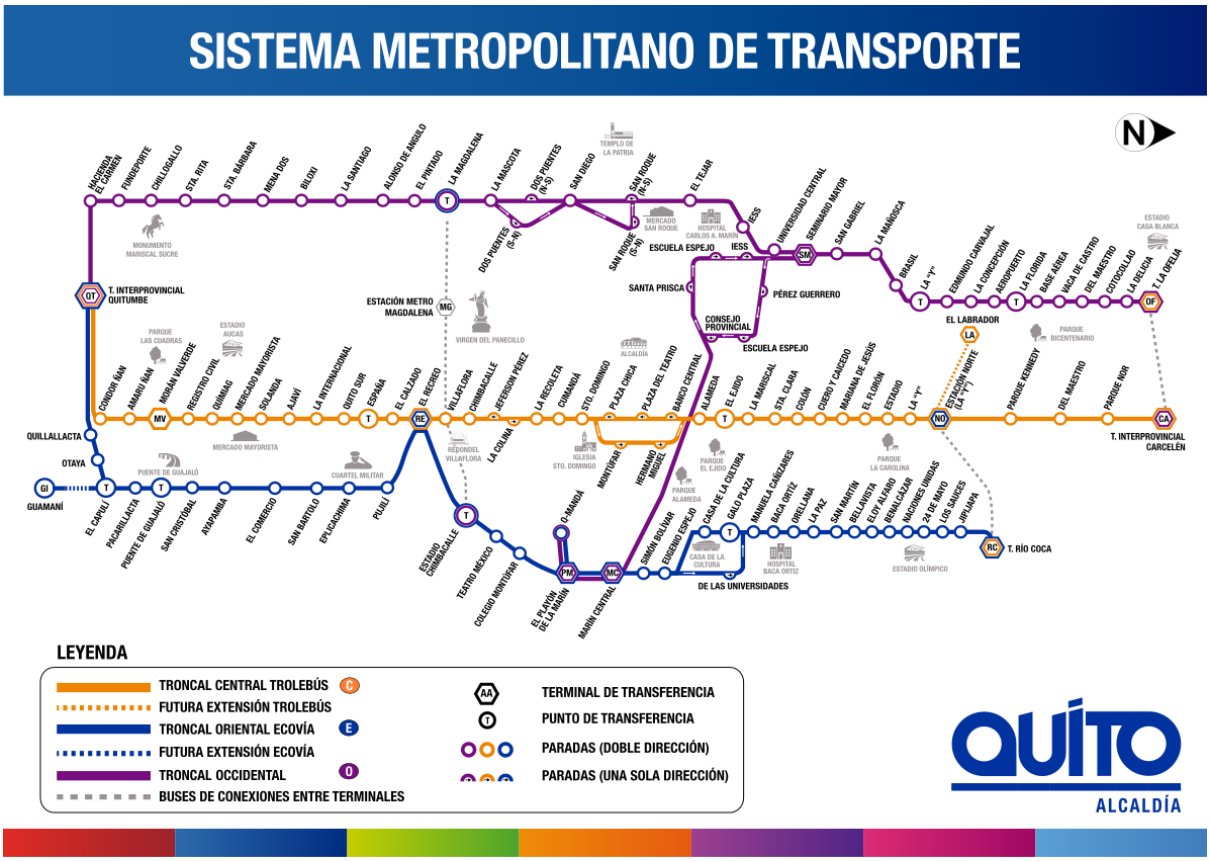


Figure 22 Actual BRT System of the City of Quito – 2016

Source: Municipio de Quito, 2017

This design of the system offers great accessibility for many areas of the city. However, there were other areas that did not benefit from the introduction of the BRT. Answering the following questions helped understand who does not benefit from the system, and how power may be influencing this unequal outcome.

6.3.2. Question 2. Who Benefited with the Introduction of BRT? Which Mechanisms of Power were Brought to Bear?

The introduction of any transport project has financial, operational, and political risks. However, when a transport project is successful, benefits experienced by stakeholders responsible for the introduction can be substantial. For example, it can mean the re-election of a Mayor or the career advancement of planners and practitioners. There were many winners in the implementation process of the BRT in Quito. Mayor 1 relied on a very close network of friends that had been built from his previous activities as a businessman and as the head of a football team in the city. The original support needed for the development of the system was

brought by this close network of friends, who supplied knowledge, international prestige, experience, ideas, and proposals. Not all the actors in the network exercised power; however, the actors that exercised power operated as links to other networks of actors.

This was the case for the Director of the Engineering Faculty at Católica University, who used his hierarchical position to introduce the aforementioned university teacher to the Mayor. Members of the ruling party were attached to the project, which in turn allowed them to start exercising power to benefit both personally and professionally from the eventual implementation of the system. For example, the congressman who proposed the law for the Metropolitan District of Quito later became Mayor of the city and eventually won the election for President of the country.

The exercise of power from party members helped with the final outcome of the system. Based on the success of the systems, the ruling party of Mayor 1, Mayor 2, and Mayor 3 held office for three consecutive periods. Furthermore, Mayor 2, who inaugurated the first line, got elected President of the country in 1998. They are still remembered as the people who changed the city for the better (El Comercio, 2015). They are recognised as the ones who showed that improving the transport conditions in the city was possible.

Transport planners in the city became highly distinguished. They were invited to participate in the project based on prestige, which they transformed into respect by presenting and implementing a transport system that brought success to Mayor 1 and his party. The work of the planning team was supervised and approved by an international and prestigious professional. They gained respect from the politicians of the ruling party and from a network of transport planners throughout South America. All members of the original team worked with the Municipality for several years and are still influencing transport policy in the city. Some of them went to work on the implementation of similar schemes in other cities. For example, Cesar Arias, head of the TSU, designed the award-winning Metrovía system in the city of Guayaquil (ITDP, 2017) and was advising other BRT systems planners around the world (Hidalgo et al., 2007). Some of the members of the original planning team from the Quito project were responsible for the operations of the BRT lines in Guayaquil.

The introduction of high capacity articulated buses that run in their own rights of way, with priority signals, and a pre-boarding payment system created the perfect combination for speed in the transport system (Wright, 2002). The system was designed in a way that directly connected outlying areas to the extended centre of the city. The extended centre is the area where most jobs and services are located, with heavily populated residential neighbourhoods

located in the north and south extremes of the city. The population who lived in the influence area that needed to use the system to travel from and to the city centre were benefited by a fast, reliable, and efficient transport system. Opportunities to access culture, leisure, education, jobs, etc. were open to the population who lived in those areas, with a fast and traffic-free transport system.

The businesses, services, and education centres that are located within the area of influence of the scheme were benefited twofold. First, the people who worked at these institutions had a system that could take them from home to work and vice versa in a fast and reliable way. Second, there was the maximisation of the people who could access these services and businesses. These systems could carry a lot of individuals throughout the opening hours of the various activities. With the concentration of transport services, which in turn maximised the number of people who could travel to the area of the city, new investment was attracted to the area, creating even more opportunities for individuals who already had access to the area.

Presenting these beneficiaries is important to understand the paybacks that a good transport system brings. However, there were important groups that did not receive the benefits of the system. The design of the system left out transport opportunities for some groups in the city. Transport operators, who initially were against the scheme, did not receive benefits from the introduction of the new system; they were directly damaged by the introduction of the system. Hundreds of old units were replaced by the new modern articulated buses. The previous operators were described by the planners of the BRT as unprepared and unable to run the new BRT. Therefore new, modern, fast, and efficient articulated buses required new efficient and reliable operators.

The implementation of the first line caused severe resistance from the previous operators, because their regular form of income was exchanged with a one-off financial compensation package. Given the dissatisfaction posed by the implementation of the first line, the following lines did incorporate the previous transport providers. However, the planning and design of the systems neglected to consider training programs for the operators of the eventual uptake of the BRT.

Previous operators had been granted franchise for the new lines. However, a combination of internal disputes of the operators, lack of managerial capacity, and financial limitations meant that they have gradually been phased out, and now all the corridors are being administered by the Municipality. The operators of the second and following lines still manage the

conventional services, which means they maintain their income from the buses. However, the operation of the BRT lines is controlled by the Municipality.

The system created an efficient line of service, but that produces a further relative accessibility disadvantage to a substantial number of people out of reach of the system. Some of these areas are geographically difficult to access using articulated buses in their right of way. However the BRT is designed in an integrated way, and not just the central lines form part of the planning process. Additional policies, that are described in Section 6.3.1.1 of this chapter, are also part of the systems, such as the types of buses that can operate in the cities, and a network of feeder buses that feed into the central BRT lines.

The corridors were implemented in the extended city centre, and the feeder services support the corridors by connecting areas where the corridors do not serve. As a result, there is an unbalanced provision of public transport and the city has areas with higher levels of transport deprivation than others. As evidenced in section 6.2.3, 60% of the CAs in the city have higher levels of IPTD (see Figure 18 and Figure 19). The poorest segments of the population are less likely to receive the benefits from the BRT system, because 75% of the population with Unsatified Basic Needs are located in areas with high levels of IPTD, see Figure 20.

In Quito, the poorest segments of the population are also those less likely to own a car. Therefore public transport is the only option available. The poorest segments of the population are forced to undertake longer walks or to use other means of access such as paratransit. It is therefore hardest for the poorest segments of the population to access the areas of the city where the better jobs are located, and education, cultural, and leisure opportunities are concentrated. The fare system adopted in the the city is a flat fare system, meaning that all transport services have the same price. The fare price has remained at low levels (US$ 0.25), but the lack of integration of services means that users need to pay for each segment of transport that they use. So, for example, a person who uses three buses to access a particular destination pays US$ 0.75.

The continuing lack of transport to the edges of the city not only puts pressure on the poor communities, but also new communities, for the wealthier segments of the population have been built towards the nearby valleys of the city. These areas do not have public transport, although the wealthier segments of the population have access to vehicles. Large numbers of vehicles come to the city every day for work and other services, thus still creating severe congestion problems. The high levels of congestion put pressure on the existing transport system by reducing its speed, capacity, and comfort. Thus, segments of the population lose

when there is limited transport in the centre areas of the city, with inadequate provision to the outskirts.

6.3.2.1. The Mechanisms of Power

There were a series of actions that slowly shaped the BRT system in Quito. These actions were a consequence of the exercise of power. Many mechanisms of power were identified. The power map presented in Figure 15 (on page 137), describes four distinctive times of the planning process of the system in Quito. These times were: (a) Taking control of transport in the city, which included the actions that drove the local government to gain devolution of the transport responsibilities in Quito. (b) Development of the TSU. Showing how the TSU was formed and the process of designing the BRT. (c) Building the political and legal support. During this time, all the legal resources needed were designed, and a strategy to create political support was designed and implemented. (d) Finally, the time of the implementation phase.

In the following sub-section the mechanisms of power described in Section 2.3.5, are identifed in ***italics and bold*** to point out to the reader the moments in the narrative identified as mechanisms of power.

a) Taking Control of Transport for the City

In Figure 23, the actors and mechanisms present during the events that brought control of transport to the city are highlighted. The arrows in red show the direction power was exercised.

Next, there is a description of the mechanisms of power and roles of the actors. The analysis of power begins by examining the technical trip and the events that led to the organisation of the trip described in Section 6.3.1.1. The local and national governments were aware of the existing dissatisfaction with public transport in the City of Quito. The Central Government, led by president León Febres Cordero, set up an agency to look specifically at the transport problem in the two biggest cities in the country, Quito and Guayaquil. The agency called Transport Executive Unit developed a document that presented the state of transport conditions and produced some recommendations for the cities. By setting up the agency, the president exercised power over the Municipality in the form of ***direction***. This ***direction*** led to a series of actions by the local Municipality.

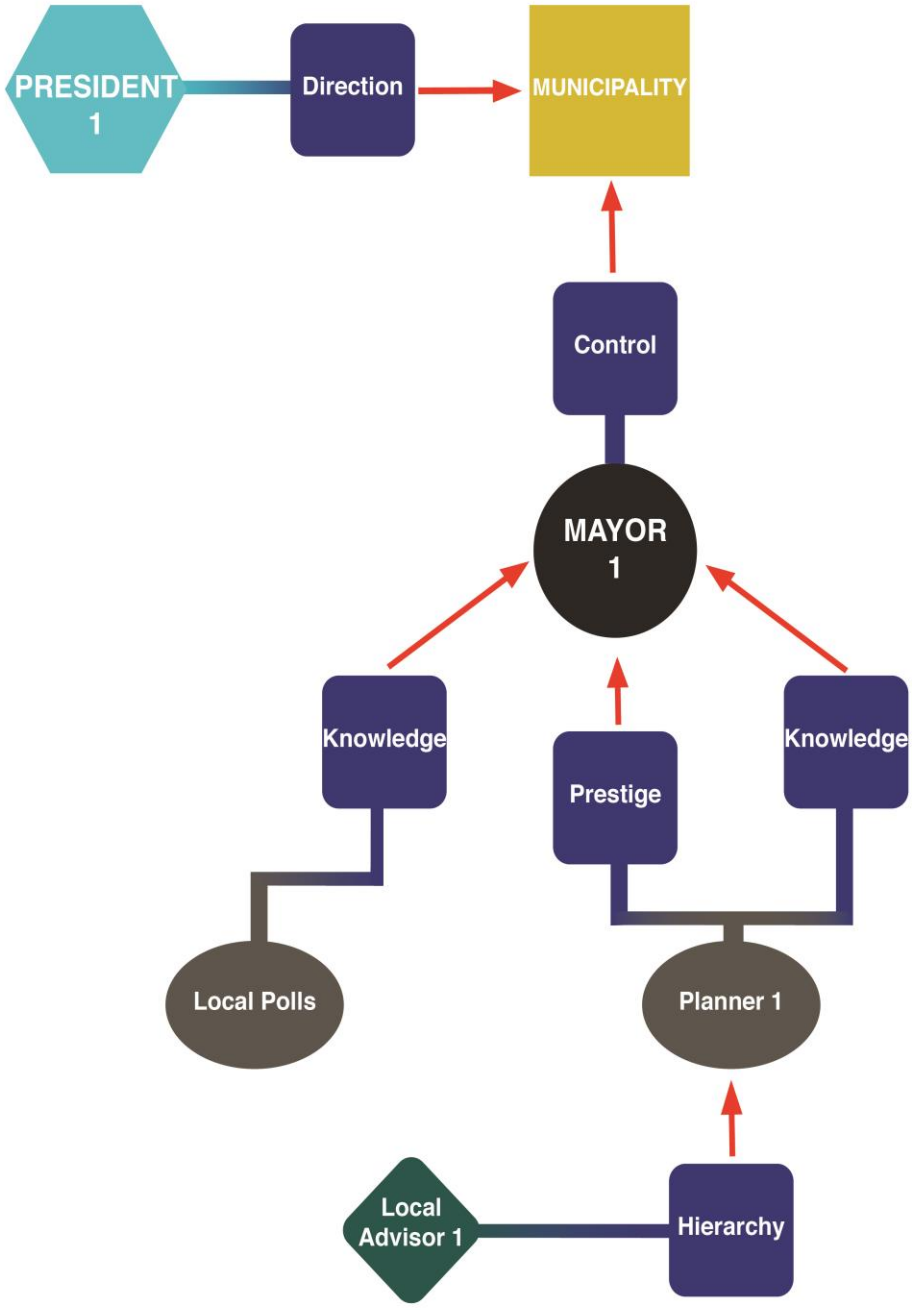


Figure 23 Actors and Mechanisms of Power Present During the Control Taking of Transport for the City

> *[Mayor 1] believed that the initiatives run by the Central Government should be sponsored by the local government. Remember that at the time all the mobility competencies were centralised in the Central Government. The municipalities had nothing to do, it was because of the Central Government*

> *initiative, and with a small local team, that the first steps were taken to make the Municipality involved in transport matters. (TP1)*

The set up of an agency by the Central Government, to analyse the transport situation in the city and find a suitable transport solution triggered the Mayor to bring control of transport to the city. Local polls, run by the Mayor elected in 1988, Rodrigo Paz, situated transport as the highest concern for the population. The information, produced by the polls, turned into ***knowledge***, a mechanism of power that led to a series of actions by the Mayor. As a response to the existing transport concerns, the Mayor initiated the idea of building a rail system over an available old railway line. The Mayor and his team invited several Central Government officials, including the President at the time as well as its finance ministers. As mentioned above, a technical visit was prepared to ***persuade*** the Central Government and local authorities to build the system. The technical trip was used as a tool of power, in the form of ***manipulation*** by the Mayor on the assistants.

A close advisor to the Mayor, who was also the director of the Engineering Faculty at a local university, invited one of the teachers of the university to the technical visit. The Mayor's advisor used his ***hierarchical*** position to invite the university teacher to the technical trip. The Mayor accepted inviting the teacher based on the ***prestige*** of previous work made by the teacher at the university. The university teacher with previous knowledge about the transport corridor under discussion, attended the meeting and convinced the Mayor to withdraw the idea of rail systems and do something else. The trip had an effect on the teacher that drove him to use his ***knowledge*** to ***persuade*** the Mayor to stop the rail project and analyse other alternatives.

A few days after the technical visit, at an agreed meeting between the Mayor and the university teacher, research of passenger counts in the corridor of the proposed railway showed the Mayor evidence about the low level of demand in the corridor. The university teacher used his transport ***knowledge*** to exercise power over the Mayor. A series of new actions were developed from this meeting. The Mayor agreed on the need to make further studies. They agreed on the need to set up a team, led by the university teacher, who now became head of the TSU. Not only were the courses of action changed with the exertion of power in this instance, but also the actors were changed (i.e., the productivity of power). The university teacher was invited to participate in the project and was given the first task of setting up the TSU. On the other hand, the Mayor started reorganising to manage the new reality.

The overall transport problems identified in the polls were narrowed down to solve the congestion problems of the more mobile segments of the population in the centre of the city. As will be presented in the next subsections, the mechanisms of power present between the different actors during the different events shaped a system that satisfied the needs of the highly mobile, economically active people in the city, but excluded the more deprived segments of the population. The different actors and mechanisms were caught in a game that served the interests of an already benefited segment of the population, while leaving the worst off behind.

a) Development of the TSU and Design of a BRT

The actors and the mechanisms present during the establishment of the TSU and the design of the BRT are mapped in Figure 24.

The first responsibility of the university teacher was to set up a team. The teacher, who specialised in public transport, headed the team and was later ratified in the role of leading the newly-created transport department for three successive mayoral terms. The TSU was a specialised agency strongly supported by international experts, such as the UN Development program (Hidalgo et al., 2007). It integrated high-level technicians, most of whom had third-level degrees in transport and urban planning from highly recognised institutions. The group started with five professionals: two of them had studied urban and transport planning in Brazil, and one of them had developed his Master thesis around the BRT project in Curitiba. During the development of ideas, the members of TSU visited the existing BRT corridors in Brazil and trolley bus systems in São Paulo and Mendoza, Argentina.

> *The director was CA; he convened a group of technical professionals, I was part of the team. I was the specialist in engineering design for transport, my expertise was architecture, and I had knowledge of the Brazilian experience. The chief technician was Planner 10, an urban architect. He had a Master in transport. His master thesis was about the effects of exclusive rights of way for buses in Curitiba. Planner 7 was also a specialist in infrastructure and engineering. Planner 6 was an expert in road design. Planner 14, she was a specialist in the engineering of network design. Planner 8 was in charge of the design of mobility surveys. That was the technical team who, with the help of five assistants, did the Trolebus project and the BRT network. (TP1)*

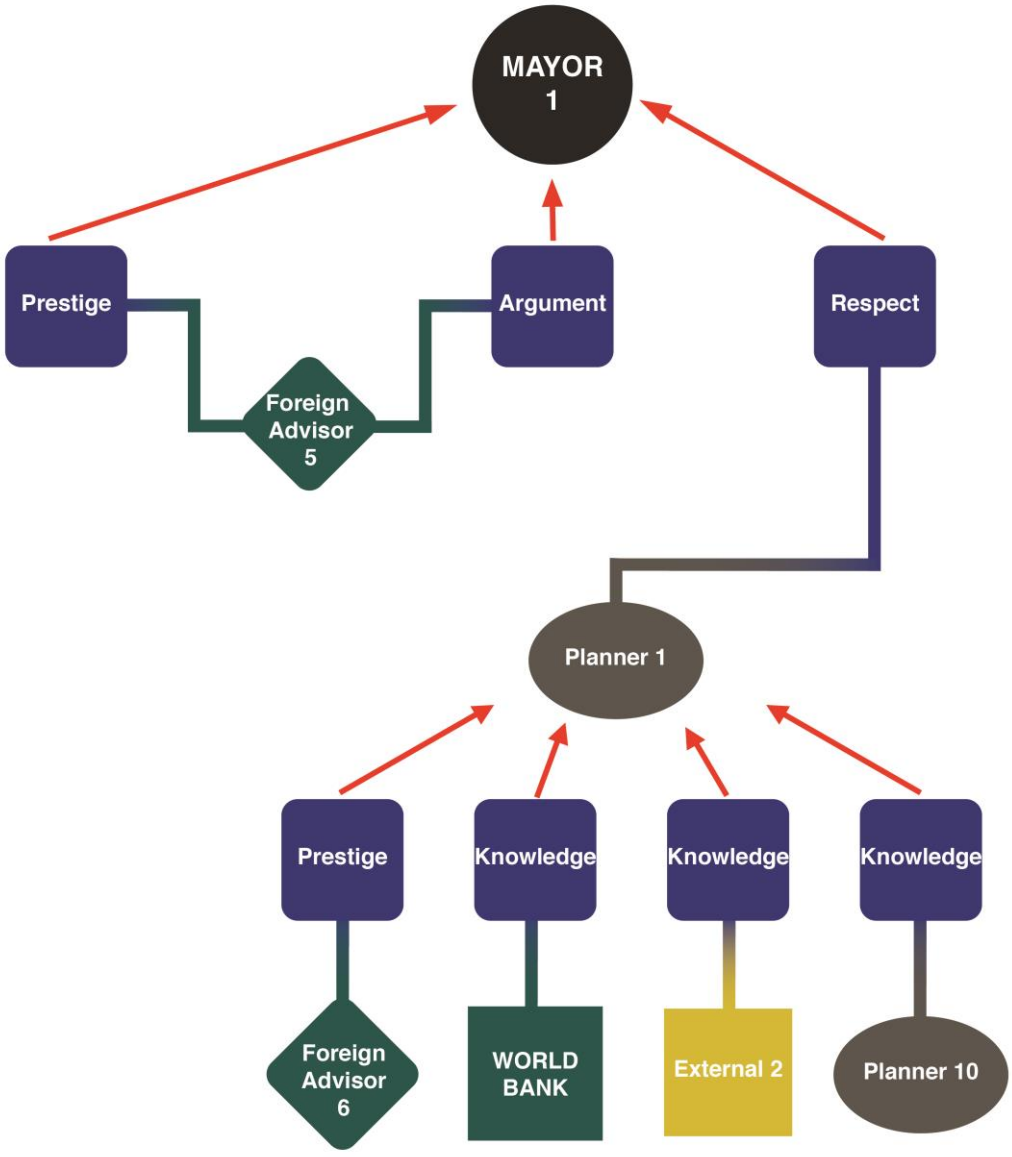


Figure 24 Actors and Mechanisms of Power Present During the Development of the TSU and the Design of the BRT in Quito

The TSU consisted of highly qualified professionals. Two of them —with detailed knowledge of the Brazilian experience on BRT— were responsible for planning the system. The head of the team was also deeply committed to the concept of segregated lanes for sbuses, as he had first learned about them during a transport conference in 1978 and studied World Bank material about the benefits of segregated lanes in public transport.

> *In segregated lanes, because in the year 1978 I had contact with a dear friend of mine,(External 2). He is a bit like the father of exclusive lanes for buses that were used with conventional buses in convoy, which he called "comonor". The convoy of ordered buses, he had put to work in Porto Alegre. I got interested when I heard him speak at a conference in 1978 in Medellin. At the time, I wrote him a letter and asked for information on the systems. I additionally had reviewed World Bank about the benefits of segregated lanes in Europe. Later I had visited Curitiba and saw the Curitiba model; I thought 'this looks like a subway'... (HP)*

The TSU was entirely immersed in transport practices, particularly the segregated lane concept. ***Knowledge*** was brought to TSU using different mechanisms. Professionals who brought knowledge to the team about the concept of BRT were invited. Other professionals with transport experience, but without BRT experience, were invited on technical trips to learn about the concept. ***Knowledge*** in itself acted as a mechanism, and the members were selected based on the knowledge they held on BRT projects, with a particular interest in the Brazilian experience.

The ***prestige*** of international institutions and experts was another mechanism used to bring knowledge to the team, as Brazilian consultants of the United Nations Development Program (UNDP) were also invited to participate. The professionals who shaped the system were all transport planners with vast experience in the concept of BRT. As a result, the master plan developed by the TSU turned into a system of BRT corridors supported by a network of feeder buses.

Finally, the members of the TSU that had not been related to the BRT concept were taken on technical visits to Brazil, to see first-hand experiences in São Paulo and Curitiba. The head of the TSU understood the benefits of segregated lanes for buses —introduced to him early in his career— and he developed a deep interest in the matter by studying and visiting the sites where they were implemented. Additionally, he made sure the team he set up for Quito were familiar with the concept of BRT. Planner 1 not only introduced the ***knowledge*** to the members, but he also brought people who could contribute with additional knowledge about the systems to him and the group. TSU also had international support from the UNDP (Foreign Advisor 6).

> *With the support of the Mayor and of the UNDP, some Brazilian consultants were hired. These consultants, one of whom was Foreign Advisor 6, were part*

> *of an important group of consultants from Rio and Curitiba. They comprehended the rationalisation plan. In the formulation of the plan appears the fundamental project for the corridor for the Trolebus System for Quito (TP1)*

The TSU collected demographic and transport data for the city. There were numerous statistics in the executive summary for the final project that provided an idea of the city's situation at the time. During the time of the study, 12% of the population were unemployed and 36.8% were underemployed. The lowest levels of unemployment were situated in the northern centre part of the city, with levels of 4% and 5%. It was noted that 56% of households did not earn at least the minimum wage, 18% of households earned the minimum wage, and 25% of households earned more than the minimum wage (Arias, 1991b). There were higher concentrations of households that earned more than the minimum wage in the northern centre of the city. Also,the centre, south, extreme south, and extreme north parts of the city had a larger concentration of households that earned less than the minimum wage (Arias, 1991b).

Regarding transport, the centre of the city and the north part of the city had severe congestion problems. In the city centre, congestion was caused by informal merchants who took the narrow streets to develop their activities, reducing circulation speed of vehicles. In the north part of the city, there was better provision of roads. However, there were more cars there than in the rest of the city, which caused congestion in that part of the city. The transport system offered few options to the more peripheral parts of the city as public transport availability decreased.

There was a large concentration of services, particularly schools and universities, in the northern centre part of the city (Arias, 1991b). The situation in the early 1990s was no different from what is found in the city today, as most of the services are situated in the extended city centre, and the population with lower IBN live in the centre of the city. For example, 74% of working people have their jobs in the extended city centre areas, and 77% of big employers (more than 200 workers) are in the same areas, where only 34% of the population live (Moscoso et al., 2012).

Once the data was collected, a transport plan was developed. The methodology used for the plan by the TSU for the development of the transport system is described as a "Traditional Transport Model". The Traditional Transport Model, as discussed in the literature review,

follows the four steps described by Dimitriou (1992): trip generation, trip distribution, modal choice, and trip assignment.

Each of the steps are described in the document: “Proyecto Trolebus Para la Ciudad de Quito – Resumen Ejecutivo” (Arias, 1991b). In that document, a summary of the studies made for the systems was presented with an emphasis on the design of the first line, a trolleybus running on segregated bus lanes. Something important about the study was that, although it collected a series of demographic data, the system was designed using only the transport data collected.

The origin and destination surveys were designed based on the previous system; therefore there was little opportunity to include areas where the system was not providing services. The aggregated values do not discriminate users by type; therefore, the model did not know what the characteristics of the users were regarding employed, unemployed, self-employed, etc. The trip generation model was not assessed at a household level, as the surveys were taken at an individual level on public transport, with big limitations for the type of data collected.

The survey was limited to understand where people were coming from and their destinations. An improvement of the transport system was needed in the city. However, the data did little to improve the conditions of the people who did not have access to public transport. Not including that information is an exercise of power.

The TSU had 18 months to develop the plans. By the 31st of March 1991, the team had to present all the relevant documentation to the Mayor. However, a few hours before the presentation, the Mayor asked the head of the planning team to present the results to an international advisor.

> *The 31st of March, the [Mayor] was calling me for the study. We were photocopying at that moment, and I told the Mayor I would be taking the studies in one hour to his office. The Mayor said: “no, not to me as I do not understand any of that stuff”. What the Mayor wanted was for me to go to the airport the next day to pick up [Foreign Advisor 5], hand the studies to him and come with him on Thursday to see what to do.(HD)*

The ***knowledge*** generated by the TSU exercised power over the Mayor who resisted the power exerted by the TSU by finding a suitable person to review and eventually endorse the work done by the TSU. During one of the trips he made with the footbal team he chaired, the Mayor met Foreign Advisor 5, a transport planner who had worked during the design of the first subway line in Santiago of Chile. A United Nations consultant, who was also a friend of the

Mayor, introduced Foreign Advisor 5 to him. Foreign Advisor 5 reviewed the work. After the review process of the plans, Mayor 1 approved the results.

The ***prestige*** of the previous work of Foreign Advisor 5 with the subway line in Chile, is a mechanism of power that caused the Mayor to ask him to revise the plan developed by the TSU. Foreign Advisor 5 endorsed the results to the Mayor exercising power with ***argumentation***. The work developed by Planner 1 in the TSU exercised power in the form of ***respect*** for the Mayor, as the work of the planner was now something the Mayor had witnessed. With the work approved, the Mayor and the planner needed to ***persuade*** other actors to support the project.

The team that was set up to design the transport system was a highly technically prepared group of professionals. The foreign advisors who were invited to review prepared plans were vastly experienced in developing transport solutions in other parts of the world. The ***knowledge*** used to design the system was about the best transport practices around the world to solve congestion. The transport system that was designed —and was later praised and highly welcomed by the population— was limited by the congestion problem identified in subsection a) above and with professionals that aimed to solve the problem. The 18th month planning period and the political pressure to do "something" about the transport problem in the city limited the scope of the planning team to their technical knowledge. As a result, there was little space for deliberation and wider participation of stakeholders during the planning process.

b) Building Political and Legal Support

In Figure 25, the mechanisms of power and the actors involved in building the political and legal support for the system are presented.

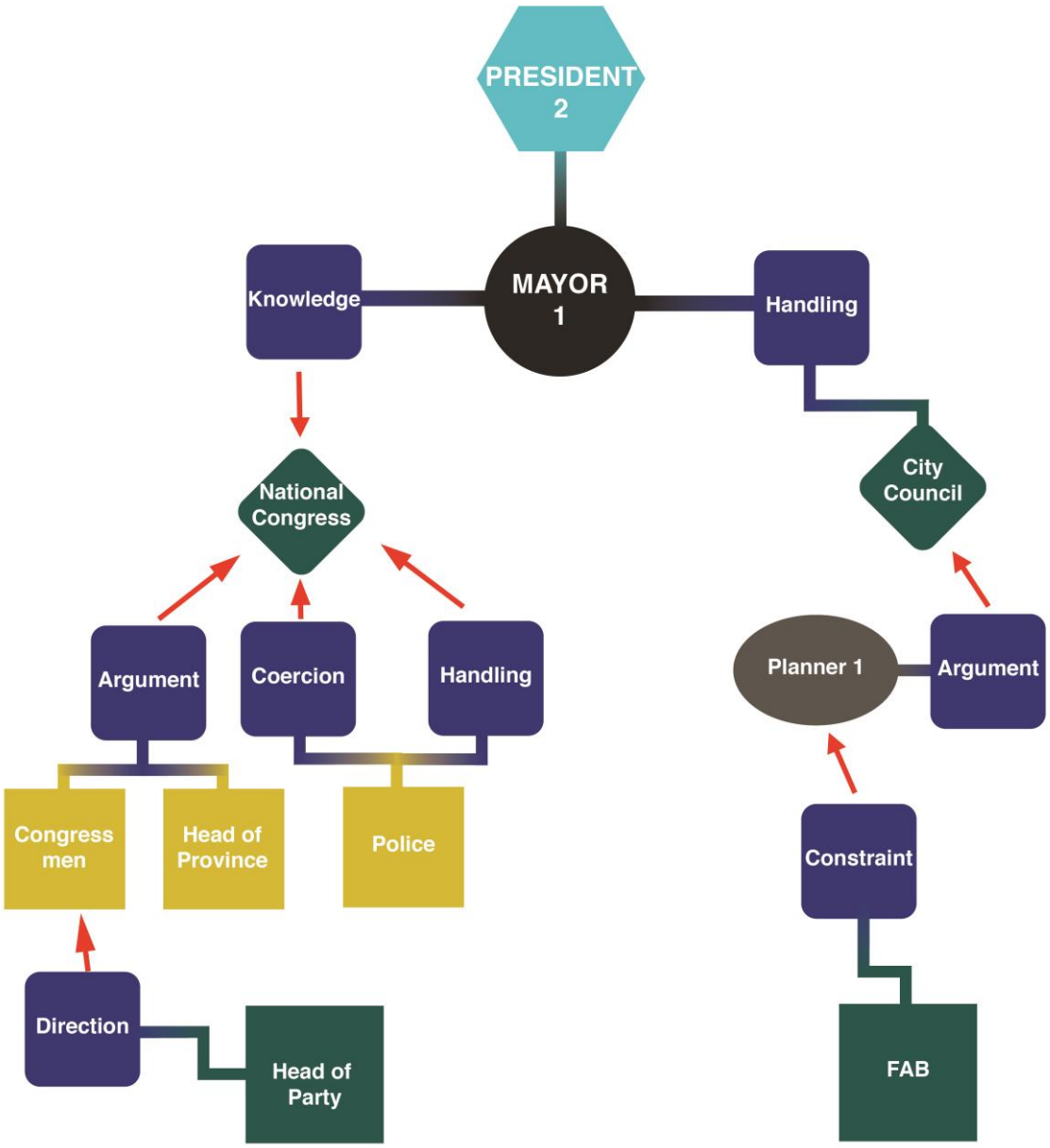


Figure 25 Actors and Mechanisms of Power During the Process of Building Political and Legal Support for the Local Transport Plan

Mayor 1 and Planner 1 had the mission to get support and approval from the city council. Once the plan was presented to the council, loud voices against the system emerged. A group of councillors argued that the World Heritage position of the city would be in danger because of the cables the trolleybus needed. Their position was against installing cables in the Historic Centre of the city, which had recently gone through a process of burying all aerial cables in the old town. Another group believed that trolley buses were an old technology and that implementing a system with them would be a retrograde step for the city. They argued that

trolley buses had long been out of circulation elsewhere. The Mayor and Planner 1 dealt with this council position.

> *A confrontation between transport planners with urban planning and Historic Centre planning started. Historical Centre planning and urban planning were against the trolleybuses… The intervention of the Mayor was crucial to settle that issue. The Mayor managed the situation, which lasted a few months. The Mayor based his position, using as example historical cities in Europe, where many more trolleybuses circulate. This comparison showed them more advanced countries were using the systems, and in more valuable historical towns trolleybuses keep circulating. (TP1)*

> *They (the council) said that the trolley buses was an outdated system and it was not worth going back, as they were out of circulation. I explained to them that, although it was true, that was because of the competition of diesel buses, which tried to eliminate buses from electric systems as well as tram systems. However, trolley buses had evolved in a similar way as subway systems and that no one dares to mention that subways were outdated. (HP)*

Group and individual meetings with specific council members and other municipal collaborators were held with the Mayor to find the needed support for the project. No details of any agreements between council members and the Mayor were mentioned in the interviews. However, one of the participants noted:

> *The Mayor personally and in private handled each council member and municipal collaborators who were against the BRT (HD).*

Planner 1, head of the planning team, used more technical arguments to talk the members of the council into the system. He brought his ***knowledge*** as a form of power to the discussion showing the benefits of the system and the importance of introducing it to the city.

The process of implementation required the devolution of transport to the city. As mentioned earlier, transport responsibilities were managed by the Central Government. The proper implementation of the plan developed by the TSU required a change in the previous transport law. The Mayor, with the support of his party at the National Congress, had invigorated the declaration of Quito as DMQ. The establishment of the DMQ was the beginning of a series of devolution efforts of responsibilities from the Central Government to the city. As part of the Metropolitan District Law; the city was getting the devolution of transport.

> *It was through the Metropolitan District Law that we brought the competencies from the Central Government. With two articles in the new law, we managed to absorb the capacities to norm and rule everything related to public and private transport in the jurisdiction of the city. (HP)*

The DMQ Law was presented in late 1990 by the Mayor to the National Congress. In its first draft, the law was very different from its final version. For example, the document proposed the need for a new province capital; it suggested three new parishes in the rural parts of the city, creating a special regime exclusively for the urban area of the city (Chauvin, 2006). The Prefecto (head of province) reacted strongly to this proposal because the suggested changes were reducing the population of the province drastically, a major criteria for the distribution of resources.

Discussions lasted over two years. The final version was approved by the Congress after the head of the party, with a majority in Congress, formally asked their members to support the new law. In the final text of the law, no changes were made to the boundaries of the city or province, but the administrative jurisdiction of the city was changed. The geographic governance unit of the city was increased, as all the surrounding councils became part of the newly implemented DMQ.

The participants interviewed for this research were not aware of all negotiations made in Congress for the approval of the law, however, what was learned from the interviews and documents researched was that the law had support from the Central Government, as it was part of a bigger national agenda of decentralisation (Vallejo, 2009).

The DMQ Law was the first attempt at decentralisation in the country for devolution; the original document received an important backlash that needed many changes. The Mayor and Congress members from his party exercised power over the Congress by giving the ***direction*** about what the terms of the law needed to be. Congressional members and the head of province reacted to the proposal; and exercised power in the form of ***argument*** by soliciting changes to support its approval. Finally, as mentioned before, the head of the ruling party gave ***direction*** to his party members to support the law. The alignment of the Mayor's political party and the majority party in power allowed the new law to be passed. As one of its most relevant aspects, it included the devolution of transport to the city.

The introduction of transport devolution in the new law caused reaction by the police, because in the original document all the responsibilities for planning, regulation, and coordination of public and private transport were given to the city, including control and financial resources

needed. However, the police did not accept the completed changes and demanded that they should keep control and the financial resources, as had always been the case.

> *The discussion of the law caused many debates, because the police didn't want to yield the competencies. An agreement was reached between the president of the Congress of the time and the Mayor so that the police could keep some of the revenues and control. That was a matter of negotiation. (M3)*

To get the consent of the police required the further exercise of power, this time by members of the Congress, particularly the head of the Congress. They included the devolution of transport in the law in a very subtle way. The entire legislation of the city only had one paragraph related to transport. The city and the Mayor got what they needed to implement their plan and the police held the financial resources. Not managing resources became a problem for the systems at a later stage. However, that was overcome by a subsequent change in the law outside of the scope of this study. What is important to mention is how the productivity of power is present; the exercise of power over the police led to actions by the police to keep control and resources. The police threatened to withdraw support to the city if the law was not changed. This resulted in new actions by the Congress to make the changes needed until the law was accepted in a favourable position for the implementation of the project.

With council approval and the DMQ Law, the city needed financial support to build it. The plan was presented to the Central Government, who had accompanied the project from the beginning, as they were part of the initial technical trip. The Central Government agreed to support the project. The Central Government financed the system with a credit from the International Development Agency from Spain, FAB.

Once the financial support was approved, all the tendering documentation for building the infrastructure and buying the vehicles was prepared. However, the tenure of Mayor 1 was coming to an end. For the election, the candidate for the departing Mayor's party was a former congressman who had worked with Mayor 1 for the approval of the DMQ Law. The congressman won the Mayoral elections and continued the process of the transport plan; it was 1992. The presidential election was also held, and the President who had committed the financial support for the system left the administration. Mayor 1 left office, but everything remained ready for the next Mayor to implement the system.

Each of the events described in the above section have their own history of power and power relations. For example, understanding how the DMQ Law came to be in National Congress has many different actors and events that are not part of the narrative from the interviewed participants. However, regardless of the closed-door understandings and discussions, the importance of solving congestion in the centre of the city was never argued. Resources, responsibilities, technology, legal requirements, and other aspects were discussed during the building of support for the implementation of the system and all the discussions were concentrated on building support for the implementation of a very well-developed transport system that would ease congestion in the extended centre of the city.

The following section describes the implementation process and how the system was implemented in the areas of congestion, leaving more deprived areas out of the implementation of the system.

a) Implementation

In Figure 26, the events and actors during the implementation process are presented.

Mayor 2 took office, with a big commitment to the population for the construction and implementation of the first BRT Line. The line had been an important topic of discussion over the campaign. Mayor 2 felt that, although the population was supporting the idea of the line, there were important groups that needed ***persuasion*** to accept the project. The Mayor was aware of rising concerns from the transport operators and initial actions on their behalf started to be announced. As a consequence, the Mayor invited a marketing advisor to participate.

The purpose of having a marketing advisor was socialising the system at every level possible. The actions of the operators drove Mayor 2 to take actions to build social support. Mayor 2 wanted to gain backing from every influential group in the city. As part of this strategy, the staff of the former TSU, now UPGT, presented the plan in very colloquial language to make it comprehensible to the population. The UPGT professionals made weekly presentations to professional chambers, such as architects and engineers and also to students, as well as presentations on radio and TV. Creating support from a broad audience helped build the needed backing from the society to the systems, which later on became essential when the transport providers started to resist the implementation of the first line.

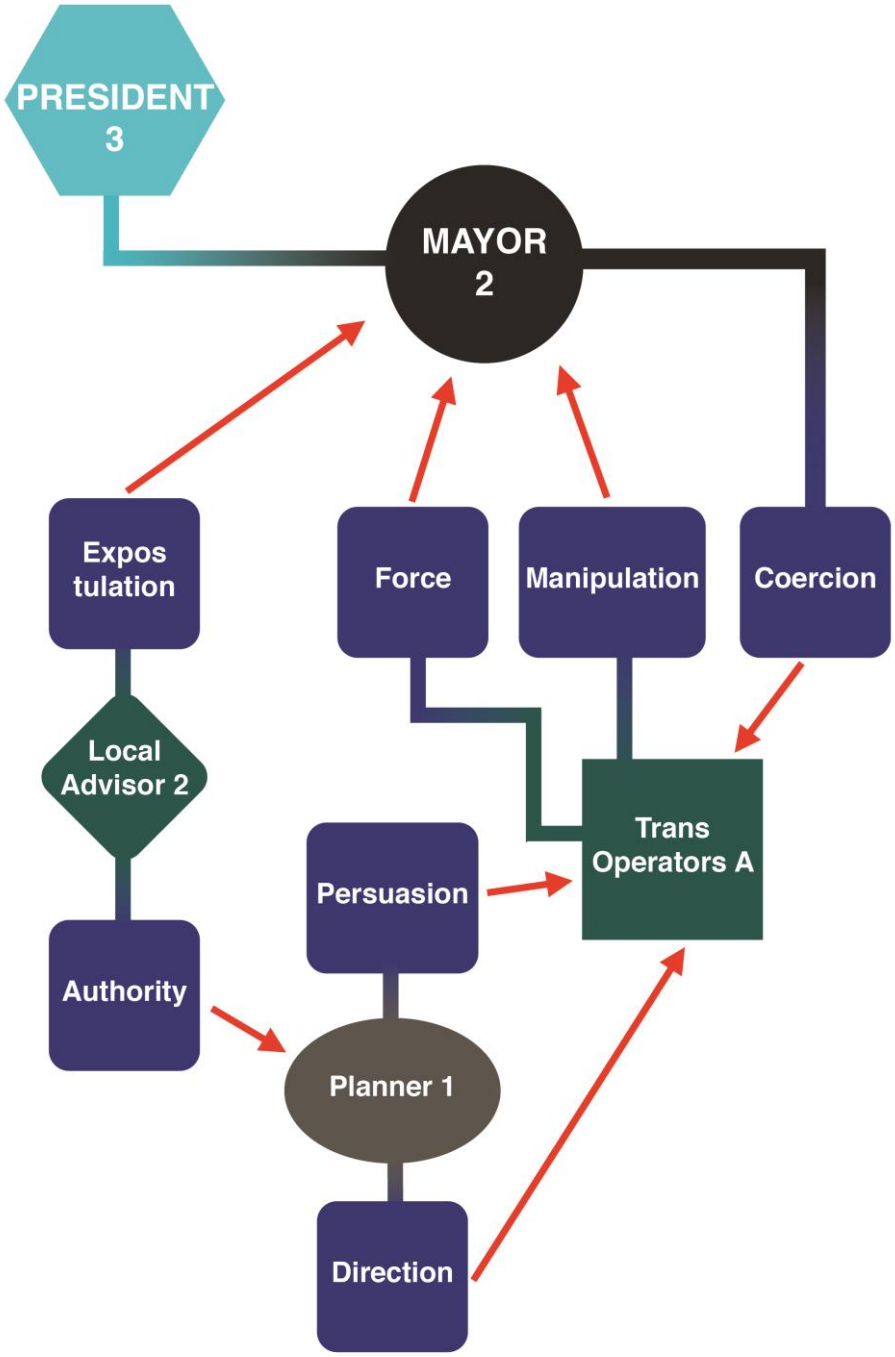


Figure 26 Actors and Mechanisms of Power Present During the Implementation Process of the BRT

The project needed a change in the way transport was managed in the city, and as such, it included a change in the traditional structure of transport operators. As mentioned in the case study in Chapter 3, Section 3.3.1, the previous operators had very limited managerial capabilities. The developers of the new scheme believed that it needed to be operated by a trustworthy and organised structure with experienced managers for this system, which was

the first in the country. They proposed three options: (1) a municipal owned company, which meant that all responsibility, financial and operational, was in the hands of the Municipality; (2) a mixed-economy company, where the Municipality partners with a private operator to run the system; and (3) a private company to operate the system (Arias, 1991b). Planner 1 described how they understood the new ownership and operation of the systems.

> *The systems had to be municipal regarding ownership, but the operation had to be done by a private company. I conducted a series of negotiations with the transport operators to encourage them to make a consortium that would associate with an international company with operational experience to run the system. That was the idea we had, that is how we designed the terms of reference for the operation bid. We could not ask the operators to make any investments, the new vehicles were expensive, and the infrastructure needed to be built. All the investment was in the hands of the Municipality, but the operation had to be in private hands. (CA)*

According to Planner 1, the ownership design of the system assumed that the individual operators could become a single entity that had to make a consortium with an international company, to operate a system that was going to be owned by the Municipality. Regardless of the three options proposed in the original plan, an international company was seen as the better choice to operate the system, but the local operators had a secondary position. The operators not only rejected the proposed ownership model, but also the whole system and they began to take action.

The National Federation of Urban Transport Operators declared that the Trolebus system was not a solution to the transport problem in the city of Quito, noting that the system would create a transport monopoly in the hands of the Municipality, displacing the operators. The transport operators tried to use all the legal resources available to them, such as soliciting the country's President and the National Comptroller to declare the system to be technically unviable as well as an appeal of unconstitutionality (Chauvin, 2006).

However, all the legal resources used by the transport operators did not stop the construction of the scheme.The Mayor used his position of ***authority*** to exercise power by continuing the construction of the system even before reaching an agreement with the operators. With some of the initial infrastructure ready, the building of the project became apparent because the first line was a reality. The operators called for a surprise protest strike action and services were stopped for a day. Recent constitutional changes had made possible the reelection of

Mayors in the city. Mayor 2, who had the intention of running for a second term, understood that a successful scheme meant his reelection. The position of the operators however, made Mayor 2 think about the possibility of not building the system.

> *At a certain point, Mayor 2 asked, what happens if we do not build the trolleybus? This was a surprise for me. At that point the marketing advisor (Local Advisor 2) told Mayor 2 that the option of not building was out of the question, the project was completely sold to the people, the city wants the trolleybus. Politically this was a disaster.(HP)*

The Mayor had the results of a local poll that showed over 70% of support for the construction of the system (Chauvin, 2006). With strong political support, Mayor 2 could repel the defying position of the transport operators. In parallel, the finance minister of the new President began to question the agreement held between the Municipality and the previous government (Chauvin, 2006). The position of the finance minister received strong opposition from the local media who pressured the minister to maintain the previous agreements. Mayor 2 made public announcements noting that the operators were putting their private interests against the well-being of the city. This idea was replicated by the media and the population supported it. The support built by the marketing campaign started to bring the expected results.

Several mechanisms of power were present since the change of mayors. With the introduction of the marketing advisor (Local Advisor 2), ***authority*** was exercised over Planner 1 and his team. The team was instructed to change the vocabulary used to a more colloquial understanding, in order to make the systems easier to communicate to the public. A more familiar language brought the people closer to the system; this in turn helped to increase the ***knowledge*** about the benefits of the system. The media and opinion leaders also had an important role expressing the benefits this new system would bring to the city.

The population grew in confidence about the changes proposed that in turn created political support for the time when antagonistic voices began to appear. During the negotiation between Planner 1 and the operators, Planner 1 exercised power by giving ***direction*** on how the system was going to be operated. The operators used all the available legal resources as a form of ***manipulation***. The resources used resulted in the Central Government questioning the previous agreement between the Municipality and the former government.

The government's position caused local media to pressure the government to maintain the agreement. Once all the legal resources were used by the operators, with no positive results from the operators perspective achieved, the operators used ***force***, by stopping services. This

force was directed at Mayor 2 as a form of preventing the system to be implemented. However, the Mayor resisted the power of the operators by not stopping the construction of the system.

The Mayor began to question the risk of continuing the construction of the project. After the question of Mayor 2 to understand what would the effects be for not implementing the system, local Advisor 2 exercised power over Mayor 2 in the form of ***expostulation*** to assure Mayor 2 that the best political option was to continue with the construction of the scheme. Finally, it was clear that the idea of the system was embedded with the media and the population, who became strong supporters of the project.

The final months of implementation were driven by intense negotiations with the operators and a rapid construction of the system. The Mayor wanted the operators to be on board and the system to be ready before the elections. In December 1995, pilot testing began, and a small section of the system was opened to the public. The expected system was very welcomed by the public, and the entire operation awaited completion for March 1996.

The Municipality ended up owning and operating the system because no national or international agency was invited to be involved in the operation. The actions taken by the local operators dissuaded the Mayor to tender the services, and decided to keep the operations to the Municipality. A few days before the official opening, the Buserato, as explained in Section 3.3.2 happened. The operators besieged the city with their buses for three days. The negotiations had failed between the Municipality and the operators. The homeland security ministry had to intervene; police and military forces were used to remove the buses from the streets. The Central Government negotiated with the operators, and a buyout of the old buses was agreed. The system started operation in March of 1996.

Planner 1 exercised power over the transport operators in the form of ***persuasion***. The planner failed in his objective to enrol the operators in the plan, and drove the operators to a final action. ***Force*** was used by the operators to exercise power. The siege of the city was a clear act of violence against it. This final action did not change the way the system was implemented; instead it led to a negotiation with the Central Government that agreed on a financial payment for the elimination of the buses. The action of the operators did not make a difference in the design of the first line of the systems. However, the subsequent BRT lines brought a different ownership model that involved the local operators with a more inclusive approach.

The successful implementation of the BRT meant that Mayor 2 won re-election in 1996. The planning team, that started the TSU and later became the UPGT, was maintained with little

change. The responsibilities of the team had grown from planning and design to operating the system. Additional transport policies were introduced, such as the mandatory annual test of vehicle safety, roadworthiness aspects, and exhaust emissions; regulation of buses changed in relation to the number of operational years, as well as the technical and physical characteristics required. By 1998, two years after his re-election, general elections were held. Mayor 2 stepped down as Mayor and ran for the presidency. The Vice-Mayor became the new Mayor (Mayor 3) by succession of the city for the following two years. The popularity of Mayor 2 built during his time as Mayor of the city helped him win the general election and become the president of the country.

Economic downturns at the national level meant that completion of the transport system was slowed down. However, an extension of the first BRT line to the south end of the city was finished. The introduction of the first BRT line translated into benefits for the population where the line had been implemented. An extension of the first line had little power interplay as the idea of the BRT was accepted by the community. Given the financial situation of the country, the additional lines were not implemented immediately after the first line.

The popularity of the governing party at the national level and local level deteriorated because of unpopular economic decisions that were taken at the national level. At the national level, in January 2000, after weeks of political unrest, the president, former Mayor 2, was ousted by a Junta. Mayor 3 understood that the possibility of winning the following mayoral election were low. Financial credit for the extension of the first BRT line was ready. However, he wanted to make sure the transport plan continued in the city. Mayor 3 decided not to build the extension of the first BRT line and forced the construction of the second line.

> *Mayor 2 was no longer the successful Mayor, but the ousted president and responsible for the economic crisis… We proposed ourselves to build the infrastructure of the second line, to make sure whoever came next would not back down on the system, so we built the infrastructure. The whole line was completed, but the terminal needed to be finished. Our idea was: we have to stick this to them. Otherwise, they are not going to do it. Politicians are horrible! (HP)*

The BRT line became an accepted idea in the minds of Quito's residents. The construction of new lines became an easier task for the planning team. The exercise of power was present in other fields during the implementation of the second line. The political environment exercised power over Mayor 3. This was felt by the decision of not implementing the north extension of

the first BRT line and the fast implementation of Line 2. Mayor 3 exercised power over the next Mayor by ***manipulating*** the action to take regarding the transport system. Mayor 4 won the next election and had to face the newly implemented infrastructure, but with no vehicles to run and no operational model.

Mayor 4 in the year 2000, won the election in a time of high political unrest; people had constantly been on the streets against every national policy they believed was unfair. Although the second line was ready, no agreement with the transport operators was reached. Mayor 4 changed the planning team that had been designing, planning, and running the transport systems in the city since the formation of the TSU in 1991. The new government wanted to keep plans started by the TSU, but with a different approach toward the treatment of the operators.

> *For the second line, we designed a different model in which the Municipality bought the vehicle; as a matter of fact, we bought the articulated buses. The management model that we developed was to facilitate the new vehicles to the private operators; whom, through a trust, accumulated the revenues of the service and paid back the Municipality, who then paid the debt. Conceptually I believe the financial structure of the project was flawless. However, the operators maintained that the project was unfinanced. (TP4)*

Power again had a role in the new approach proposed by the new administrator of the city. The new Mayor changed the planning team that had successfully implemented the first BRT line in the city. The reaction of the transport operators during the introduction of the first BRT line was still fresh in the minds of the politicians and of the planners; they wanted to avoid all confrontation with the operators. The infrastructure of the second line was ready when Mayor 4 came into office. However, it did not come into operation until 2002. At this point, the effect of the power exercised by the transport operators in the introduction of the first BRT line can be seen.

Operations did not start until an agreement was reached with the operators. Planners and politicians were more open to negotiate with the operators; they understood that the operators did not have the needed resources. They also understood that bringing in an international company or giving the operation to the Municipality was not going to be accepted by the operators. On the other hand, the introduction of the first BRT line changed the operators as they agreed to form a consortium of companies that had historically run the

corridors where the second BRT was implemented. The negotiations were not easy; however, an agreement was reached and the line began operations.

The implementation of the system received strong resistance from the transport operators. The local government used the media, the support of the population, its authority, and other resources to exercise power over the operators and ***force*** them into accepting the system as it was designed. The design of the first line did not undergo any alterations due to the resistance exercised by the transport operators. However, the following lines changed the ownership model in order to include the transport operators and avoid the problems the first line encountered. The system was suported by the Central Government with the legal framework approved by it. The system was designed and approved by highly technical professionals to solve the congestion problems in the extended city centre and was implemented without the presence of the more deprived segements of the population.

Under this scenario of power relations, the BRT system in Quito was shaped and implemented. The original plan designed by the TSU has been frequently updated, and the implementation has taken longer than originally planned. Until this day, not all the lines originally designed have been implemented, particularly the east and west corridors. However, the conceptual framework has been maintained and applied, and the successive lines have been implemented prioritising the lines over the system, see Figure 22 and Figure 23. Different mayors have put more emphasis on implementing the corridors in the central areas of the city than on the complementary measures that could have created more access to more deprived areas of the city.

The systems today have five lines divided into three main corridor lines (see Figure 22), which run parallel to each other, with the Trolebus (first line) in the centre, one line to the east and the other to the west. The three lines are fed in by a feeder system of buses that give greater accessibility to the system. The larger number of feeder services increased accessibility to the system, nevertheless this has caused problems to the main corridors. With an increasing number of feeder buses, the main lines have reached saturation levels, creating discomfort for users who are travelling in overcrowded buses.

Additionally, there are still significant problems to solve with the conventional services. The policies implemented forced the transport providers to change the buses used in the city; these buses are tested two times per year for operational conditions. However, management of the operations has not changed. Drivers are still paid based on a production basis, meaning that they receive a percentage of the daily fares. Competition between drivers is still part of

the daily routine, putting transport and road users in danger. Both feeder and conventional services operate on regular streets with no priority. As mentioned in Chapter 4, car ownership levels increase by 10% annually, leaving conventional bus services fighting for reduced roadspace with private vehicles, thus deteriorating the quality of the transport system.

The Municipality has responded to the problems of overcrowding by implementing more services and increasing speed. In 2016, the government introduced larger bi-articulated buses for the central (first) line of the system. Additionally, the first subway line started construction in 2015 and is expected to be finished by 2019. The subway line will run from north to south covering 23 km of the city and parallel to the BRT Lines.

6.3.3. Question 3. Is the Development of the Implementation of the BRT Desirable?

The answer to this question depends on the stance of the beholder. From within the system design, yes. For users of the most important economic areas, yes. For car drivers, also yes. For those outside the system, no. The parts of the city where congestion is not a problem are also the parts of the city where the more deprived population lives; these are also the areas with fewer employment, education, health, and leisure opportunities. The implementation of the BRT dramatically improved the transport conditions of a system that had not changed in the city for over 50 years (Vásconez, 1997). With better transport conditions in the city, all interviewed actors agreed that the introduction of the BRT, along with additional policies, favourably changed the transport reality of the city.

> *I believe that if BRT were not invented before here, we would have invented it, because of the problem we have on the Av. 10 de Agosto… I can't even think of what the city could be without the BRT. If it were not invented elsewhere, in Quito, it would have been. I don't believe that another alternative could have been possible. (CT)*

The changes were important and brought the expectation that the transport condition in the whole city would change. The expectation of an upgraded transport system gave additional support for the introduction of new lines. However, there are still areas of the city where the transport conditions have not improved, even after five BRT corridors have been implemented. The needs and interests of the areas where the systems were not implemented were not even identified in the narratives. The head of the planning team discredits any attempt of talking to the communities.

> *In the social issues, there were many trends supporting the whole issue of citizen participation. I was not a supporter of that because participation only gives space to groups with political interests and normally do not contribute to anything. (HD)*

As shown in Section 5.1.1 and its subsections, the whole process was full of actors from different institutions and different levels, participating throughout the construction of the system; however, it left social voices out of the process and ended up with a system that did not consider those voices. As mentioned above, leaving certain voices out is an explicit exercise of power. There were no communities represented during the planning process of the BRT, however, some did benefit from the solution because of where they lived and how they travelled.

The BRT corridors have limitations due to the level of segregation needed and the size of the buses, meaning that only in certain areas of the city the service is possible. However, the system created the opportunity to increase access to more neighbourhoods in the city by creating other services, such as more feeder routes. There was no mention in the interviews about the possibility of other non-transport solutions to the areas where the BRT was not suitable.

The improvements brought to the city by the new policies implemented, including the BRT system, are hardly contestable. However, as mentioned above, there are important segments of the population that were left out of the planning process and live now without the benefits of the system. The groups left out also belong to the segments of society where other needs besides transport are not satisfied. The same people with less economic capacity, less access to education, less access to appropriate housing, less access to water and sewage systems, and most likely to live in overcrowded conditions are also those with less access to public transport. For anyone left out of the opportunities the city offers, this is not a model of desirable development.

6.3.4. Question 4. What, if Anything, Should be Done to Improve the Current Reality?

To improve the current reality, more knowledge about transport needs of the most deprived areas in the city is needed. To learn from the deprived communities, a wider set of participants is needed, not only in quantitative but also in qualitative terms. Participants with the opportunity to exercise power are necessary, as well as participants who can enhance the quality of the systems by bringing knowledge from the groups that are not currently

participating in the benefits of the system. Leaving out these groups creates the risk of maintaining focus on efforts to solve the problems caused by congestion and ignores areas with poor access outside the scope of the systems. Efforts are still being put into solving the performance of the existing systems, which are not always the same problems the wider population have.

The participants agreed that, in order to improve the current reality, more transport is needed. They understand the main problems with the existing system are increasing congestion and overcrowding of buses. Therefore, from their perspective, capacity increase is required in the system. The planners interviewed supported the idea of upgrading the system in some form, by using bigger double-bendy buses in addition to the heavy rail system being developed at the moment.

At first, this seems to be a reasonable proposal. A bigger system with more capacity can create more services; more feeder services can be brought to the neighbourhoods that are left out of the system. However, simply creating more capacity will not solve the problems in the areas with higher values of transport deprivation. The legacy of the TSU is not felt only in the operating system, but also in the way transport is done in the city. New proposals are based on the results of traditional transport planning approaches. As the literature review showed, traditional transport approaches face different technical and political criticisms.

6.3.4.1. Question 4a. How do Existing Power Relations Shape the Outcome of the System?

Eliminating the existing planning process would not guarantee better outcomes for the city. However, maintaining the same set of actors in the planning process creates little expectation about getting different results. The planning knowledge that comes from over 20 years of planning and implementing BRT systems in the city is invaluable. Planners, operators, and politicians, as well as local and international consultants had the opportunity to exercise power, and their expectations and needs are continuously shaping the planning processes for the future systems.

In the other way, Vasconcellos (2014) points out the absence of *accountability* in planning processes. He defines accountability as *"the right to participate in policy decisions and evaluate the results"* and critizes the "superiority" of experts in planning and decision-making processes, undervaluing the knowledge of society as a whole and social groups (Vasconcellos, 2014).

In this stream, future planning processes can be enriched by bringing new participants with different perspectives and knowledge and new people with the opportunity to exercise power. As noted above, the productivity of power is probably the most important characteristic of the modern exercise of power.This productivity is felt most when actors from different positions interact, and a variety of knowledge is brought to the planning arena. The biggest beneficiaries of the introduction of the transport system were the actors that had the opportunity to exercise power.

The dynamic exercise of power felt at the beginning of the process, where many actors intervened, came to a halt the moment the first line was implemented and successfully accepted by the population. The system was the result of a series of disagreements and confusions that were settled by the continuous exercise of power. A non-declared agreement was reached between planners, politicians, and the community that more BRT lines and feeder buses are the solution for the transport problems in the city. For example, one of the interviewed participants (TP3) who managed the system for many years noted that unserved communities regularly came to him to ask for feeder services to connect to the BRT lines.

Additionally, the planning leaves out other agencies —such as urban planning— that are essential to integrate into the planning process in order to have more efficient transport systems in a city (Newman and Kenworthy, 1996). The existing power relations shape the systems by integrating certain groups and neglecting others into the process. BRT is seen to be a success, the questions seem to centre around how to ensure its continuance, which crowds out other, perhaps less visible or harder to tackle problems around exclusion. In other words, any level of accountability was mentioned or applied in the planning process.

6.3.4.2. Question 4b. How can These Relations be Challenged?

The results of the IPTD calculated in Section 6.2.3. have problems. They represent a static picture of the provision of public transport with data from 2011. The index does not state if the people that have access to transport can afford it, whether it takes the population where they need to go, if schedules are useful, how environmental conditions affect access to the system, or anything about the quality, safety, and comfort of the system. However, it gives an idea about the areas of the city where immediate action is needed.

Transport planners need to leave their planning desks and visit deprived communities to understand how transport can help with everyday lives in those communities and develop strategies for them. If proposals take into account the knowledge transport planners have, the help of other professionals from other policy areas, and most importantly the input of the

communities, current power relations can be challenged, and —most importantly— more inclusive solutions could perhaps be developed.

6.4. Summary

A transport system aimed at facilitating the transport conditions of highly mobile, economically active people into the most congested areas of the city was designed. On the other hand, the designed system left out the segments of the population that, for one reason or another, do not participate in the activities concentrated in the extended centre of the city. The actors and events related to each other in the first three levels of analysis, together with the mechanisms of power identified in the fourth level of analysis, helped shape an unbalanced system. The disparity of the system is presented in the fifth level of analysis, in which Figure 17 shows the areas of the city that receive benefits from BRT in Quito and the areas that are transport deprived. The areas that are served best by the transport system are the areas where more jobs and industries are concentrated, while the areas that are left out of the BRT are not only the areas with higher concentration of inhabitants, but are also areas where the most deprived live.

Congestion in the extended centre of the city was identified as the main problem to solve. Therefore, the legal infrastructure and technical institutions were established to implement the strategies found to best address the problem of congestion. Most of the actors that had the opportunity to participate in the decision-making process benefited from the introduction of the BRT. Most of the benefits were felt as political wins, because the political actors got re-elected and the planners built on the success of the system to advance their careers.

Transport providers were left out of the benefits of the first line of the system which they resisted. However, they were invited to participate in the following lines. The deprived population that does not or cannot participate in the activities in the extended centre of the city, was left out of the planning process; these communities were not invited to have any representation during the planning of the system. All the networks that had the opportunity to exercise power during the planning process of the BRT reinforced the idea that congestion in the extended centre of the city needed solving; the need to address different problems was never a feature of planning practice.

A complex network of actors and relations of power was found to influence the adoption of the system. The complex network was created by a series of mechanisms of power that come into play when decisions are made, ideas proposed, and proposals dismissed. The mechanisms of power found were the same found in the literature: elements of coercion, manipulation,

intimidation, persuasion, and authority. Authority, in the form of knowledge, was present particularly at the beginning of the planning process, while persuasion, manipulation, intimidation, and coercion were used during the implementation of the designed BRT. A dynamic exercise of power was felt at the beginning of the process that was also the most productive moment of the planning process. As the ideas got accepted, less exercise of power was present and the implementation of the lines had a smoother process. The system comes to be important as an artefact and a focus of planning attention. However, actors from the most deprived segments of the population did not have the opportunity to influence the final outcome of the system. The lack of these actors in the planning process led to a bounded and unbalanced system.

An unbalanced system is not desirable for the city, particularly if the actors that are left out of participation for the systems are the most deprived segments of the population. Understanding the reality of the most deprived population needs to be brought into the planning process in Quito. Widening the set of actors, not only in quantitative terms but also in qualitative terms, will create the opportunity for a more productive exercise of power. More actors with knowledge about the reality of the most deprived communities need an opportunity to exercise power, and to be part of the decision-making processes so as to create wider benefits for all. Planners, politicians, and consultants can then design a system that suits a wider set of actors, local communities can learn about the limitations that transport projects have, and all the actors can focus their energy on finding other policy areas that would help the local needs, such as education, jobs, health, etc.

7. Cambridge – Answering the Research Questions

7.1. Introduction

Discussion over road congestion on the A14 and the desire to improve public transport alternatives had been underway for some years in Cambridgeshire. As noted in Chapter 3, in 2001, the Central Government developed the CHUMMS, to analyse a multi-modal way of addressing the existing congestion on the corridor; one of its recommendations was the provision of a guided bus system over the disused St. Ives to Cambridge railway corridor. Cambridgeshire County Council was invited to carry out an appraisal of the guided bus scheme and bid for funding as part of the Council's Local Transport Plan.

The scheme opened for operations in 2011 and followed the original design ideas developed in the CHUMMS. Opening was delayed a few years, mainly due to problems with the construction. A close look shows that the systems did not simply follow the recommendations made by the Central Government, but had the influence of a complex network of actors exercising power. In this chapter, an analysis of power affecting the scheme is developed in order to understand how power was exercised for the development of the guided busway.

A constant exercise of power from different actors was necessary for the system to be implemented the way it was. Some of the actors supported the implementation of the systems while others resisted its implementation. This constant interaction of actors supporting and resisting, gave shape to the outcome of the Guided Busway. However, and most importantly, some potential actors were also left out of the discussions; this chapter shows that keeping those groups out was also the result of power and leaving them out contributed to the final unbalanced design of the system.

The same methodology applied to the case study of Quito was applied to the analysis of the Cambridgeshire Guided Busway or the Busway. Answers to the research questions for Cambridgeshire provides an opportunity to learn how power was exercised during the planning of the Busway scheme, what voices were heard, and what voices were left out of the planning process.

An accessibility analysis shows the beneficiaries of the introduction of the system and helps in understanding how those left out of the planning process were also those that are not benefiting from the introduction of the system. The chapter has been divided in two subject areas, the first one presents the different levels of analysis and the second area answers the research questions.

7.2. Levels of Analysis

7.2.1. Level 1 – Linear Analysis

The Busway is the result of a series of policy interventions in the UK that gave shape to the system in Cambridge. Before going into the specificities behind the Cambridge system, an analysis of policy development in the UK before the adoption of the Busway is presented. First, a timeline is displayed with key moments of the transport policy process in the UK to begin understanding the exercise of power behind the adoption of the system.

The adoption of a policy results from the exercise of power, an act of ***force*** whereby certain ideas are imposed on others. For example, the Beeching report led to a massive closure of railway lines in the UK; the "good" or profitable lines were encouraged over the "poor" lines, even if they still provided a useful service to the community (White, 1963).

As mentioned in the introduction, understanding the way power is exercised during the implementation of the Busway can show which groups were absent or non-existent during the planning process of the system, and if that absence is translated into benefiting or not from the implementation of the system. It can help reassess the existing power relations and suggest new forms of relations to obtain different results. The evolution of policies can help understand how certain ideas, plans, and policies get implemented and who benefits with the introduction of those policies. A timeline was created (see Figure 27), which begins with the establishment of the Railway Conversion League in 1955 and ends with the implementation of the Cambridgeshire Busway in 2011.

The development of transport policy in the past few decades in England has been a process of continuous change. The development of policies was introduced —not only with the change of political party in power or with the official in charge of the government— through a series of internal and external forces. For example, the Transport Policy Program, a Labour government initiative during the 1970s, was designed to promote comprehensive transport plans that balanced between capital expenditure and the distribution of grants, which reflected the needs of individual areas. It was slowly dismantled by the Conservative administrations in favour of a more market approach of transport planning, which led to the withdrawal of funding for fare subsidies and parking provision. Grants were made available only for national roads while bus and rail services were privatised (May, 2013). Later, a change within the Conservative government, from the leadership of Margaret Thatcher to John Major, also gave rise to further modification of transport policies.

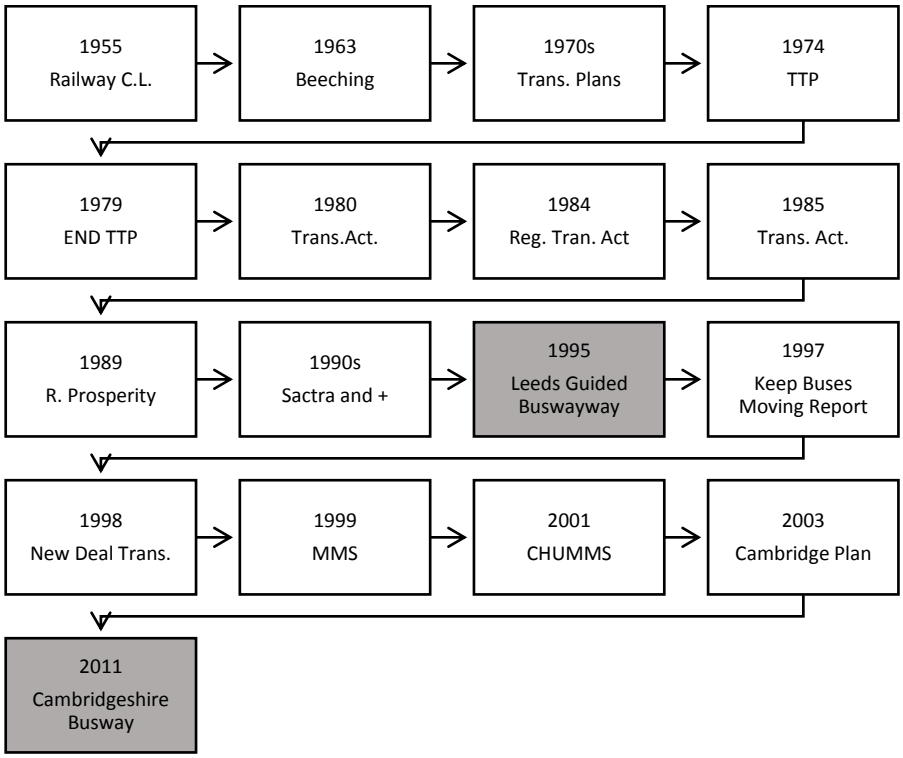


Figure 27 Relevant Transport Policies and Programs England

The 1960s are well remembered in UK transport history for the publication of the report "Reshaping of British Railways" (British-Railways-Board, 1963) also known as the Beeching Report (Patmore, 1965). However, even before the Beeching Report, many rail lines had already been closed. In 1955, The Railway Conversion League —a group interested in promoting the use of the old railway tracks— promoted the conversion of lines into facilities to be used by pneumatic vehicles (Lloyd, 1955). This discussion was maintained for several decades. The Beeching Report outlined plans to eliminate more than 5,000 miles of track and more than 200 stations (British-Railways-Board, 1963). Amongst the many lines closed, the Cambridge-St. Ives railway line passenger service was affected. However, the line remained open for freight services until the mid-1990s.

During the 1970s, most cities in England completed land use transport studies and had a vision for their transport requirements for the next 20 years. Local government reform had introduced TPP in 1974 that led to the establishment of Metropolitan County Councils responsible for transport planning in cities (May, 2013). The Labour government set up a new system of supplementary transport grants to assist cities. The system promoted comprehensive transport plans, eliminated bias towards particular forms of expenditure (capital or revenue), and distributed grants in a way that reflected the needs of individual

areas. Higher-tier authorities bidding for grants had to submit transport objectives for a 10-15 year period, with a 5-year expenditure program, and post-expenditure, detailing progress meeting its objectives on an annual basis. The program encouraged local authorities to recognise factors such as the environment, land use, and social equality in access to transport (May, 2013).

However, from 1979 onwards, a revised set of ideas for transport were introduced by the new Conservative government that gradually dismantled the TPP. First, because of financial difficulties, the government rolled back and stopped funding both fares subsidies and parking provision. Second, during the Conservative years, several initiatives were implemented that led to the privatisation of bus services. The 1980 Transport Act deregulated express coach services and liberalised some aspects of bus operation. The 1984 London Regional Transport Act nationalised all buses in London and initiated a system of tendering for services. This was followed by the 1985 Transport Act that deregulated all services outside of London (Preston, 2005). In 1989, the Conservative government published its White Paper “Roads to Prosperity”, setting out a £17 billion trunk road expansion of 500 schemes (Marsden, 2005).

The transport policies forced on local governments during the first ten years of the Conservative government generated strong resistance from local authorities. The exercise of power in the first years of the Conservative government led to a series of actions by local governments and other agencies. The productivity of power is seen in the series of developments led by the resistance of local governments and other agencies. Those in charge of major conurbations realised there was no reason to keep spending money on more roads when there were more cost-effective solutions to their transport problems, like buses or rail (May, 2013). As a result, several initiatives took place in the 1990s.

During this decade, local and international initiatives were promoted in the UK, increasing the pressure on the Central Government for a more sustainable approach, other than road building. At the beginning of the decade, some transport authorities demanded that the government develop integrated transport strategies and address the need for higher flexibility with funding for all modes and management, as well as infrastructure. Additionally, the Department of Environment Transport and the Regions published a document entitled “Keeping Buses Moving” in which some policies to generate bus priority measures were recommended (DETR, 1997).

Additionally, SACTRA published a report, which noted that the construction of new roads could actually generate more traffic (Sactra, 1994). Surrounded by this context, the Conservative

government finally became convinced that a multi-modal approach for transport was needed. Although it started working on what became the Green Paper on Transport, it was never applied, because a national election took place in May 1997, with Labour winning, after which all parties started re-evaluating transport strategies.

In 1998, the White Paper "A New Deal for Transport" was published by the new Labour government (DETR, 1998). "A New Deal for Transport" gathered a consensus of ideas from policymakers, academics, and commentators that had been arguing for changes in transport policy (Docherty and Shaw, 2011). This consensus was built around a more multi-modal approach for transport and a general rejection of the idea of simply providing more road space for congestion problems. Labour also reviewed the "Roads for Prosperity" program, which resulted in an important reduction of the initial proposal. From this review in 1999, 22 multi-modal studies were developed by the Central Government. In 2002, the CHUMMS was presented to the Cambridgeshire County Council requesting them to build the proposed Guided Busway. In December 2005, the Cambridgeshire Guided Busway received government approval for funding and construction of the system.

The development of these governmental policies paved the way for the adoption of the Guided Busway; for example, the closure of railway lines liberated space that was later used for the Busway. The rejection of the "Roads for Prosperity" programs led to the development of multi-modal studies such as the CHUMMS that recommended the introduction of the Busway. Each policy moment has its history of power behind it, and each deserves its proper analysis to understand how each policy came to be and what ideas were left out of the conversations. The focus of this case study is on the development of the Guided Busway in Cambridge.

7.2.1.1. Cambridge Guided Busway Timeline

A deeper analysis of the process of implementing the Guided Busway is now presented to understand the role of power in the adoption of the system. A new timeline, see Figure 28, was created; this timeline focuses on the development of the concept of the Cambridge Guided Busway system. It begins in 1999 with the Central Government developing 22 multi-modal studies for key corridors in the country and finishes in 2011 with the opening of the Cambridge Busway.

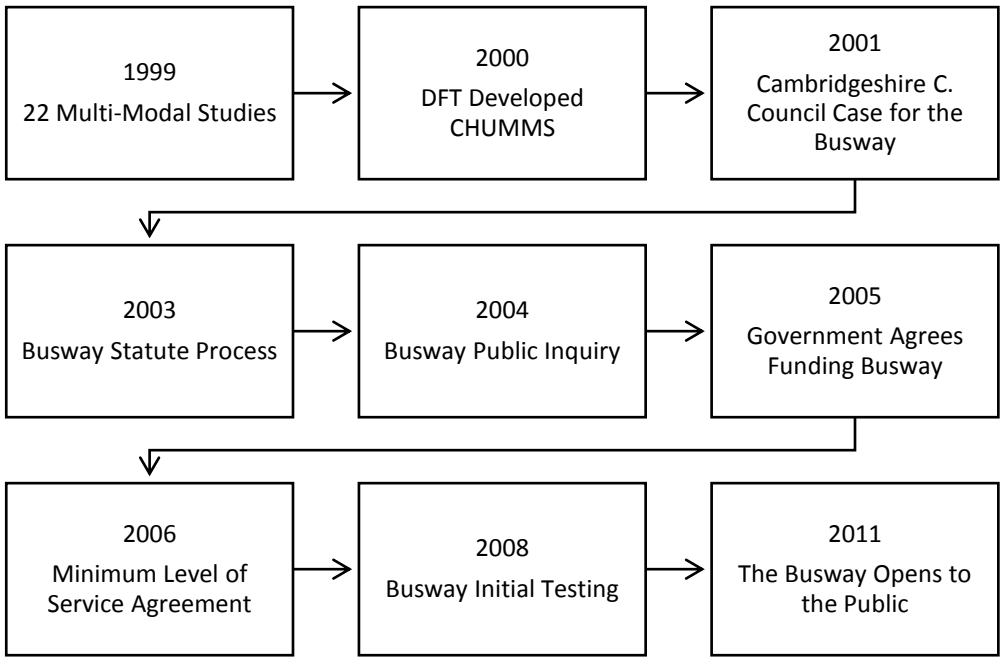


Figure 28 Cambridge Busway Timeline

As mentioned before, in 1999, the new Labour government commissioned 22 multi-modal studies; amongst them was the CHUMMS. The multi-modal studies were divided into three groups with CHUMMS in the first group to be developed. Between 2000 and 2001, a study was undertaken, and in 2001 the Central Government asked the Cambridgeshire County Council to build the case for the Busway. In 2003, the County Council started the statutory process; and as part of this process, a public inquiry was held during 2003. In 2005, the Central Government agreed to finance the Busway's construction.

In 2007, construction was initiated; by 2008, testing of the Busway began; and by 2011, with some delays from the building contractor, the system was officially opened. As mentioned in Section 3.4.3 legal action is underway against the contractor regarding defects in the design and construction of the Guided Busway. However, the design of the system had not been affected by this problem.

There were other events that happened parallel to the development of the Busway that also influenced its adoption in Cambridge. In 2001, a consortium of private developers and a local transport operator announced plans for SuperCam, which was to be a guided busway that would operate between St. Ives and Trumpington, using the old railway line that connected the two villages. A proposal was brought to the County Council that included not only plans for SuperCam but also the proposal for a new town in Northstowe, which included the construction of 10,000 new houses.

SuperCam was abandoned by the private consortium shortly after the publication of the CHUMMS (HDC, 2003). However, even though SuperCam was not implemented, it was the first attempt at introducing the guided busway concept in Cambridge. Northstowe was eventually given permission to be constructed, and some of the housing has now been built. Amongst other events that were important for the planning process of the systems, was the formation of Cast.Iron in 2003. Cast.Iron was a group of rail enthusiasts that strongly opposed the implementation of the Busway; the group started as soon as the Council began to build the case for the Busway and represented the strongest antagonistic voice against the system.

In the events mentioned above, the interplay among different actors generated networks of power that shaped the system, whilst at the same time other actors, who were not part of the planning process of the system, were left behind. To understand who participated and who was left out of the process, an analysis of actors was developed. All actors, both individual and institutional, were identified and mapped.

7.2.2. Level 2 – Relational

The individual actors and institutional actors that intervened during the planning process of the Busway were identified in the interviews. Individual actors and their roles and time frames are given below.

These actors, identified by the different participants interviewed, came together to form the network of actors that intervened during the planning of the Busway, see figure 29. Each had a different role and their actions shaped the way the system was developed. A look at the actors gives clues about those who were and those who were not part of the narrative of the Guided Busway. On one end there was a strong presence of central and local government officials. On the other hand, there were no representatives of bus users, deprived communities, or car users; thus they had no opportunity to speak about the system. The next level of analysis identifies the different relation existing between the different actors.

Actor	Time frame	Role
Head of Planning Team	2004-2012	Cambridgeshire County Council Director of Growth and Infrastructure, the person responsible for the planning process of the Busway in the Cambridgeshire County Council.
Leader of Public Transport in the County Council	1999-2013	County Councillor, as leader of public transport led the campaign to improve public transport in the County and helped plan the Guided Busway.
Deputy Prime Minister	1997-2007	Appointed after Labour's 1997 victory, he acted as Secretary of State for the Environment Transport and the Regions during the planning process of the Busway.
Head of Cast.Iron	2003-2008	Director of Cast.Iron, leader of the group responsible for organising the activities to promote reinstating the railway line.
Cast.Iron Member 1	2003-2008	Member of the organisation responsible for providing technical knowledge to the group; responsible for gathering data, then writing reviews and documents for the organisation.
Inspector of the Public Inquiry	2004-2005	The person responsible for writing a report about the inquiry of the Busway that was later used by the Secretary of State as part of the material to announce the final decision on the Guided Busway.
Stagecoach Manager	2004-2017	The manager of the Busway's main transport operator; responsible for signing Busway agreements with the County Council.
Project Developer	2004-2012	The member of the County Council responsible for the delivery of the Busway.
District Councillor	2004-2012	Member of the District Council who openly opposed the implementation of the Busway.

Table 1 Cambridge - Individual Actors

Institutional actors were also identified:

Actor	Role
National Railway	The government body responsible for regulating the rail network in the UK, responsible for giving access for the use of the unused railway line between Cambridge and St. Ives.
Cambridge City Council	Local Council for the city of Cambridge, responsible for land use planning in the city.
Cambridgeshire County Council	Responsible for transport and highways for the five counties (Cambridge, South Cambridgeshire, East Cambridgeshire, Felton, Huntingdonshire) that are part of Cambridgeshire.
Central Government	National Government of the UK, responsible for setting national objectives and priorities for transport and for granting permission and funding for the Busway.
Private Consultancy	Consultants responsible for the planning of the Busway.
Private developers	Housing developers in the service area of the Busway, responsible for the new town of Northstowe.
Steering Group	Group responsible for ensuring CHUMMS was carried out in a correct manner and that the conclusions reached were justified and could be recommended to the Regional Planning Body.
Commuters	People that use the A14 corridor to commute to Cambridge.
Cast.Iron	Independent group that came together to offer an alternative to the Busway.
Environmentalists	Group of actors that did not support the idea of the Busway because they believed it was a threat to a national wildlife reserve in the area of implementation.
Histon Residence Association	Housing association that came together to oppose the implementation of the Busway.
Transport Operators	The bus operators that run services on the Busway that also took part in the initial planning activities of the system.
Department of Transport	Government body, responsible for delivering the multi-modal studies amongst which was CHUMMS.
Concessionary	These are the users of the Busway that hold concessionary bus passes and travel for free on the bus network.
Media	TV, radio, and printed media involved in informing the public about the development of the Busway.

Table 2 Cambridge - Institutional Actors

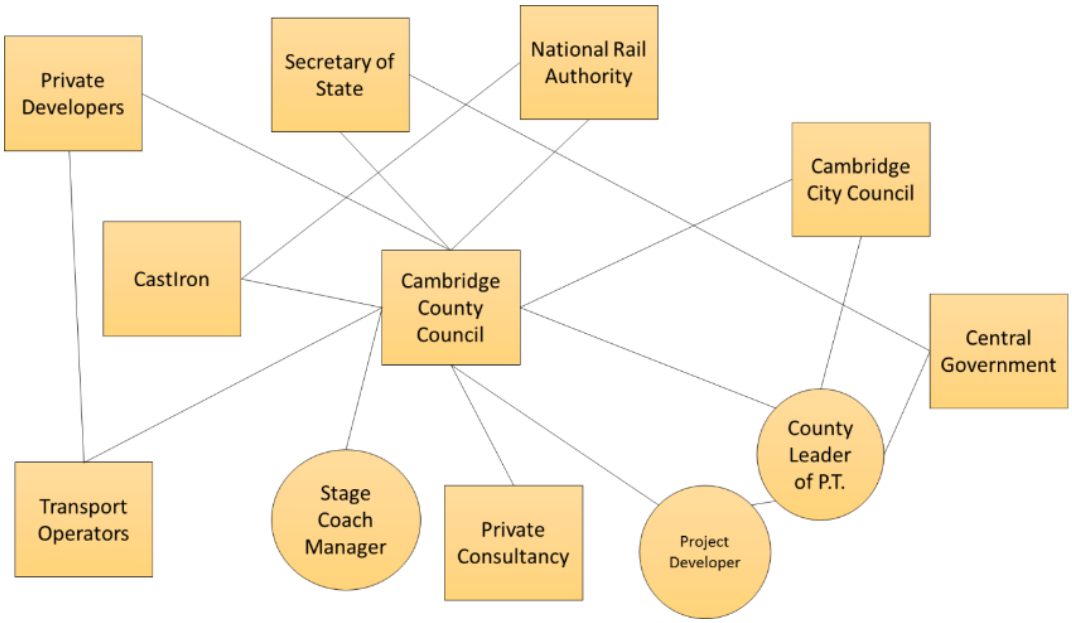


Figure 29 Actors and Relationships Formed during the Planning of the Cambridge Busway

7.2.3. Level 3 – Emotional

Once all the actors and events had been identified, an analysis of the actions taken by each one during those events was analysed. Not all the actors presented in the narratives and identified in Level 2 of the analysis were able to take action, so these actors are not mapped. For example, concessionary bus users were mentioned in the narrative process; but no actions were taken for or against them.

The reasons behind each action were identified in this level of analysis, focusing on what the interviewed participants understood from their perspective as the right thing to do, or alternatively if someone was doing something inappropriate. The actions that were taken gave clues to the 4th level of analysis and showed which mechanisms of power were present during the implementation of the Guided Busway and how the systems came to be.

7.2.4. Level 4 – Analytical

All the relationships found in Level 3 of the analysis were dissected under the power framework presented in Section 5.5.4. The mechanisms of power used in each action were identified and are presented in Figure 30.

Different forms of persuasion, knowledge, authority, and manipulation were found to be used during the planning process in Cambridge. The articulation of different mechanisms used in each of the relations is discussed in Section 7.3.2 below, in the research questions about power. The project was initially developed by the Central Government; it was passed to the Local County Council to set the case for its implementation. As a result, the County Council was the actor with more opportunities to exercise power and at the same time the actor on which power was exercised the most.

In Cambridge, there was a more active exercise of power by organised institutions rather than individual actors, for example the housing association, cycling advocates and Cast.Iron, the rail enthusiasts. Although the consultation process in Cambridge gave opportunity to all individual actors to raise their concerns about the system, the organized institutions were the actors with more productive exercise of power and thus responsible for promoting change in the design of the system. It is also worth noting that the consultation was about the effects of the system and so narrowly defined. As mentioned before in Section 2.3.4 in the Literature Review, participation is more likely to happen during planning development than during earlier stages of goal setting; and that strategies, settings, and participation were more oriented towards informing than consulting (Bickerstaff et al., 2002).

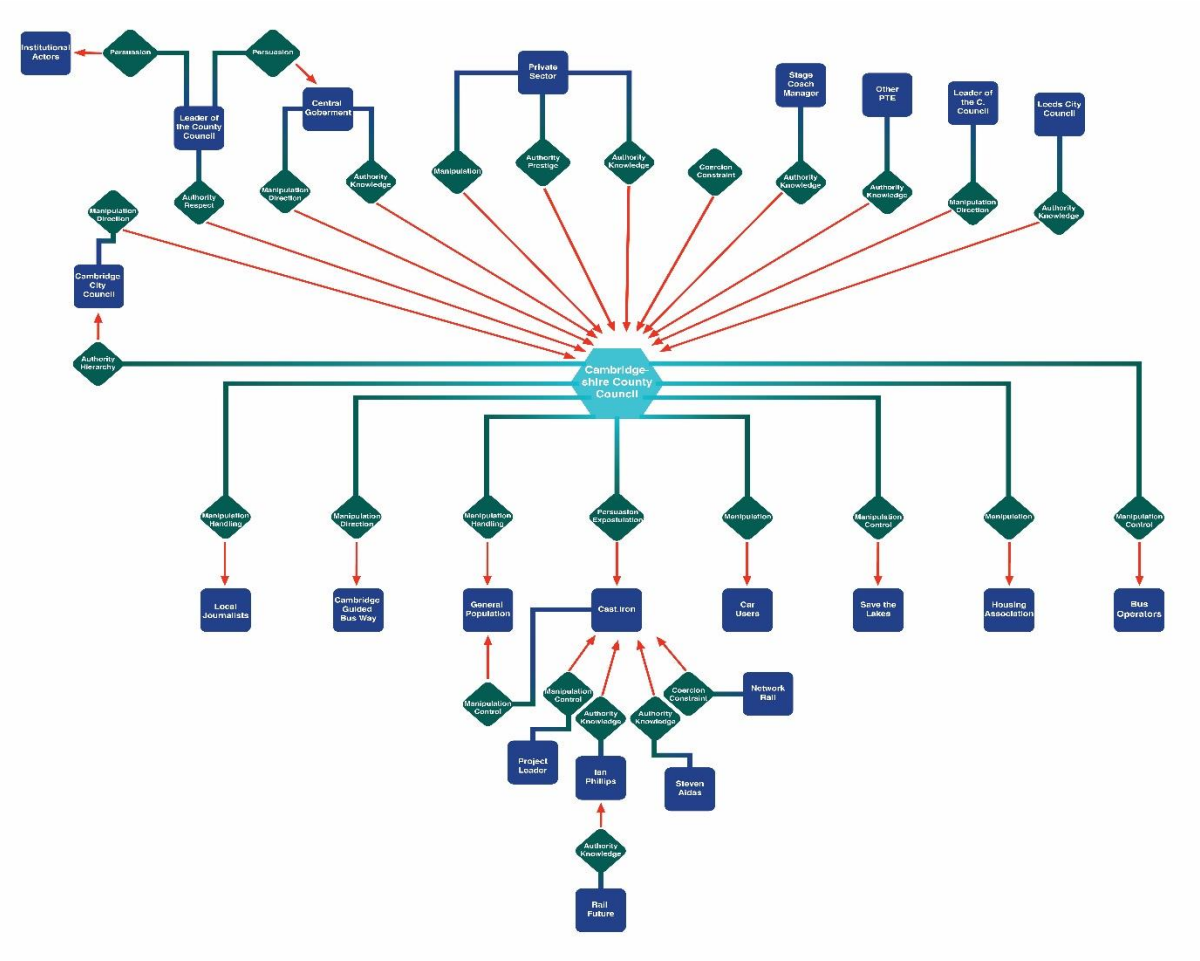


Figure 30 Actors and Mechanisms of Power during the Planning of the Cambridgeshire Busway

7.2.5. Level 5 – The Geographical Information Systems (GIS) level

The accessibility assessment developed by the system in Cambridgeshire was described in the methodology chapter, Section 5.5.5.2. A particularity of the assessment in Cambridgeshire is that, during the accessibility assessment of the Busway, consultation venues were included. As mentioned in section 7.2.1.1, as part of the statutory process, a consultation process was held. The consultations took place in several different venues; in these venues, all the participants had the opportunity to raise their concerns about the system. The mapping of those venues helped understand not only the accessibility levels of those areas, but also the levels of deprivation of the areas consulted.

In Figure 31, the geographical accessibility level for the Guided Busway is shown. There is higher accessibility provided as the system gets closer to Cambridge city; this was expected because more public transport options are concentrated in the heart of Cambridge. Outside of Cambridge, the Busway created high levels of accessibility in the area of the corridor. However, additional connecting bus services expanded the area accessible to the Guided Busway system. The additional services can be seen towards the east part of the County, serving the north-eastern areas of South Cambridgeshire where no Busway infrastructure was implemented.

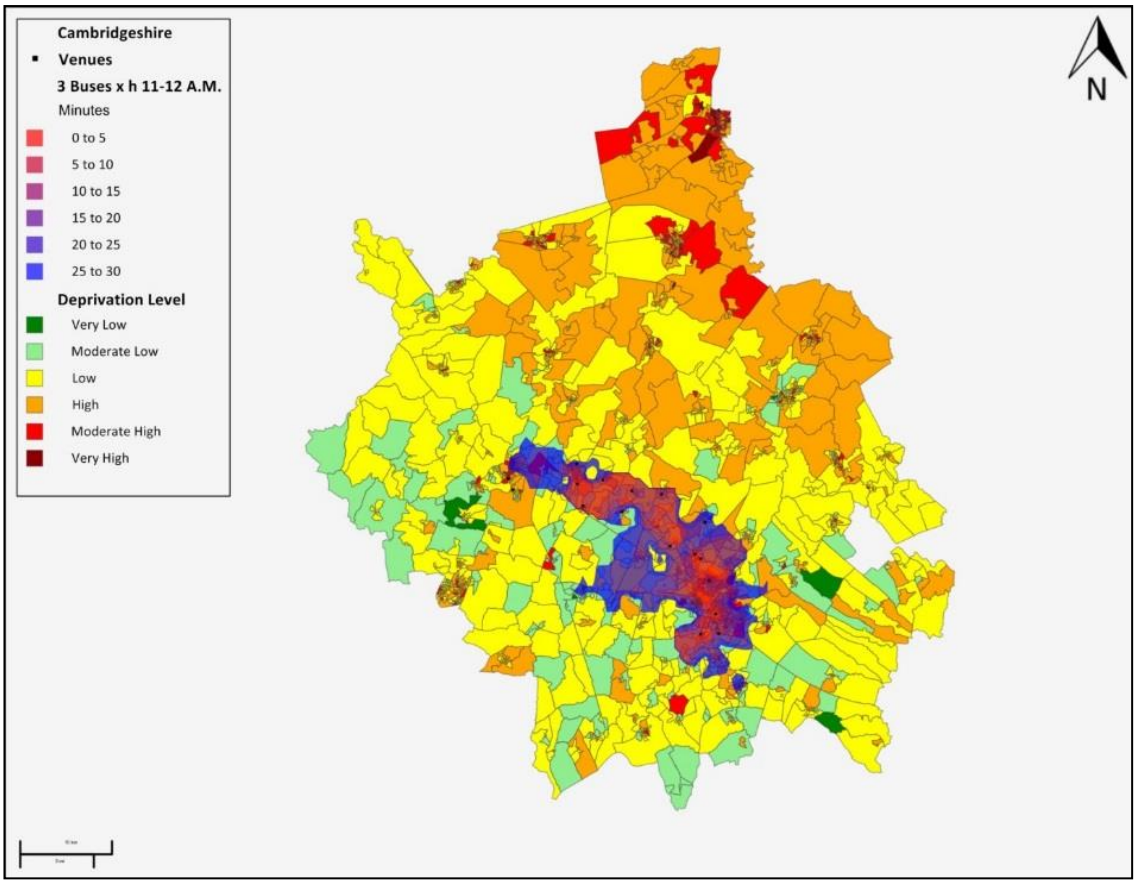


Figure 31 Level of Access to Guided Busway and Consultation Venues

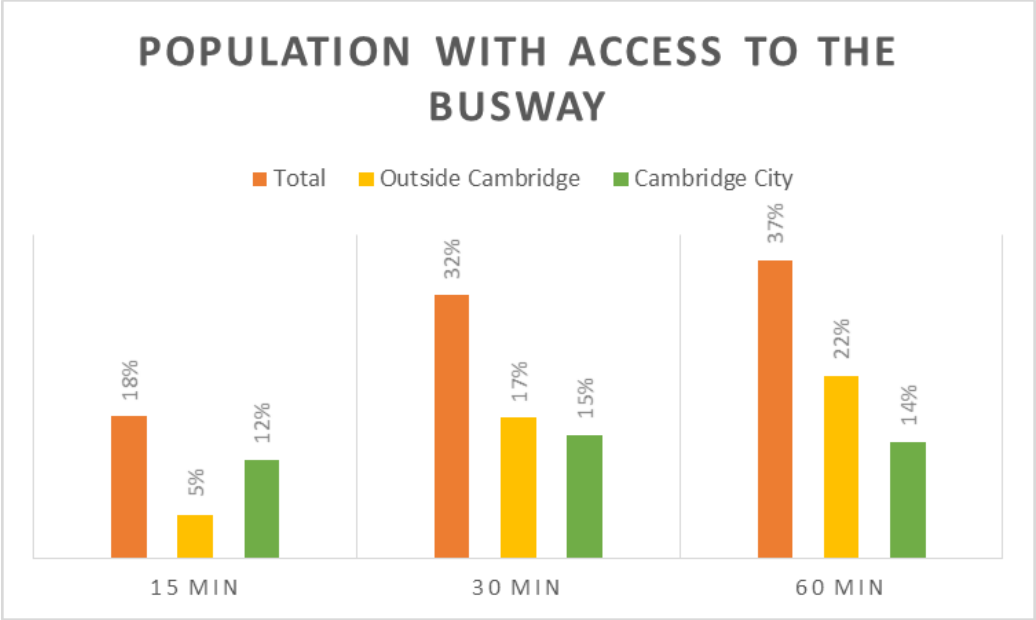


Figure 32 Percentage of Population with Accessibility to Busway by Public Transport

In Figure 32, three percentages for different accessibility time frames by public transport to the Busway are presented.

The figures in green represent the population with accessibility inside the Cambridge city boundaries; the figures in yellow represent the population outside Cambridge city; and orange represents the total for Cambridge city and outside Cambridge city. The system was designed to create an additional opportunity to commute into Cambridge, therefore it is important to understand how the increased accessibility is helping the people who live outside of Cambridge. As access time increases, so does the percentage of the population that is served by the system. Approximately 18% of the population in the County have access to the Busway within 15 minutes of public transport, 32% within 30 minutes, and 37% within 60 minutes. Outside Cambridge city boundaries, the percentage of the population served is 5%, 17%, and 22% respectively.

In Figure 33, the deprivation characteristics of the population with access using public transport to the Busway are displayed. The analysis shows little variation in terms of the numbers of people from either higher or lower deprivation levels across the different journey time thresholds. By contrast, the results show a clear distinction between the number of people with low levels of deprivation who have access (around 60%) and those with higher levels of deprivation (around 40%).

Figure 33 Accessibility to the Busway by Deprivation Level per Time Frame – Total

The new services created with the implementation of the Busway serve a lower percentage of the population with high levels of deprivation. This is demonstrated by the difference between the green and red bars in Figure 33, which represent the percentages of the population with low levels of deprivation and high levels of deprivation, respectively.

As mentioned in Chapter 3, the Busway was intended to create higher accessibility to Cambridge and to unlock opportunities to a larger share of people. The numbers in Figure 32 indicate that the Busway created opportunities of access for an important share of the population inside and outside the Cambridge city limits. It was also found, however, that the benefits of the systems are felt mostly by the disadvantaged groups, as approximately 70% of the population served by the Busway have lower levels of deprivation, while 30% are in the higher levels of deprivation group. The figures for the whole County are: 59% of the population have low deprivation levels and 41% have higher levels of deprivation.

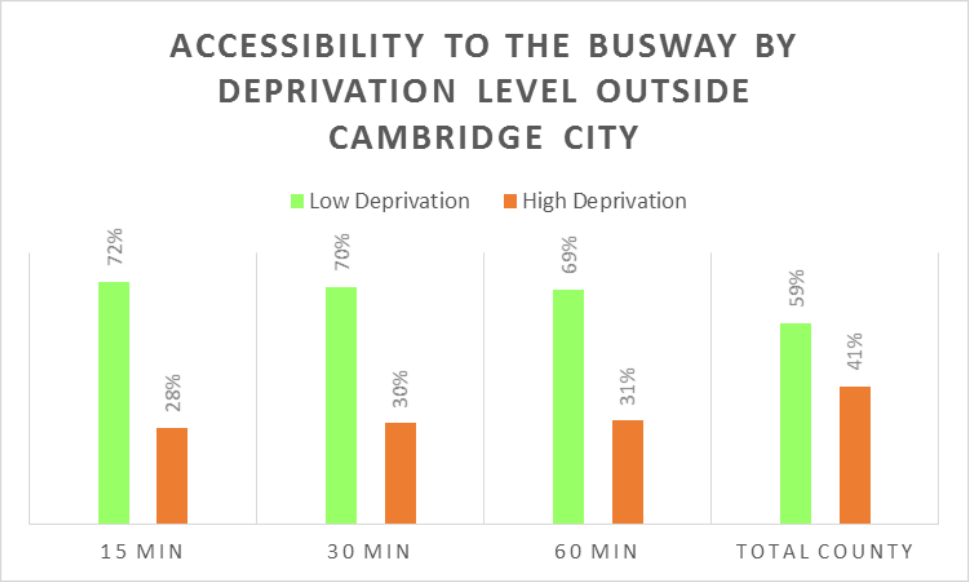


Figure 34 Accessibility to the Busway by Deprivation Level per Time Frame – Without Cambridge

As mentioned previously, a large consultation process was held before the implementation of the Busway. The recommendations made during those meetings were analysed and considered for the final design of the system. For example, changes were made to the design of the system after deliberations, including many groups such as: cycling advocates, the housing association and environmentalists. A cycle path, noise barriers, and access to Fren Drayton Lakes (a Royal Society for the Protection of Birds —RSBP— reserve), were implemented as a result of the consultation process.

An assessment on the accessibility, from 19 consultation venues to the Guided Busway, was done. Figure 35 presents how accessible the venues are to the system. It was found that of the 19 venues, 42% are within 10 minutes to the Busway by public transport, 74% within 15 minutes, and 84% are within 25 minutes, whereas 16% of the venues are within 30 and 45

minutes of the Guided Busway. Regarding the deprivation levels of the venues' areas, 60% are located in areas with low deprivation and 40% in areas with higher deprivation levels.

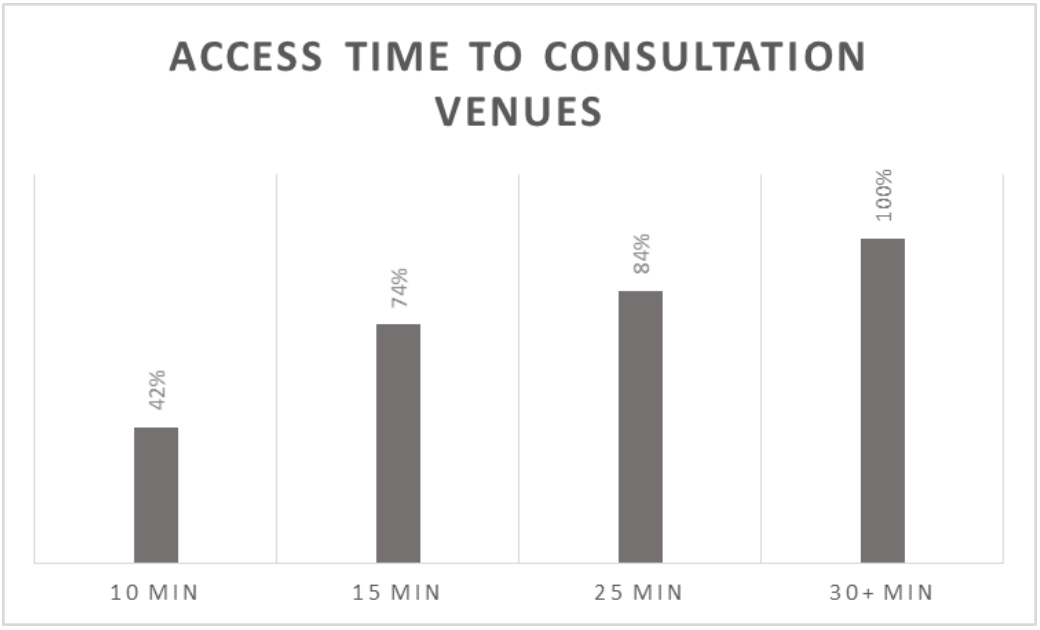


Figure 35 Access Time from the 19 Consultation Venues to the Busway by Public Transport

The five levels of analysis developed in Section 7.2 provided the material needed to understand the context under which the Cambridgeshire Guided Busway was developed. The actors relevant to the context were identified in the interviews, and their relations tracked and scrutinised to understand how the different actors exercised power. The geographical assessment of the system characterised the system regarding the population that is served by the Busway.

7.3. The Research Questions

In the next part of this chapter, all the material generated from the analyses above helped answer the research questions. As in the analysis of Chapter 6, all participants interviewed helped create the narrative of the story, however the quotes that best help illustrate the argument of each of the answers were used.

7.3.1. Question 1. What were the Key Drivers for the Implementation of the Guided Busway?

The Guided Busway was part of a set of policies recommended in the CHUMMS report, to solve the increasing road congestion of the A14 corridor between Cambridge and Huntingdon, while supporting economic growth and housing development, which were identified as key objectives in the study area. The Busway, which connected Cambridge with Huntingdon, see figure 36, was understood as an attractive alternative to private cars that would provide a step change in the quality of public transport in the area. The analysis from the interviews provided additional evidence that supported the drivers for the implementation of the Guided Busway.

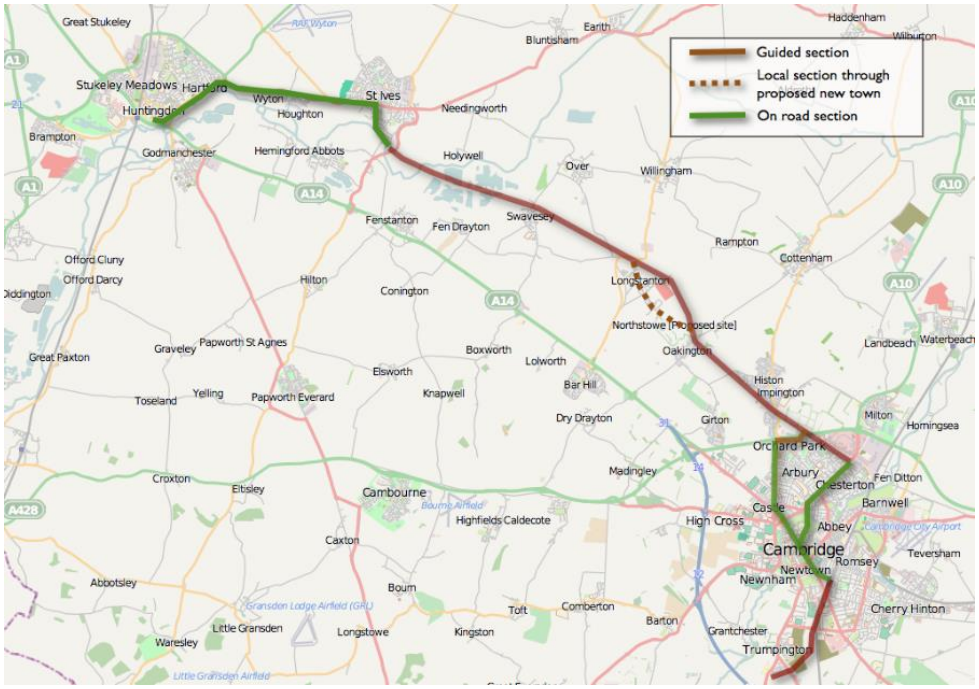


Figure 36 Cambridge Guided Busway Route as Proposed by the CHUMMS Report

Source: OpenStreetMap, 2017

All interviewed participants agreed that the implementation of the Guided Busway was mainly a result of the recommendations given by the Central Government in the CHUMMS report. The interviewed participants also agreed that it was a Central Government disposition and therefore it was the role of the County Council, responsible for transport in the County, to prepare the proposal for getting government funding.

> *…the government did a big study looking at a corridor between Cambridge and Huntington, that is the A14 and that study concluded that the trunk road needed to be upgraded, that there was a need of public transport alternative parallel to that, suggesting that the Guided Busway Way on this old railway*

> *line was the best option and so we were then asked to bring that forward as a proposal by the Central Government. (HD)*

Additionally, it was noted that there were other interests in favour of the implementation of a guided busway that dated previous to CHUMMS. Private developers had identified the need to implement a guided busway to get approval for their developments along the old railway line. Two different proposals were identified: one was a new town of 10,000 homes and the other was a big supermarket. Both proposals needed to provide evidence of good public transport access for their developments. One of the transport operators, in a consortium with private developers in the region, had promoted SuperCam a guided busway concept to connect the towns of St. Ives through Cambridge to Trumpington using the old railway line, creating the access needed for the new proposals.

> *I mean initially back in the mid-90s there had been a suggestion that at Orchard Park there will be a big new Sainsbury and Sainsbury's were going to, as part of section 106, have a look at a guided busway. That did not go anywhere but Stagecoach, as I said, started promoting this concept SuperCam that was a guided busway using the old railway line and that is I think where the study led, that was actually that was an appropriate use of the railway line, it was a good transport corridor. (CC)*

The use of the old railway line as a guided busway was not only a direct result of the CHUMMS report. Participants, in addition to existing documentation, showed that the concept of a guided busway had been promoted in the County Council a few years before CHUMMS. In fact, using the old railway lines in the UK had been in discussion since the Railway Conversion League was formed (1955). However, the use of the right of way of the St. Ives-Cambridge corridor as a guided busway was first proposed by the transport operators of the region.

Additionally, the County and City Councils, the operators, and developers were consulted during the CHUMMS process, providing evidence for the introduction of the Guided Busway.

In summary, the drivers —for the development of the Busway— were to reduce congestion on the A14 between Huntingdon and Cambridge, and to promote economic growth in the region by connecting employment nodes with high-quality transport systems. The economic growth was supported not only by the introduction of the Busway, but also by the promotion of new housing along the corridor, thus integrating land use and transport policies in Cambridge and Huntingdon.

Also, the local and regional plans promoted more and better public transport options, as well as additional transport policies, such as demand management, work parking levies, and park-and-ride in rural areas, to reduce car dependence. The Busway worked well to fit within the existing framework of transport policies in the County.

7.3.2. Question 2. Who Benefited with the Introduction of the Busway? What Mechanisms of Power were Brought to Bear?

The participants agreed that the Busway created benefits for different groups of users, particularly job commuters that work in the science park and now have direct access from Huntingdonshire and all the villages in between. The students that live in those areas and study in the Cambridge area also benefit from the system. Furthermore, some sixth form colleges are located in the area of influence of the Guided Busway and receive the benefits of a frequent service for most of the day. The small villages along the Busway line also benefit from the Guided Busway, as many people travel from Cambridge to the villages, particularly on weekends.

> *The Busway has changed the ways people are effectively choosing where to live. Its affecting where people are living to go to college because we have Cambridge Regional College that is on the north side of Cambridge where the Busway serves. In Huntingdon, there is also a regional college, and it makes it really easy to take people from St. Ives into Cambridge, so its full of students in the morning coming into the regional colleges. Also, there is a number of sixth form colleges from Cambridge. So, it has actually changed where people are able to get their education, has allowed people in Huntingdon to get access to jobs on the science park, so it has opened up access to better-paying jobs. (BM)*

Similar findings in Heinen et al. (2015) show that proximity to the Busway increases the opportunities to use the new infrastructure. Proximity to the infrastructure is found to be the most important determinant for cycle, walk or bus use (idem). Besides added access to the city and the villages, additional benefits with the implementation of the Busway were identified. Private developers, transport operators, car users, planners and Council members, environmental organisations, and housing organisations get direct benefits from the system as set out below.

The presence of the Guided Busway consolidated the investment in the Cambridge Science Park, making it more attractive to new investors. The new town of Northstowe —connected to Cambridge by the Busway— in the north-west of South Cambridgeshire —with up to 10,000 homes—, after some initial delay, is finally being developed. Thus, private investors are benefiting from an efficient system that connects their development with Cambridge and the villages served by the Busway.

Accessibility was fostered by the bus operators operating the system.The transport providers had the initial interest in the development of the Guided Busway, and that was clearly evidenced by their joint proposal with the developers to implement the Guided Busway to access the new towns. The moment the Council announced the process for construction of the system, they supported its implementation. They gave political support to the system by signing agreements of use —with a minimal level of service— with the County Council. Once the operation started, the operators who signed the initial agreement benefited from a five-year contract with exclusive right of use of a transport infrastructure that connects the city of Cambridge with Huntingdon and the villages in between. The transport providers also benefited with the introduction of the P&R schemes that created a bigger catchment area for the bus services.

The Guided Busway represented an additional travel option for car users. The car users that are within the area of influence of the system now have the opportunity to access the P&R facilities by car, and may leave their cars in a secure environment and travel into the city centre of Cambridge using the Busway. However, there is a limit to the number of cars (3,520 parking spaces) that can park in the facilities at the same time. Bus users that can access the system benefit from buses that ride on their own right of way, avoiding congestion and road disturbances. However, the system only runs on the segregated infrastructure from St. Ives to Cambridge. The buses run on normal, non-segregated roads when travelling inside the city of Cambridge and before getting into St. Ives or any of the other stops along the guided section (see Figure 36).

The planners and Council members also now benefit from the introduction of an innovative system. The professionals involved support their career growth with evidence of having succeeded at implementing a transport system that can compete favourably with other options and creates viable alternatives to the car. The Head of Delivery of the Guided Busway project in the County Council later became Director of Strategy and Development in the same Council. One of the Council members who strongly promoted and worked for the implementation of the system was later nominated as Head of the Council and later employed

by Transport for London. The promotions are not necessarily wholly related to the implementation of the Guided Busway. However, the success of the system was an important accomplishment for their career advancements.

The surrounding areas of the venues where the consultation process was held benefited by the introduction of the system; most of the venues now have high accessibility to the implemented system. They not only benefited from the implementation of the system, but also had a direct voice to the Council with their concerns about the system. During the consultation process, many groups and associations had an opportunity to raise concerns and influence the design of the system, including a housing association, environmentalists, and cycling advocates. The groups that presented their issues with the introduction of the Guided Busway benefited with changes that addressed the concerns presented.

Save the Lakes organisation benefited from direct access to the lakes by public transport, improving access to the natural reserve and increasing the number of visitors. The housing association, satisfied with the sound barrier proposed by the Council, has direct access to use the Guided Busway and has a direct transport option into the city centre and the villages served by the system. Cycling enthusiasts also benefit with the introduction of the Guided Busway system.

Cambridge is one of the cities in the UK with higher levels of cycling. The Guided Busway supports cycling in the city and the county by implementing a segregated cycle path that now runs along the Guided Busway system; additionally all the stops and the P&R facilities have cycle parking facilities. Finally, the villages that are served by the new system are big beneficiaries of this transport option that not only connects into Cambridge, but can also bring new visitors into their villages, supporting economic growth by promoting local businesses and tourism.

Despite the huge success that the implementation of the Busway brought to the corridor where it was implemented, there are groups of citizens who do not benefit from this new system. From the interviews, it was clear that Cast.Iron did not achieve its objective of reopening the railway line.

The group's intentions were halted for several reasons. First, CHUMMS stated there was not a good case for rail in the corridor and the study specifically recommended to use the existing unused railway line as the Busway route. The Central Government indicated from the beginning that it would only fund the guided bus option. Not being part of the CHUMMS recommendations became problematic when the group tried to build a case for a railway, as

the study set the agenda of the County Council. Second, the Council adhered to the recommendation made in the study, leaving the railway option out of the planning processes taken, as it was not included in the public consultation or the statutory process. Lastly, Network Rail's formal closure of the line, in 2003, made the option of reopening rail services difficult, as it is easier to re-open lines that have not been formally closed by Network Rail. The option of reopening the line as a rail service was closed with the publication of the CHUMMS results supported by the Council and Network Rail.

Bus users that are not served by the Busway system were also an important group that did not benefit from the introduction of the system. In Cambridgeshire, as in the rest of the UK outside of London, bus services have been continuously declining since the introduction of deregulation in 1986 (White, 2010). According to the National Travel Survey, in Cambridge, the total number of miles of local services declined between 2013 and 2016 by 8%, while there was also a reduction of 8% of passengers serviced in the period between 2010 and 2016 (NTS, 2016).

These trends are similar to the national statistics outside of London. In Cambridgeshire, the reduction of transport services meant fewer transport options, not only into the main destinations such as Cambridge and Huntingdonshire, but also between the smaller villages throughout the County. The design of the system and the service agreement signed between the operators and the Council halted this reduction of the transport trend. However, the design of the system did not make any effort to introduce a wider area of influence than that of the immediate corridor. Smaller villages that do not sit along the Busway corridor, and were not part of the original design, rely on the will of the operators and of the market forces to create feeder buses to link with the Guided Busway. The small villages not served by feeder buses are forced to use their cars to access their preferred destinations.

The households with higher levels of deprivation and have to rely on the use of a car, could benefit from an additional public transport option that would help ease some of the burdens of owning and using a car, such as insurance, petrol/diesel, a place to park, etc. It also represents an opportunity to reduce the externalities of the use of cars such as pollution, accidents, etc. Car owners in Cambridgeshire tend to live outside the Cambridge city limits, and these same areas are less likely to have a good public transport connection into the city of Cambridge.

The new investments, meaning new jobs in the County, are heavily concentrated in the Science Park in the City of Cambridge and the new villages close to the Busway. However, the Busway

and the associated services did not generate a transport option to the more deprived areas of the County. The accessibility created by the system was concentrated in the corridor directly served by the Busway. The system created high radial accessibility, however it did not increase orbital accessibility. This means that as long as people live close to the line, high accessibility is given. Although there are feeder services associated with the Busway, these are limited. There are several areas that are not benefiting from the accessibility created by the new system simply because the system was designed to satisfy a radial need between Huntingdon and Cambridgeshire.

The limited housing opportunities inside Cambridge have pushed its population to find new houses outside of the centre of the city. More people living outside of the city means increasing pressure for the transport systems to provide access to the city centre. With a constant reduction of public transport options, the population in Cambridgeshire increasingly relies on the use of cars to access the city. The A14 is heavily traveled, not only by commuters that need to access the city from Huntingdon and the villages in between, but also by all the users of this strategic road corridor. The Guided Busway was implemented as an option to create an alternative for car users commuting to Cambridge using the A14. However, commuting to Cambridge comes from different regions besides those served by the A14.

According to the National Travel Survey, in 2001, less than 6% of all commuting into Cambridge, by all modes, came from Huntingdonshire, with similar values in 2011. The majority of people commuting by car to Cambridge came from South Cambridgeshire (34%), Cambridge (24%), and East Cambridgeshire (12%); Huntingdonshire represented (8%) of the car commuters (NTS, 2016). The P&R facilities increased the catchment area of the system but the capacity of the parking facilities is limited to 3,520 parking spaces. The P&R system was designed as an alternative to car use. However, it has limitations to attract a larger share of car users, and the constant reduction of bus services means less services are connecting to the Busway.

7.3.2.1. The Mechanisms of Power

There were different mechanisms of power present to implement the Guided Busway in Cambridgeshire. As mentioned previously, the Central Government agreed to the funding of the Guided Busway in 2005. However, the process of getting the funding and the actual implementation was also a process of continuous exercise of power. A deeper look into the process helps understand the mechanisms used during this period of the development. The planning process of the Busway was broken up into three identified timeframes: a) nurturing

the idea of the Guided Busway, b) the rise of voices against the implementation of the system, and c) the building of support for its adoption. In each of these moments, different actors and events came into play and different mechanisms of power were identified.

Figure 37, outlines the different mechanisms used for the exercise of power in Cambridge. Elements of authority, knowledge, hierarchy, respect, prestige, coercion, constraint, manipulation, control, direction, handling, persuasion, and argument are present, with authority, knowledge, and manipulation being the most prominent. A detailed description of each moment of exercise of power is presented in the following sections. For each description, a section of the main Figure 37 has been selected and mechanisms of power described.

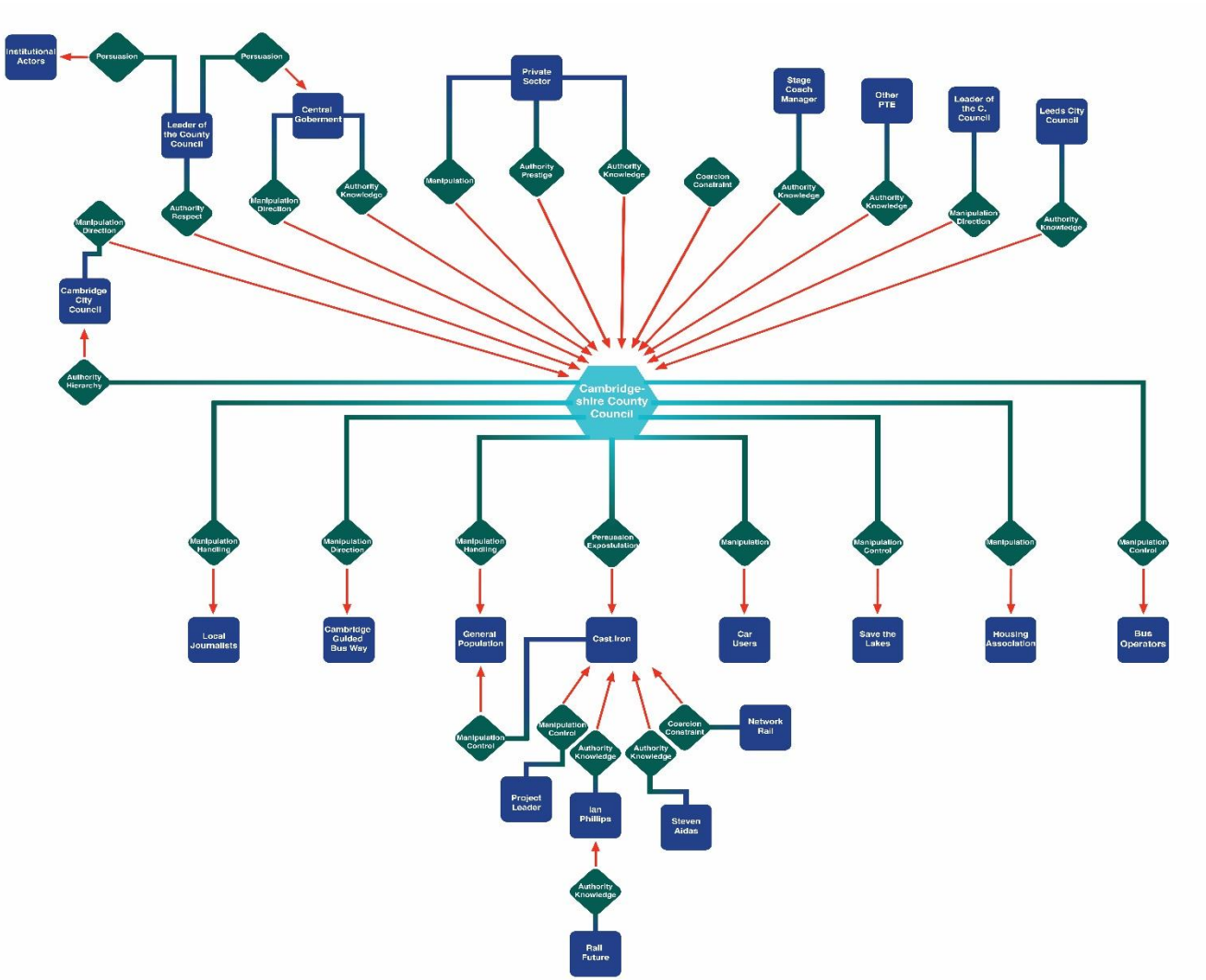


Figure 37 Mechanisms of Power Used for the adoption of the Cambridge Busway

a) Nurturing the Idea of the Guided Busway

Figure 38 shows the actors and mechanisms of power during the first timeframe when the idea of the Busway was being nurtured.

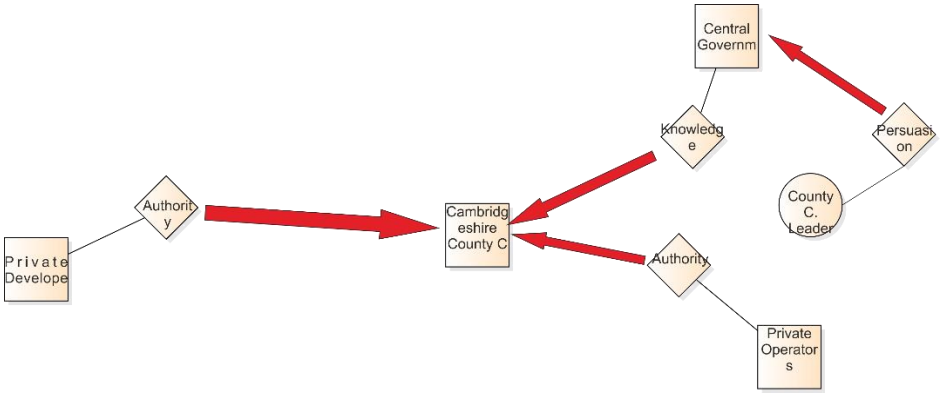


Figure 38 Mechanisms of Power in Nurturing the Idea of the Cambridge Guided Busway

As previouly mentioned, the Cambridge Guided Busway was one of the recommendations given by CHUMMS and accepted by the Cambridgeshire County Council. CHUMMS is one of 22 multi-modal studies that the Deputy Prime Minister of the time had commissioned. The 22 studies were divided into three groups, and the Cambridge to Huntingdon study was set in a low priority. It was at risk of not being implemented if it was not delivered in the first group of studies. The leader of the Council had to ***persuade*** the Central Government and its ministers to have the study moved up to a higher priority.

> *... and this was John Prescott when he was Deputy Prime Minister, he set up a series of studies. Now, when they were originally announced, the Cambridgeshire-Huntingdon Multi-Modal Study was going to be on stage 2 or stage 3, so very low priority, so one of my jobs was to come to ministers and persuade ministers of the importance of having the CHUMMS much higher in the priority list. As a result, they moved it up, and it was the first one that was done and, in my view, still the most successful one because it actually had some tangible results, and you can see the results today. (ST)*

The leader of the County exercised power over the ministers at the time by ***persuading*** to place CHUMMS as a top priority. The study thus ended up being the first one to be done. The role of the leader of transport of the County Council in ***persuading*** the Central Government gained the respect of the Council and she consequently got Council leadership. The

development of CHUMMS generated ***knowledge*** for the Central Government; the ***knowledge*** generated was used to exercise power over the County Council that accepted the findings of the study. The Guided Busway, previously adopted in Leeds, was a proven and effective alternative acknowledged by Central Government and local officials, as well as private planners, transport operators, and consultants in the country. The CHUMMS report incorporated all the previous information from other Guided Busways, such as the Leeds experience, into the final study and passed that onto the Cambridge County Council for its application. The County Council accepted the suggestion of the Central Government and began the statutory process to apply for funding.

> *…part of that Multi-Modal Study really looked at this disused railway line, that ran between St. Ives and Cambridge, that I think closed in the 70s, so they [Central Government] recommended a Guided Busway, and that was obviously passed over to Cambridgeshire County Council to look at feasibility, costing, etc.* (BOM)

The transport operators, along with private developers, also brought the idea to the County Council. The transport operator manager had experience with the development of the Leeds Guided Busway; this ***knowledge*** gave him ***authority*** to exercise power over the County Council. The County Council relied on the transport operator to build support for the implementation of the system. The transport operators and the Council signed a letter of agreement stating a minimum level of service for the Busway.

> *…it happens the local manager of Stagecoach is from Leeds and actually had been involved in the Guided Busway in Leeds when he worked in the bus company when he worked there. So, he was helpful, in terms that he knew what the Guided Busway was.* (HD)

CHUMMS suggested the Guided Busway; however, it was found that this was not the first time the idea was introduced to the Council. The concept had been introduced earlier from the private sector. At the turn of the 21st century, the County Council had received some private sector proposals for new housing projects in the area. One of those proposals promoted a new town with the development of a Guided Busway as a strategy to provide access to and from the site in a sustainable way.

> *One of those private sector proposals promoted a new town halfway between of Cambridge and St. Ives. What is called Northstowe, and started to get built alongside the old railway track. And they proposed a Busway as*

> *part of the package, to show that their development was sustainable and capable to get to Cambridge by public transport. (HD)*

The proposals made by the private developers brought ***knowledge*** into the County Council. By the time CHUMMS suggested the Guided Busway, the concept was familiar to the idea that had been in the minds of the Council members beforehand. The ideas and the requirements of the private sector were of importance to the Council for the development of the Guided Busway. The City of Cambridge is known for the quality of its education and industry; designing a system that satisfied their needs was an important driver for the system.

> *Addenbrooke is doubling its size; they have got a research park there. Now [Multinational Pharmaceutical Company]are moving their headquarters from Chester into here. Lots of other biomedical companies are also moving in, once you get two or three companies coming in, they all want to be where they feel they need to be. We have been in discussions with those developers about how they get their staff to their place of work, so you know they are talking to us about extra buses along the Busway because they see it as the quickest route there. (*BOM)

The ***prestige*** of the companies that were investing in the science parks gave them the ***authority*** to discuss with the Council the sorts of systems that needed to be implemented. The design of the Cambridge Busway and the eventual additions were designed to satisfy the transport needs to these important sites of the city. For example, the Guided Busway was designed to give direct access to the Science Park and the second segment of the system was designed to give direct access to Addenbrooke's Research Park. The private developers exercised power in the form of ***authority*** by bringing ***knowledge*** and their ***prestige*** to the planning process.

The ***knowledge*** generated from the CHUMMS report is used as a form of power by the Central Government exercised upon the local County Council. However, the actual delivery of the study was the result of the exercise of power from the leader of the Council upon the Deputy Prime Minister to ***persuade*** him to develop the implementation earlier than intended. Support in different forms, as evidenced above, from private developers and the transport operators empowered the county to deliver the project. As would be expected, as soon as the project was announced, voices of disagreement began to appear.

b) Antagonistic Voices

When the Council began the public consultation process, antagonistic voices began to appear. The actors and mechanisms of power with antagonistic views to the system are illustrated in Figure 39.

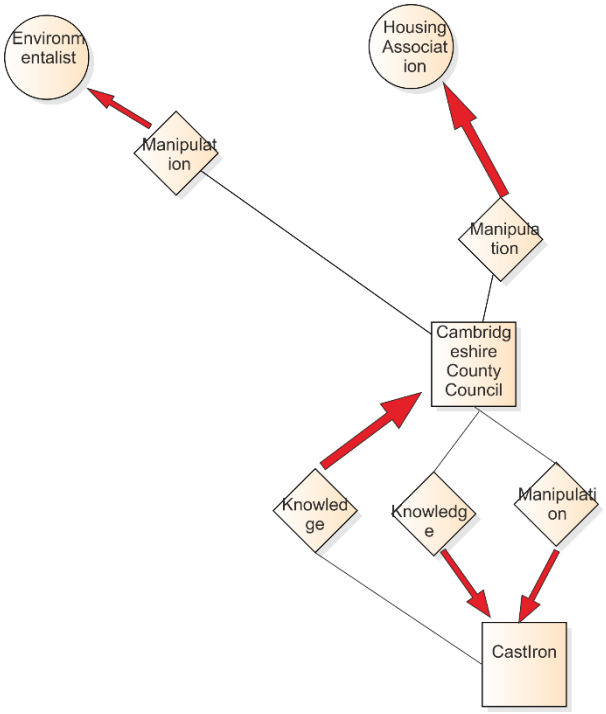


Figure 39 Actors and Mechanisms of Power Opposing the Implementation of the Cambridgeshire Guided Bus

The interviewed participants identified three groups: A housing association, environmental protection groups, and rail enthusiasts. The housing association was afraid of the noise the new system could bring into their properties. The Council proposed noise barriers as a solution. However, the association did not like that idea on the basis that it was going to affect the view from their houses. Finally, they agreed on noise barrier walls of half the size of normal barriers.

> *So the people whose house is next to the Busway, they insisted on a noise barrier and there were concerns about the light. So, we built a noise barrier that is halfway height that it needs to be, that is completely ineffective as a noise barrier because all the noise goes on top of it but that was the compromise.* (HD)

This demonstrated ***manipulation*** on the part of the Council to get agreement from the housing association, even though the solution was ineffective.

The group Save the Lakes did not want any transport solution; they were afraid the Busway, or any other solution, was going to represent risks for the old gravel pits that had been left to be filled with water. The newly formed lakes had been converted into bird sanctuaries. The Council put a stop to this objection by offering access to those sites that only had limited access by public transport before the Busway. Thus, County Council exercised power over both groups mentioned above, the housing association and Save The Lakes, in the form of ***manipulation***, one by building an inefficient technical solution, and the other by ***controlling*** the situation with an access proposal without changing the original design of the system.

The third group, the rail enthusiasts, represented a more critical difficulty for the development of the Guided Busway. In 2003, the same year that the County Council started the statutory process for the Guided Busway, Cast.Iron was established. As mentioned in section 7.2.2 Cast.Iron was a group of rail enthusiasts who strongly supported the idea of reinstating the rail services on the line. Its objective was to reopen the old railway line with its original purpose, to run trains. Cast.Iron was established as a reaction to an initial attempt by the County Council to deliver the process of public participation.

> *And the actual trigger then would be that the County Council, this wretched consultation that was a leaflet drop, …the main question was something in the lines of "Do you favour a mass rapid transit system between Huntingdon and Cambridge?". And of course, the answer is yes! It did not say, "what form of rapid transit do you want?" Apparently, of the responses that people used in the white space to say anything else, approximately 1/3 was in favour of heavy rail, 1/3 light rail, and 1/3 on bus-type solution. The County never published those statistics or anything like it, but they, as far they were concerned, they have done their statutory consultation by putting these leaflets through the door, but of course, they got the answer they wanted that is yes, please do something with this redundant railway line.* (CI)

Certain members of the public that later got organised as Cast.Iron, understood this episode as a meaningless form of public participation. According to Cast.Iron, the Council obtained what they needed, but with little transparency to the public. Only later the general population learned that the purpose of using the old railway line was to implement the Guided Busway. ***Manipulation*** was used again by the County Council; however, in this instance it led to further resistance from the newly organised Cast.Iron.

The main representative of Cast.Iron was a former member of Rail Future, a national society that campaigns for the reopening of old railway lines. The ***knowledge*** learned from Rail Future gave ***authority*** to establish the group and to lead it. Cast.Iron used different mechanisms to exercise power over different actors to resist the implementation of the Guided Busway. ***Manipulation*** was used to involve people in the initiatives. One of the first activities of Cast.Iron to get wider support was to clean an old train station at Histon.

> *Anyway, we got a group together on a July morning, and we cleared the vegetation away from the station. We made the station quite attractive again that caused a lot of interest. People started asking if the railway was being reopened and we told them not, they are proposing a Guided Busway, and that is how it all started; people started coming out of the woodwork. (CI)*

Cleaning the train station was a clear form of ***manipulation*** to get members into the association. It was a clever strategy to attract the population. Additional tactics were used to build a base of support, such as the use of mail, email, a web site, and organising public meetings. However, just building public support was not enough to build a case against the implementation of the Guided Busway. Technical ***knowledge*** was needed to elaborate and develop plans to prepare alternatives to the Council proposals.

> *…he [Cast.Iron member} was really the biggest brain, he was some type of an engineer; he was a university graduate. He said you would need somebody who would draw up the plans. Within a few months, he surveyed the whole line; we paid for aerial surveys, the length of the line, we had all the drawings and proposals.* (CI)

The engineer exercised ***authority*** based on his ***knowledge*** as an engineer to the group. Bringing professional expertise into the group created the possibility to start producing materials to build a case against the Guided Busway. At the beginning of their activities, Cast.Iron received a backlash from Network Rail that constrained their future objectives. Network Rail sent a communication informing them that the St. Ives-Cambridge railway line had finished its closure procedure in August 2003. The news of the official closure of the line was a big upset for the recently established organisation. However, it did not stop them from taking action. Cast.Iron, now with a base of support and the capacity to elaborate alternatives, continued with activities to pursue its objectives. Cast.Iron attended public meetings and

presented their case to every discussion possible about the new system in the city. The County Council members consistently denigrated the material prepared by Cast.Iron.

> *There were essentially three groups that were opposed to it. First, it was Cast.Iron [Name of the Director of Cast.Iron], and he had an associate with the help of [Name of associate] who also did some work. But it was I would say, the level of their analysis was high level in the extreme and poor. (CC)*

A similar argument was given by the person responsible for project delivery:

> *…, we had done the research, we had all the facts and, actually, the opposition were people who just didn't like it, who didn't construct a quite logical case. Although that was a lot of work, there was never-ending public inquiry that didn't cause any serious concerns, because it was just opinions, we were arguing facts, they were arguing opinions. (HD)*

The project leader in the Council eventually granted a meeting with the officials of Cast.Iron. The meeting was part of the statutory process so that objectors had an opportunity to present their cases. However, in the meeting little opportunity to present the case was given.

> *We went into this meeting where they have put us deliberately right next to a window where the sun was blazing through. It was really uncomfortable! They wouldn't talk about our plans they would only talk about their plans. So, while we were saying, well we do not agree with your plans, they were having to find a way of saying what bit of our plan of the Guided Busway do you agree with. We [said] don't agree, we are not here to talk about that, and the meeting went down in circles. We basically just walked out; it was not getting anywhere. The project leader was in charge of that; I think he knew exactly what he was doing.* (CI)

These antagonistic voices were a result of the exercise of power. They were part of the narrative because, at a certain point of the planning process, they exercised power; they became part of the process because of power. Save the Lakes and the housing association raised their voices and exercised power by ***argument*** of their concerns. The Council ***manipulated*** their concerns to create satisfaction in both groups. Cast.Iron represented a bigger task, and their concerns could not be easily solved. The rail solution that Cast.Iron wanted was not an option for the County Council and they used all their available tools to disregard that option. In the eyes of the County Council and its representatives, the housing association solution, of a half-way sound barrier and the solicitude of a railway were both

irrational proposals. However, the approach taken by the County Council was completely different. It appears that irrationality was acceptable as long as it sat within the Council's objectives.

c) Building Support for the System

The County Council was instrumental in building support for the new system. Figure 40 shows how they used power during this time.

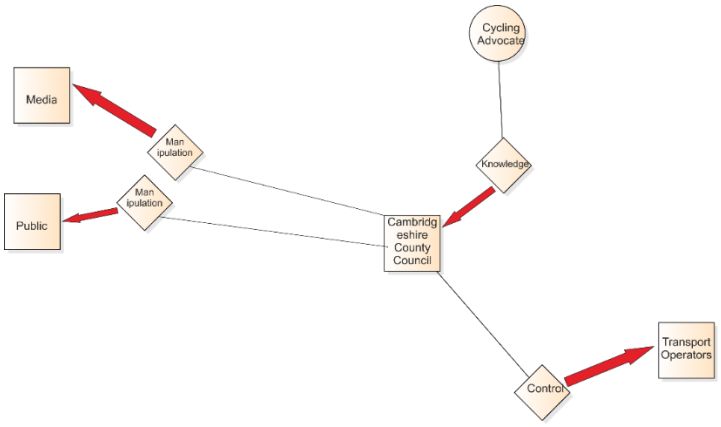


Figure 40 Actors and Mechanisms of Power during the Building of Support for the System

The transport operators were a key actor for the actual functioning of the Guided Busway, because, since the deregulation of bus services in the UK, private companies have taken over the provision of bus services from previously State-owned companies. The County Council, conscious of the political significance of showing to the public the importance of having the transport operators in line with the concept, signed an agreement for a minimum level of service as soon as the Central Government gave the County Council the powers to build the Guided Busway. The agreement eliminated all the existing doubts about operators using the system once built.

> *We engaged them very early and, in a way, that quite... Bus companies don't really think that far in advance you know, so one of the issues we had to solve a lot of political noise made about, will the bus company actually use it. So, one of the things I got to do is actually sign them up to an agreement way back in 2006, to prove politically that there will be buses on it, so they signed up to a minimum level of service in exchange for exclusive rights to use the Busway for five years.* (BM)

The mechanisms of power exercised by the County Council to get the public support represented an opportunity to shape the system in a way that satisfied the particular interests

of the operators. The County Council exercised power over the transport operators in the form of ***control*** to placate existing questions regarding the use of the Busway. The operators did not sign the document only to support the Council. The agreement signed by the operators guaranteed exclusive rights of exploitation of the Guided Busway for the first five years of the system. The exercise of power over the operators to get the wider support for the scheme is an opportunity for the operators to exercise power over the County Council to get future privileges over the exploitation of the Busway.

The Council representatives felt that one of the reasons behind the questions about the system was due to the lack of information about the functioning of the Guided Busway. They believed that more effort was needed to show the benefits of the designed system. The initial construction of section of the system brought a valuable opportunity to the Council to show what the system was about, and by doing so, created further support for the system. As soon as a usable stretch of the Busway was ready, the County Council began to implement a series of innovative ideas with members of the public. The purpose of this was to make the public aware of the provision of services of the system and its functionalities. The County Council invited local journalists to experience the system. Although the ride was over a small stretch of road, it was on a section of the city with very high levels of congestion, particularly during peak times.

> *And what we actually did, we got some of the journalists to come on this trial run. What we did, we came from the Cambridge end and just did about three miles, but that is a very congested area. So, people get on and suddenly in two or three minutes they are actually out in the country, in a journey that at peak time takes ages. …We also did a thing, we had a competition on the newspaper you could win a ride in the Busway, but everyone that entered won.* (HD)

The demonstration ride changed the perception of the journalists who later, according to the Head of Delivery, documented the system in a positive way. A similar approach was taken with the general public, who entered a newspaper raffle organised by the Council to experience the initial strech of the Busway. This initial construction of the Busway permitted the Council to exercise power in the form of ***manipulation*** by ***handling*** the situation with the journalists and the participants of the newspaper raffle. The Head of Delivery regrets that the Council did not use similar initiatives earlier with key actors to introduce them to the system. He believes that strategies to make people learn about the system could have helped for a smoother process with key politicians.

An issue that arose during planning was for a cycle path. The cycle path that runs along the Guided Busway was not part of the original plan. This is particularly interesting because the Guided Busway was part of CHUMMS, a study that was looking at all the available modes (multi-modal) to solve the transport problems in the area, but did not include cylce paths. Thus, during the consultation process, some cycling advocates groups raised a petition to consider the implementation of the infrastructure. They exercised power in the form of ***argument*** to the County Council, which accepted the petition and included cycle paths in the final plan of the system. As noted earlier, Cambridge has high levels of cycling, therefore acquiescing to the request for a cycle path was both consistent with the general goals of the Council and also avoided struggle with a sizeable user community.

The different mechanisms of power described above gave shape to the final operating Busway in Cambridge. The actors shaped the system. The Central Government proposed a project that was accepted by the County Council responsible for delivering the project. The transport operators, whom had promoted a similar project in the past, turned into strong political adherents of the system and partnered the Council for its support. The antagonistic voices that appeared were dealt with by the County Council using mechanisms of power that managed to satisfy the position of the promoters. Not all the silenced voices were satisfied with the project. However, there was little space for further resistance once the Central Government gave permission and agreed to finance the project. A network of actors that were not present in the discussions of the system's planning came into play and shaped the way the system was implemented.

An important network of actors was identified in the planning process of the Busway, and their actions have been described above. Although it may seem impossible to know all the actors that were left out of the discussions, it is important to highlight three groups that were not present. First, there were no representatives of bus users; second, there were no members of communities with greater needs for public transport; and third, there were no car users, who were intended to be the main focus of the system. None of these groups were able to exercise power to influence the design of the system. Leaving these groups out of the discussions was an act of power with repercussions for the final implementation of the system.

7.3.3. Question 3. Is the Development of the Implementation of the Guided Busway Desirable?

The development of the Guided Busway in Cambridge was bounded and unequal. It was bounded by a package of measures given by the Central Government to address congestion

problems in the Cambridge to Huntingdon corridor. The recommendations from the Central Governement included the provision of a guided busway along the disused rail link between St. Ives and Cambridge.

Importantly, the study was bounded by problems it was set up to resolve, notably the existing congestion on the A14 and the potential to support future growth in the St. Ives to Cambridge corridor. The system has been deemed as a success by the promoters of the scheme, because the system exceeded the patronage calculated for the first years of operation; it contributes to economic growth by attracting high proportions of users travelling for work or education; it serves higher income groups, in contrast to national bus usage; it attracts passengers with cars availabe for their journeys; it attracts non-traditional bus users, who are more favourable to rail services; and finally, the great majority of users appreciate the comfort and quality attributes of the system in addition to the travel time and reliability benefits (Brett and Menzies, 2013)

The bounding of the terms of the study lead on to the second issue of distributive fairness. By concentrating on the specific corridor, the system was not aimed at addressing the problems of the most deprived areas of the corridor that it serves and is therefore unequal. The system and the services associated with it serve a disproportionate number of areas with low levels of deprivation versus areas with higher levels of deprivation. The CHUMMS report recommendation of implementing a guided busway limited the Local Council to develop the proposal for the corridor. Little effort was made to understand the benefits that the system could bring to some of the areas outside of the corridor, particularly the more deprived areas that could have had access to the system with more feeder services. An equal system that serves all segments of the population in the same way, is not possible; however, a larger effort to serve the more deprived areas of the community was possible and was ignored.

During the planning process, an effort was made to run a consultation process (see Figure 41). The consultation process was limited to the villages that were immediately served by the design of the system (see Figure 31 and Figure 35).

Static Exhibitions

Between 3rd - 24th July (unless otherwise stated) un-staffed displays providing details of the scheme will be available at the following locations:

Huntingdonshire
- Huntingdon Library (8-24th July)
- Houghton County Primary School
- Hinchingbrooke Hospital
- Huntingdon Rail Station
- Huntingdonshire District Council Offices – Pathfinder House
- Rainbow Supermarket – Ramsey
- St Ives Library

Cambridge City
- Addenbrooke's Hospital
- Cambridge Rail Station
- Cambridge Central Library
- Cowley Road Park and Ride (3-9th July)
- Cambridge City Council Offices – Guildhall
- Cambridgeshire County Council Offices – Shire Hall
- Grafton Centre (14-18th July)

South Cambridgeshire
- South Cambridgeshire District Council Offices – South Cambridgeshire Hall
- Cambridge Regional College – Newmarket Road Campus and Kings Hedges Road Campus
- Babraham Road Park and Ride Site (10-14th July)
- Trumpington Road Park and Ride Site (17-24th July)

Staffed Exhibition Programme for July 2003

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
			3rd July **Addenbrooke's** Addenbrookes Hospital, Rosie Corridor **1pm-7pm**	*4th July* **Cambridge Rail Station** Concourse Station Road **3.30pm-8pm**	*5th July* **Huntingdon** Chequers Court, Marquee **10am-6pm**	6th July
7th July **Swavesey** Village College **5pm-8.30pm**	*8th July* **Histon** Histon Junior School **5pm-9pm**	*9th July* **Willingham** Primary School **5pm-8.30pm**	*10th July* **Needingworth** Holywell Primary School **5pm-8pm**	*11th July* **Cottenham** Village College **5pm-8pm**	*12th July* **Cambridge** Lion Yard Walkway, Lion Yard **10am-6pm**	13th July **Longstanton** Village Hall **1pm-5pm**
14th July **Trumpington** Village Hall **5pm-8pm**	*15th July* **Impington** Village College **5pm-9pm**	*16th July* **Oakington** Primary School **4pm-8pm**	*17th July* **Over** Community Centre The Doles **5pm-8.30pm**	*18th July* **Godmanchester** Elizabeth Hall Post Street **5pm-8pm**	*19th July* **St Ives** Burleigh Hill Community Centre **1pm-6pm**	20th July
21st July **St Ives** Free Church **10am-5pm**	*22nd July* **Arbury** Community Centre, Buchan Street **4pm-8pm**	*23rd July* **Huntingdon** Commemoration Hall **12pm-6pm**	*24th July* **Fenstanton** Fenstanton & Hilton Primary School **5pm-8pm**			

Figure 41 Consultation Calendar of the Guided Busway

Source: Cambridgeshire County Council, 2016

A significant effort was made to address all the issues raised during this consultation process, and the system was designed to fit as best as possible with the concerns of those specific communities. Important examples were the noise barriers implemented, the access created for the Fen Drayton lakes, and the introduction of a bicycle path along the Guided Busway line.

During the consultation process, the villages that were not served by the radial route, but that could have been connected with orbital feeder services, were not included so their voices were not heard. Therefore, the planning process did not consider the needs of the villages outside of the corridor. As a consequence, the implemented systems satisfied the needs of a restricted number of villages that sit nearby the corridors and left the outer villages to be served only if the feeder services represented a good business opportunity to the transport operators. The lack of feeder services was acknowledged by the interviewed participants, who were aware that more services could have been provided. However, given the deregulation

particularities of the transport system in the UK, they cannot force providers to implement them. Important areas of the County that could benefit with the introduction of feeder services into the system were left out of the design of the Busway.

The Guided Busway offered a unique opportunity to create high-quality transport services in the County. This system can be used as an example for the future provision of transport services in the County and the UK, especially as a cheaper alternative to rail systems. Transport providers support the implementation of these systems and local councils are generating knowledge to implement the systems further.

Local planners and local politicians were recognised after the implementation of the systems and offered promotions for their careers. In Cambridgeshire, the system generated an option for development outside of a physically constrained city like Cambridge, by generating new housing with a sustainable transport option for people who wish to work in Cambridge, but cannot afford to live within the city limits. All the above mentioned benefits support the idea of a desirable development for the County. However, not introducing the areas of the County that could be integrated into the system with feeder services limited the people who could be served by the system. This adds to the fact that other transport services are in continuous decline, which means non-stop pressure for car access into the city.Thus increasing the pressure on more spaces for cars in the form of roads, parking, park and ride facilities, etc. close to the city centre.

The mechanisms of power at play during the planning and implementation processes of the Guided Busway in Cambridge, succeeded in developing a system that created an innovative system that offered a number of new travel opportunities for certain areas in the County. However, those same power relations leave important voices out of the planning process, limiting the benefts of the system to groups with less deprivation levels.

7.3.4. Question 4. What, if Anything, Should Be Done to Improve the Current Reality?

Transport is essential to connect suburban residents to jobs and suburban industries to markets. The Guided Busway makes a connection with all the villages and suburbs between Huntingdon and Cambridge. There are limits to the geographical area of influence. However, there is an opportunity to incorporate areas with higher levels of deprivation into the system by creating more feeder services. Feeder services have the possibility to bring more people from the deprived areas into the system. However, feeder services need to have a higher level of priority to become an alternative to the car. Existing feeder services can also be improved

by creating higher levels of physical on-road segregation between buses and cars, with bus priority measures, outside of the Guided Busway, to avoid congestion generated by private vehicles.

The participants agreed that more feeder services could be included in the Guided Busway. They understood the importance of more services to exploit the system to its full potential. However, even though new services have been added to the Busway, the Council has not been successful in persuading the operators to run more services into other areas of the County. The Guided Busway has actually contributed to a reduction in the number of other services that existed previous to the implementation of the systems. Therefore, areas that once had continuous bus services now have limited bus access to the city and other villages.

> *I think the one negative is that some parts of some villages are less well served now so I would not say that is 100% fantastic because there are some villages that are less well served. So for example, before the GBW was opened, the bus service 5 was every 20 minutes through the villages out of Cambridge; it is now only an hourly service. If you can't get to the Busway quite easily then you've got, your service is less good. The other thing I would say is not happening quite as much as I hoped is the feeder services particularly from closer villages. So from Swavesey and over I would like to see more feeder services, and that is not happening.* (HD)

Adding more services is expensive. However, there are available options to fund more buses. The access agreement between the County Council and the transport operators is limited to a minimum level of service. The existing agreement could be extended so that access to the Busway is granted with some conditions to create frequent feeder services into communities with poor public transport. An option to access the Busway creates additional opportunities to the people in those villages to travel, not only into Cambridge but also to the other villages that are served by the system, enlarging their opportunities as more job, education, leisure, health, etc. could then be accessed.

Congestion charging, another option to fund more feeder services, was part of the original recommendations of the CHUMMS report. Congestion charging was first introduced in London during Ken Livingstone's mayoral term in 2003. However successful in London, it has been difficult to implement in other parts of the UK. A hypothetical congestion charge could possibly help fund more bus services and discourage the use of cars for commuting into Cambridge, however congestion charging has been continuously rejected in the city. For many years, the

city has been introducing other types of barriers to the use of a car, such as limiting car access to certain streets in the heart of Cambridge, providing cycling and bus-only roads, and limiting at-work parking spaces. However, the efforts put into Cambridge city need to be extended to other parts of the County to make the use of public transport more attractive.

Fare integration and single payment can also be used to improve access. Smaller bus companies that do not have access to the Guided Busway could serve as feeder buses. Additional funding to create better access from the more deprived areas is needed. Unlike train services, adding bus routes is relatively easy, quicker, cheaper, and socially progressive. The bus is the mode most used by those on the lowest incomes because buses are the cheapest form of transport available.

Services need to be focused on providing access to people with higher levels of deprivation and poverty. However, the lack of fare integration between providers represents a challenge. The Busway has introduced a single payment card; however, different pricing policies by the bus companies make it easier for users to buy weekly passes for each of the companies running the services. A stronger commitment from the providers for integration of payment methods is required.

Cambridge provides an example of good cycling policies in the UK. High levels of cycling in the city create a safe and pleasant environment. This experience could be replicated in the wider areas of the County, integrating the villages with more cycling into the Busway. The existing cycling infrastructure along the guided part of the Busway could be further integrated with more villages and suburbs. Cycling training for users is also important; programmes for more inclusive cycling can be implemented to attract, for example, non-drivers and older users. Regardless of the policies, there are still areas of the County that will be geographically too difficult to access by the Busway on a daily basis. From a transport perspective, the road configuration could be altered to make it easier to access public transport. However, distance is a difficult barrier to break with only additional bus services. There is a need to integrate other policies outside of transport to bring a more balanced and equal development to the County. The northern parts of Fenland require a closer understanding of its position to suggest policies that can bring economic growth to the district.

The policies recommended above would help to correct the existing situation. Still, if not treated carefully they have the possibility to enforce the existing trend of higher investment in Cambridge, increasing housing costs closer to Cambridge, and better-paid jobs in the city of Cambridge leading to longer transport commutes for the more deprived. The transport policies

suggested above need to be complemented with job, education, health, and housing policies to reduce the increasing need to travel into Cambridge and to reduce the deprivation levels of the more deprived areas of the County.

7.3.4.1. Question 4a. How do Existing Power Relations Shape the Outcome of the System?

Despite the effort made by the Council to increase the public transport services and the quality of them, there are still large areas of the County with limited public transport; and thus highly dependent on car use. By concentrating on a single area of the County —the A14 corridor— and a specific type of user —car users—, the system is deemed successful in its own terms, but it excludes other areas and other users of the system. It is impossible to satisfy the transport needs of all the County with one line of Guided Busway. However, a more inclusive and egalitarian system is possible.

The knowledge brought in by the Central Government to the County with the CHUMMS heavily influenced the outcome of the system. The conclusions of the study are the main reasons for the system to be adopted by the County Council. However, once the County accepted the conclusions of the study, new power relations came into play and influenced the final outcome of the systems. There are two main types of power relations present. First, the relations that enforce the selection and adoption of the system and second the power relations that change the development of the systems. The actors identified in the interviews that led to relations that changed the outcome of the system were the environmentalists, the housing association, and the cycling advocates. Their positions influenced the County Council to modify the design to satisfy the demands of three groups.

There is a another actor whose exercise of power during the planning process actually reinforced the idea of the Guided Busway. Cast.Iron is the association that grouped those who firmly believed that the Busway was not the right option for the County and firmly opposed its implementation. The actions taken by Cast.Iron led to a series of counter-actions by different actors in the County Council to create the necessary arguments to sustain the decision of implementing the bus system. The necessary knowledge to the argument against the questions made by Cast.Iron was produced and reproduced to diminish Cast.Iron's position.

Although the presence of Cast.Iron led to continuous activity in the County Council, the outcome of the Guided Busway did not change. The funding and approvals system in England may have limited the scope for alternative viewpoints. The provisional funding approval for a guided busway was assured from the Central Government in 2003 (Brett and Menzies, 2013).

However CHUMMS did consider a rail alternative during earlier stages of the study (DTLR, 2001), according to the Head of Delivery, that would have delayed the project or possibly caused its cancellation.

> *The approval of any other type of variation would have been to go back on an approved government study and to challenge rigorous technical analysis. Regardless of the merits of rail versus bus this would have been a risk.* (HD)

Other actors on which exercise of power led to actions that reinforced the idea of the Guided Busway were institutional, including members of the City Council, private developers, the transport operators, Cambridge Council members, and Cambridgeshire County Council; their roles were explained above in section 7.2.2. It is important to note that there was space for the exercise of power, that the results of the CHUMMS were not automatically adopted, and that individuals and groups could challenge and alter the design of the system.

7.3.4.2. Question 4b. How can These Relations be Challenged?

It appears really difficult to challenge the decision made by the Central Government, because it brought all its knowledge, money, and resources for the adoption of a system they believed helped to achieve their high-level policy objectives. It was easy for the County to accept a proposal for a transport scheme that would ultimatelly not affect the local government funds, because the system was completely financed by the Central Government, was supported by the local transport operators, and it had been proven to be successful in other parts of the country.

The route proposed by the government also fit with previous proposals from private developers and connected smoothly with developing plans within the city. The County Council was presented with an option they could not ignore. However, the focus on reducing congestion of the A14 does not point to many of the wider goals of the County where services are in decline.

New infrastructure is always an attractive theme for politicians, planners, and the communities involved. The knowledge brought by the Central Government with its proposals can be complemented with the local knowledge of transport needs of the County. The planning process of the Busway included a consultative process, but it was limited. It was found that there was no presence of public transport users groups, representatives of deprived communities, or any local actors that could give voice to these communities. Knowledge from those groups was not included in the planning process of the system.

Under-representation of deprived communities during the consultation process has led to a system that serves a higher number of areas with low deprivation levels. The actions that were taken by the environmental organisations, the housing group, and the cycling advocates, provide lessons that there is space for action for local groups to exercise power during the planning process of BRT projects, such as the Guided Busway. It is the responsibility of the local planners at the Council to bring the knowledge about the deprived groups into the discussion, not with the intention of sabotaging the process, but to complement the system by providing solutions to address the needs of the more deprived groups. The system could greatly benefit from introducing a wider set of voices that have the capacity to suggest changes that can deliver a more inclusive and egalitarian system.

7.4. Summary

This chapter presented the five different levels to which the data collected was analysed. The interviews were dissected to find the main events and the different actors that shaped those events. It was found that local transport policy in the UK is heavily influenced by the decisions made by the Central Government. However, local governments and local groups can challenge the decisions made by the Central Government. The planning process of the Busway in Cambridgeshire is an example of how the power exercised by local groups can be used to challenge the Central Government. However, the process is also an example showing that the local exercise of power is limited and unequal. Although an important network of actors was present during the planning process, other important actors did not have the opportunity to exercise power and raise their voices.

It was found that groups of people that could participate had a stronger influence on the outcome of the system, such as the cycling advocates, the housing association, and the environmentalist groups. On the other hand, by developing the geographical analysis on the Busway, the results give important lessons about how the groups that are not part of the discussions during the planning of the system are also the groups that benefit least from its implementation. The deprived communities that are also the communities with less opportunity to participate in the conversations about the system, were also the areas where the system was less likely to serve. A disproportionate number of areas with lower deprivation levels are benefiting more from the introduction of the system.

The opportunity to exercise power was a main driver to introduce changes to the system. The people at the venues where the consultatory processes were held had a direct opportunity to exercise power and eventually change the outcome of the system. The less deprived areas had

more opportunity to exercise power, as more venues were located in their areas. The interest was set in solving the problems of the transport system users, leaving out those not served by the previous system. There was no interest in comprehending who they were and how the previous system served or left them out. The new system did not consider those previously excluded from the transport system, thus excluding them again in the new system, generating a progressive incapacity of access to the generated opportunities for development in the city.

The Cambridgeshire Busway was designed to reduce congestion while creating more opportunities to access Cambridge from the corridor it serves. Although the Busway has potential to attract car drivers and reduce the number of vehicles, it is also leaving important groups out of participating in the system. It would be ridiculous to suggest that a single Busway system can help all the deprived communities in Cambridgeshire. However, not considering these groups with more attention during planning, has created a system that tends to offer more service to the better off. The more deprived groups are forced to use a transport system that is under continuous reduction and are being forced into using their cars to access more opportunities.

8. Cross-Cutting Themes

8.1. Introduction

Despite the contextual differences of geography, population, and political and administrative terms between Cambridgeshire and Quito, there are key themes found in both case studies. These themes can help planners in the case study areas, as well as in other settings, to begin thinking about policymaking from a different stance. Four key themes were identified:

- Congestion and Economic Growth – Despite the differences in complexity of actors, interests, and objectives, a planning system that reinforces itself around the idea of solving congestion and promoting economic growth was found in both cases. Reducing congestion was the key motivation for action in both case studies, and all the actors reinforced this idea at their different levels of participation. In both cases, there was national and local interest in improving the efficiency of the transport networks in the selected areas. All the participants, in one way or another, encouraged the need to reduce congestion and improve the efficiency of the existing network.
- Network of Actors – A complex chain of relations interconnected to find the preferred way to tackle the identified problems, and the approaches taken to solve the congestion and efficiency issues created these chains in both cases. In Quito, a local agency (TSU), was set up to study and develop a strategy; in Cambridgeshire, the government developed a series of multi-modal studies throughout the country, one of which resulted in the CHUMMS Report.
- Isolated actors – An isolated set of actors was identified in both scenarios. Being isolated did not mean automatically being excluded from the benefits the systems brought. Winners and losers of the implementation benefits were identified in both sets of actors, the groups that participated and the isolated ones. However, being part of the decision-making process enhanced the possibilities of getting benefits from the introduction of BRT systems.
- Mechanisms of power – Finally, a sophisticated mixture of mechanisms of power were discovered in both case studies. Notably, there were actors identified that had more experience, training, and opportunities to exercise power.

These themes are detailed in section 8.2. Then in Section 8.3 the risks of keeping the existing power relations unchallenged and —drawing on the research— presents the researcher's own

ideas to challenge the existing power relations, in order to increase the productivity of power and enhance the benefits of introducing new transport systems such as the BRT.

8.2. Cross-Cutting Themes

As mentioned in Chapter 3, section 3.2.2, the focus of this research was to provide in-depth descriptions and analyses of two case studies within their contexts. For this section, comparisons that can help understand existing similarities or unique points between the two different cases were made through cross-case analysis after the individual cases had been studied separately. Because both case studies selected were diverse in several dimensions (see Section 3.5 and Table 2), the differences made it somewhat challenging to compare by extracting their similarities and differences. However, in both cases, similar findings were identified. Both case studies were treated as independent cases and remained identifiable to be able to abstract certain features and attributes for later theoretical comparisons (Goldthorpe, 1997). Only after both cases were analysed and the research questions answered were the results examined together.

Despite the diverse contexts of the cases selected, both studies analyse the exercise of power. This cross-case analysis will further illustrate and foster understanding of the ways the exercise of power was similar in both sites. Chapter 4 (section 4.1.1) showed that expertise is produced through intimate knowledge of concrete case studies (Flyvbjerg, 2001). However, reaching expert levels requires the knowledge of thousands of cases (Khan and VanWynsberghe, 2008). The two cases presented offered the opportunity to reflect on the many occasions where power was exercised.

The answers given to the research questions in both case studies provided a unique opportunity to reflect on the characteristics of the exercise of power in very distinct environmental contexts. This can offer help in other settings during the development of transport policy infrastructure. It is not the intention of this research to generalise the findings from the case studies, nor to set norms about the process of policy making. The cross-cutting themes found in this research can help to raise awareness about the risks and implications of making decisions without considering the role of power in the planning processes of BRT systems. These themes can also provide other people, who are interested in the planning arena, the opportunity to compare the key findings of the research about the exercise of power with the reality of their own contexts.

Following the ideas of Tesch (2013) on “decontextualization and recontextualization” of cases, the answers to the research questions were used as the main material for the cross analysis.

First, the texts with answers to the research questions were analysed. In each answer of each case study the main ideas from all the participants where clustered together in order to find key themes that formed strong clusters. Next, the themes that were similar in both case studies were selected and put together as the cross-cutting themes found.

The searched-for themes were aspects that were common in both cases; analysing the answered questions made this process easier, as the questions clustered the main ideas together. For example, in Table 10 an extract from the answers to the first questions in both case studies is presented. The first research question sets the objectives for the implementation of the BRT in both case studies; and in both sites a strong need to solve congestion and promote economic growth was detected.

Quito	Cambridge	Cross-Cutting Theme
Summarising, a big problem of congestion was identified[1] in the extended centre of the city; an important area of the city because of the high concentration of jobs, hospitals, education opportunities, and leisure activities.[2]	The Guided Busway was part of the set of policies recommended in the CHUMMS Report, to solve the increasing road congestion[1] of the A14 corridor between Cambridge and Huntingdon, while supporting economic growth and housing development[2] that were identified as key problems in the study area.	[1] Congestion [2] Economic Growth

Table 10 Example of Two Cross-Cutting Themes Found in Both Case Studies

Therefore, it is not surprising that each of the key themes found are closely related to each of the research questions. Once the themes were identified, they were recontextualized in order to report them and analyse the key themes.

8.2.1. System that Reinforces Itself Around the Idea of Solving Congestion

Planners in both cities wanted and needed to do something about the growing transport problems in their cities that was hampering economic growth. In Cambridgeshire, as mentioned in section 7.3.1 reducing congestion on the A14, together with creating access to

the city of Cambridge and promoting economic growth was seen as the main issue to solve. In Quito, see section 6.3.1 , access to and reducing congestion in the city centre was presented as the biggest transport problem. All the actors that were invited to participate —or had the opportunity to exercise power during the planning processes of both systems— contributed in one form or another to the idea that the efficiency of the system to access the area of the city with the highest concentration of activities needed improvement. Even the actors that did not support the implementation of the BRT, believed that solving congestion and access were the most important issues to solve. For example, in Cambridge, the rail advocates agreed on the introduction of a system to access the city; however, they favoured a rail-based system instead of the BRT. As was discussed in Chapters 6 and 7 (Sections 6.2.3 and 7.2.5), concentrating on the city centre left the most deprived areas of the city out of the benefits of the new transport systems.

Both schemes facilitated access to the city centre that attracted new and more investment to the same areas that already concentrated on education, job, health, and leisure opportunities (Sections 6.3.2 and 7.3.2). Whilst new developments were introduced to the same areas of the city, fewer opportunities were being developed in the more deprived areas of the city. For example, in Quito, according to the 2010 census, the areas with the highest levels of public transport provision were also the areas with a higher concentration of jobs; 74% of working people had their jobs in those areas, and 77% of the big employers (more than 200 workers) were concentrated in these same areas where only 34% of the population live (Moscoso et al., 2012).

Cambridge is a regional hub of employment; the 2011 Travel to Work Area data showed Cambridge as the third largest travel to work area in the East of England. Commuting patterns into Cambridge stretch across the Cambridgeshire local authority boundary into the surrounding districts (CCC, 2013). Congestion in the central areas of the cities is the most visible marker of deteriorating accessibility, increased journey times reduce speeds and therefore accessibility of people to opportunities. Improving congestion levels becomes a priority for decision makers and politicians; however, a change in the framing of the problem can help identify problems of accessibility not only in the areas of congestion but in the areas with limited transport options.

Taking into consideration only the city centre and its related transport problems left out the marginal communities with residents that were already struggling to get to the city centre, given the lack of public transport alternatives or poor quality in existing transport options. Planners, politicians, and other actors that had the opportunity to exercise power assumed

that the whole city needed less congestion and more access to the city centre. The exercise of power shaped a system that created higher levels of privilege to certain already less vulnerable segments of the population (see Sections 6.2.3 and 7.2.5). It became difficult for the more vulnerable groups to participate in the benefits of the new transport system, making it harder to access better jobs and better education. They were left to rely on either buying a car or using a poorer quality transport system.

A common set of ideas around the need to solve congestion, together with the segregated lanes concept and traditional planning approaches, helped with the establishment of corridor-based solutions like the BRT. The BRT —based on existing transport knowledge and designed with the help of local and foreign advisors— was a system accepted by politicians, professional chambers, media, and the population. The final plans introduced new, efficient, and reliable BRT systems that met the purposes of their specific designs.

In Quito, the system unlocked the previous existing gridlock with a main line system of high capacity buses; while in Cambridge, the system alleviated the existing gridlock on the A14. Both systems use feeder lines that connect the people from the peripheral areas of the city to the BRT and then into the central area where the opportunities are located. However, the early success of the proposed ideas tied the planning team, the Municipality, and the politicians into a new set of procedures that limited any further thinking about different approaches. As was disscussed in Chapter 6, in Quito, the consecutive mayors have continued to implement corridors that run parallel to the initial line; in Cambridgeshire, new and improved bus priority measures have been concentrated on the main transport corridors in the county (Huges, 2014).

The dynamic exercise of power felt at the beginning of the process, where many actors intervened, came to a stop the moment the first line was implemented and successfully accepted by the population. The final system was the result of a series of disagreements and confusions that were settled by the continuous exercise of power.

As will be shown in Section 8.2.2, a non-declared agreement was reached between planners, politicians, and the community that more corridor-based systems provide solutions for the transport problems in the city. The systems become an artefact which is part of the manner planning is done, so they become the focus of planning against other competing problems. For example, in Quito, planners are more interested in increasing the capacity of the BRT instead of improving accessibility for people. Additionally, this leaves other agencies —such as urban planning— out of the planning process, which are essential to integrate more efficient

transport systems in a city (Geerlings and Stead, 2017, Dur and Yigitcanlar, 2015). The power relations shaped the system by integrating certain groups and isolating others into the process.

8.2.2. A Chain of Actors

Once the decision to focus on tackling congestion was taken, in each case, the initial chain of relations kept growing. The chain was formed by a complex network of actors that gave the final shape to the proposed systems. The formation of this chain was complex and, as Foucault (1978) notes, was the result of a process of constant struggles and confrontation that transformed, strengthened, or reversed the relations formed. During the planning process of the systems, all the actors —those with the opportunity to exercise power as well as isolated actors (as will be discussed next in section 8.2.3)— contributed in one form or another to the idea that the efficiency of the system to access the area of the city with the highest concentration of activities needed solving.

The relations of power that formed part of each chain of actors surrounding the planning process of the systems in both cities determined who were the winners or losers of the implementations. The actors that managed to be part of the chain of power are visible winners or losers of the implementation of the system. On the other hand, the isolated actors became winners or losers in a more disconnected way.

Planners and politicians behind the adoption of the systems were benefited as was noted in Sections 6.3.2 and 7.3.2. Politicians and planners have received important career advancements at different levels; for example, the leader of the Council for Transport in Cambridgeshire became the leader of the Council and later became Head of Consultation at TFL.

In Quito, the head of the planning team became a recognised BRT consultant for the World Bank, and the Mayor responsible for the delivery went on to be elected President of the country. Research revealed that these same career advancements have been found in other actors behind the adoption of BRTs, such as Peñalosa and Mokus in Bogotá (Gilbert, 2008) and Jaime Lerner in Curitiba (ITDP, 2007). As stated in Chapters 6 and 7, the promotions were not necessarily related directly to the implementation of the Guided Busway. However, the success of the system was an important accomplishment for their career advancements. The successful implementation of a good transport system can be used to obtain high political benefits.

There were also actors that were part of the chain of power that did not benefit from the introduction of the system. Among these actors were the groups that did not want the system to be implemented but did not offer any viable alternative to the project. Such is the case of Cast.Iron, the group that opposed Guided Bus system from the beginning in Cambridgeshire. In Quito, the transport operators were involved in the planning process; however, they did not make much effort to be involved in the proposed system, as all their efforts were put into having the whole idea of the BRT withdrawn. These actors had an opportunity to exercise power to shape the BRT, but they did not succeed in shaping the system to their benefits.

What is learned from this particular point is that the decisions taken by TSU in Quito and CHUMMS in Cambridge were only amenable to alteration within fairly tightly bounded constraints. This meant that antagonistic voices had an opportunity to mould the outcome of the system in a particular way, but could not stop it from happening. For example, the housing association and the cycling advocates managed to change some features of the system. An alternative position from the actors opposing the system could have given rise to a more productive exercise of power.

In Cambridge, Cast.Iron could have exercised power to help develop a design of the Busway that would allow a later use of the track by a possible rail system that catered for future demand growth. In Quito, the local operators could have asked for training or developed their own training to manage the first line and any future lines. Their initial positions, opposing BRT systems by all means, did not allow them to exercise power to benefit from the systems productively.

The exercise of power was dynamic and highly interactive in both places. In Quito, there was a larger number of visible actors and interactions, which can be explained by the nature of the reforms that were needed to implement to be able to deliver the transport plan. They relied on the media, the industry, and the public to make sure their objectives were achieved. In both cities, a variety of actors exercised power to build the political, technical, and legal support needed in a very strategic way. However, the strategy in each case was driven by the dynamics of the process and the context of each case study.

8.2.3. Isolated Actors

The previous section described the power relations that were formed by a chain of actors who supported each other. However, while each chain of power was formed, the exercised power in both selected cases caused a series of disconnections and contradictions that isolated another set of actors. The isolated actors did not necessarily represent the actors that did not

benefit from the implementation. As with the actors that participated in the processes of the BRT in Quito and Cambridgeshire, there were winners as well as losers that did not take part in the planning of the system.

As mentioned Section 6.3.2 and 7.3.2, the people and services located near BRT systems won with a modern bus-based transport system that connects houses with the centre of activities, places with larger concentrations of opportunities. The people and services located near the lines did not need to be involved in the planning process of the system to win, as they already had access to a mass transport system that connected people and services throughout the day every day of the week.

The other isolated actors were the segments of the population that were not served by the new transport system and did not receive the benefits from it. There is no evidence that any of the BRTs studied were specifically designed to benefit any particular social group or to exclude others. The interviewed participants had a clear intention to design a system that served the largest number of people possible within the limits of the system. However, the systems in both cases ended up serving a larger number of less deprived areas than more deprived areas In sections 6.2.5 and 7.2.5 was shown that in Quito and Cambridge a higher level of less deprived areas are served by the BRT systems. The new systems only marginally serve the more deprived groups that only benefit if they live close to the systems.

These findings are in line with the literature of BRT in developing countries, which has shown that the poorest segments of the population are not being served by the implementation of BRT systems (Venter et al., 2013, Bocarejo and Oviedo, 2012). It is interesting to note that in Cambridgeshire, a county in a developed country, the results do not reflect much difference to less developed countries; the more vulnerable, although fewer in number, were also left out of the benefits of the system.

The exercise of power often leaves vulnerable people out of participating in the benefits brought by newly implemented systems. This lack of participation can be due to many different reasons; for example, not only the restricted geographical selection of the venues set up for participatory meetings, but also the design process itself. In Cambridgeshire the schedule selected (evenings, see Figure 41) made it difficult for people with children but no access to childcare to attend the meetings.

It is easier for organised groups, such as cycling advocates or housing associations, to have the needed tools and techniques to exercise power. For example, well organised groups are more likely to be capable of producing knowledge in the form of plans and proposals, and they may

have the capacity to review the plans and proposals made by different levels of government. They also might have the capacity to mobilise actors and build networks, in case other means to exercise power are needed. Individual actors can also review and elaborate plans and proposals and exercise power at any moment. However, larger groups also mean a larger number of tools and techniques can be used to exercise power.

Isolated groups, as well as the actors that are part of any chains of power, need to understand how power is exercised to obtain benefits. The exercise of power, as studied in this research, is not a one-way stream of people giving orders and other people obeying, or a single figure dominating a specific group. Power relations always have a minimum of two actors in a constant interaction of confronting positions. However, this means understanding that a productive exercise of power requires winning some and losing other battles.

The exercise of power does not guarantee positive outcomes, but having the possibility of influencing policy helps in building better-informed policies. The level of influence was related to the timing of the participation in the decision-making process. Actors who were brought later to the process have less possibility to shape the outcome of the system. Cast-Iron in Cambridgeshire and the transport operators in Quito are two examples of actors that came late into the chain of power and evidence that it was harder for them to exercise power productively.

On the other hand, the housing association in Cambridgeshire and the police in Quito are examples of actors that came to be part of the chain of power at a later stage and influenced the design of the system. Nevertheless, the actors who exercised power from the beginning of the process determined the implementation of the system. The development of the systems also limits the groups that take action, because some do not feel that their intervention might influence the planning process and thus might refrain from participating.

In the fifth level of analysis in Chapters 6 and 7, it was shown that the more vulnerable segments of society were isolated and never part of the chain of power, thus they did not have the opportunity or incentive to participate in the planning process of either system. As a consequence, they were not able to access the benefits from the new systems, in sections 6.2.5 and 7.2.5 in both case studies was shown that the more vulnerable segmentes of societe are also the less likely to benefit from the introduction of the transport systems. Also, being part of the chain of power did not necessarily guarantee that any particular actor would be included in the benefits the systems created; however, it did offer an opportunity to inform and develop a different strategy for the implemented BRT. In a society that has been more

inventive than others in terms of creating mechanisms of power (Foucault, 1978), the isolated actors, as well as the policy makers and transport planners, need to understand how the mechanisms of power can help develop more inclusive transport projects.

8.2.4. Sophisticated Mechanisms of Power

Power is everywhere. Everyone has the potential to exercise power and the exercise of power is productive. However, not everyone actually exercises power, hence the unequal nature of the "power landscape". Exercising power, in order to increase the levels of productivity, requires the development of a series of tools and methods. The tools and methods needed are more prominent in certain persons or groups that are more frequently exercising power than those not exposed to a decision-making environment, such as politicians that are constantly trying to promote their ideas to receive votes. A similar situation is that of the planners who, as mentioned in the literature review have a role of creating space of other discourses (Connell, 2010) therefore need to negotiate or make bargains with other planners or policy makers. However, with all of their experience exercising power, politicians still lose elections and planners do not always get their proposals accepted. For example, the Leader of Transport in Cambridgeshire County Council persuaded the Central Government officials to set the CHUMMS Report as a priority. Whereas in Quito, the initial planner's idea of having an international operator for the BRT was dropped when the local operators began to take actions.

Although it appears that people in decision-making positions, such as planners or government officials, are more likely to exercise power to achieve their objectives, there is space to alter those objectives, and more importantly, there is always the opportunity to resist power. Existing knowledge, or the generation of new knowledge and the mechanisms used to present that knowledge is constantly used to inform and exercise power.

Organised groups like the housing associations and environmentalists in Cambridgeshire, have also been in the business of developing knowledge to fight for their ideas and exercise power. Individual actors also use power, such as the university teacher that became head of the planning team in Quito, and exercised power over the Mayor to persuade him to drop the idea of a rail system in Quito. However, there are people who do not, or have not, developed or practiced their skills enough to exercise power.

The inclusion of new actors to a planning process needs to be accompanied by training, understanding, and capacity to develop their own tools and methods to have their voices heard. The most deprived groups require different sets of tools to understand their needs and

worries. At the same time, planners also need to develop new tools and methods to understand the needs and concerns of deprived groups, and then those tools can help provide a more productive exercise of power. The productivity of power cannot be exclusively related to the objectives originally set by the development of the transport systems but to the ability of the systems to increase opportunities to the less deprived. A system of accountability as mentioned in Section 6.3.4 can be implemented to evaluate the results based on the opportunities created by the new systems for the more vulnerable segments of the population.

Planners with tools to understand the more deprived segments of the population can help develop policies with different outcomes than the ones presented in both case studies. This seems to be a weakness in the Foucauldian approach, where there is a reluctance to say what those tools and methods are; he suggests that it is up to those groups and actors to develop their own tools. Transport seems to be a particularly technologically develped process and finding ways for participation to work within, across or alongside these tools, in ways which are meaningful, is particularly difficult. However, the analysis of power in both case studies produces some lessons regarding the tools needed to exercise power. The following section will address some options for different actors, showing how certain tools can be used to challenge the existing power relations.

8.3. Challenging Existing Power Relations in BRT Planning Practices

Planners, politicians, and policymakers interested in promoting the implementation of more sustainable transport by concentrating on the most congested areas of a network, without implementing additional policies, can actually create more pressure to the transport system. The areas that already attracted a majority of the trips, in both case studies selected, became more attractive to new investment with the introduction of the new, modern, efficient transport systems.

More trips are now made to the same areas by various modes, particularly the newly implemented BRTs and by car drivers. The new systems then get overcrowded and the congestion levels increase to the same critical levels that drove the implementation of the BRTs. The population in the transport deprived areas are forced into using alternative modes to access the opportunities of the cities. In the case of Quito, the more affluent groups have access to cars or motorcycles to access the city, while the poorest segments, with no access to public transport, use paratransit, walking, or riding in the flat beds of pick up trucks. In

Cambridge, the transport deprived are left to use infrequent bus services, forced into buying cars, using expensive taxis, or simply excluded from the activities in the city.

Planners and BRT advocates, as well as funding agencies, such as the World Bank, promote the introduction of BRTs in developing countries on the premise that the systems are intended to alleviate the transport needs of the poor (Venter et al., 2013). However, BRT systems may actually be reinforcing certain existing inequalities in the cities. As mentioned before, some authors (Venter et al., 2013, Bocarejo and Oviedo, 2012) already pointed out that BRT systems in the region are not particularly serving the poorest of the poor. Additionally, this research shows that the more deprived areas in Cambridgeshire, a region in an OECD country, are also not being served by the introduction of the BRT system.

In both cases, the more deprived segments of the population were not part of the planning process, and their voices and concerns were not addressed during the implementation of the system. Planners and policy makers that are interested in promoting participatory approaches to transport planning, will need to advocate for the inclusion of more participants in the design of more sustainable transport systems (Banister, 2005). However, the inclusion of more participants, without a deeper understanding of the role of power, runs the risk of facing the same problems that traditional planning has created.

Both case studies presented a wide network of actors that participated in the design of BRT systems, however, all actors agreed to the idea that congestion was the most important problem to solve with the new systems. High quality corridors ought to be part of a clear network, not just systems on their own. The network should aim at achieving provision that functions for all, investments in the main corridors should be justified as part of the larger transport area. The planning process of the new BRT systems needs to include new knowledge; the technical knowledge of the teams planning the system is important, however, as evidenced by the outcomes of these systems the knowledge used was still limited.

Particular effort should be put into engaging those groups that are normally neglected in the planning process. Local participants need to be involved as early as possible in the planning agenda. A particular effort should be put into the more deprived communities with the aim of identifying, as far as possible, the objectives and requirements that the project should meet in order to shape it in a way that specifically helps those communities. This can help planners depart from any existing inertia that drives planners and politicians to reduce congestion only, and instead focus on the requirements of those in deprived areas as well.

It would help policy makers and planners to become aware that there are many other issues besides congestion that transport needs to tackle, such as local accessibility, improved walking and cycling infrastructure for shorter trips, and creation of local bus connections for longer travel needs. Additionally, more local opportunities need to be created in order to avoid traveling to the more congested areas, including policies to attract investments to the deprived areas. Additionally, creation of affordable housing projects near the new investment can ensure a diverse mix of people can access the higher quality parts of the network.

The intention of involving deprived communities is giving them a voice and understand the particularities of their transport needs. In Quito, there was an important attempt to involve many actors at the beginning, as planners, academics, politicians, and other high-level officials came together on the first technical trip. However, local communities were not part of the initial conversation for finding a solution for the transport situation in the city. Projects with national importance may be imposed on local agencies for transport development, for example, creating a link to connect important city hubs with ports or airports. In such cases, the involvement of the local communities may be more difficult. However, local governments should be aware of the local realities and the impacts that such projects can have in local communities. With that information at hand, it is the role of the local governments to exercise power over the national agencies in order to minimise such impacts. As is seen in both case studies, there is always the opportunity to exercise power.

A process of accountability and follow-up needs to be part of the planning process for the members of affected communities. Local governments and agencies are strong promoters of transport initiatives; in both Cambridgeshire and Quito they are the principal sponsors of the implementation of BRT systems. As promoters, it is difficult for local governments to be able to differentiate between government objectives and public interests, objectives, and requirements. In order to avoid possible conflicts of interest, an independent agency — composed of both government and community groups— should be set up with the specific aim of critically verifying that the objectives and requirements set with the communities in each of the planning stages are in agreement with the existing laws, such as environmental, safety, and economy. In cases with conflicts of interest, the more vulnerable groups should always have representatives present.

Actors with special interests, such as private developers, should also have the opportunity to participate, keeping in mind that these groups can also help, with the right set of policies in place, achieve the objectives and requirements of the more deprived groups. In Cambridgeshire, private operators and private developers were key players who supported the

implementation of the Guided Busway. The support of these groups could have worked in favour of designing an operational agreement that would let the operators commercially exploit the busway, but at the same time generate additional routes to deprived areas of the system.

Additionally, the development sectors can ensure that new development is located where trip lengths can be minimised. This means that more job opportunities in the areas where people live need to be considered by developers and policy makers. This would require existing development being refurbished for reuse, along with development of vacant sites within cities for mixed use and high density development (Banister, 2005).

An important characteristic of the implementation of BRT systems, particularly in developing countries, is the elimination of old and small transport units to be replaced by big and modern articulated buses. The benefits of eliminating old polluting buses with new modern articulated buses come with the high cost of accessibility that the small buses previously provided for difficult-to-access deprived areas. In Cambridgeshire, the participants agreed that, although more services along the route have been created, previously existing services have been eliminated and more feeder buses need to be implemented. A closer engagement with transport operators can help bridge this gap.

The planning process of BRT needs to include new knowledge. The technical knowledge of the teams planning the system is important; however, as evidenced by the outcomes of the studied systems, that knowledge is limited. Traditional planning methods have serious limitations, cannot accommodate the constant changes in society, and have lost public confidence (Banister, 2002).Traditional planning practices are deeply entrenched in the professionals of the area, and universities, as well as consultants and funding agencies, have constantly reproduced it (Vasconcellos, 2014).

It would be a mistake to suddenly change the current traditional approach of doing planning, even if there is an alternative. It is more important to showcase the limitations of the conventional approach while at the same time exploring other means by which advice can be given to decision makers. Criticisms must be made in terms that planners can understand, otherwise there is a risk that barriers will be erected (Banister, 2002). Changes can be accomplished using the same tools and methods by which planners currently promote their plans and ideas by incorporating simpler terms that the general community can understand.

In the case of planners in Quito, colloquial language was used in a strategy developed by a marketing expert to explain a series of difficult concepts developed for the BRT to the general

community, professional communities, and the media. These ideas are part of the communicative planning paradigm developed by Healey (1996). The participatory process cannot be limited to particular projects or plans such as the BRT. Participation needs to be an ongoing process, not only by involving communities in any public enquiries but also by creating awareness and debate with all parties involved. The goal is to bridge the gap between politics and citizens, to democratise decision making, and to create public support. An ongoing process could help with problems of implementation, such as partially achieving stated objectives, having longer times of construction, dealing with unexpected changes, etc., and thus encourage the development of new solutions to reduce the risk of stopping future developments.

8.4. Summary

This chapter analysed the empirical results presented in Chapters 6 and 7 and presented the cross-cutting themes found. Despite the existing differences between the two case studies, it was found that transport systems that were continually being created to reduce congestion were built from the power connections of a complex chain of actors. Those actors did not necessarily act to obtain benefits from the introduction of the BRT, however, they were more likely to influence the uptake of the system as a part of the chain of actors.

The ability to exercise power determined the amount of influence a particular actor could have during the planning process of the system. The more “vulnerable populations” were part of the isolated actors that did not participate during the planning process of the system and they are also the groups that benefit the least from its introduction. A sophisticated set of mechanisms of power was developed by some actors while other actors, particularly the isolated groups, did not have the opportunity to develop such tools.

This chapter also presented some insights into challenging the existing power relations from different perspectives, including why different sets of actors should be interested in changing the existing relations, particularly planners, politicians, funding agencies, and private developers. Broadening the number of participants with the ability to exercise power can help create more informed policy. Deprived actors need to be included and a system of accountability that ensures the objectives and aspirations of deprived segments are achieved should be implemented.

9. Conclusions

9.1. Introduction

This chapter clarifies the implications of this research from both theoretical and methodological perspectives as well as related to practice. It presents how the applied theory can be useful for understanding power in a multi-actor environment, with numerous objectives and diverse disciplines involved. The usefulness of the methodology applied is evaluated and reflections are given on how future research could improve those research methods. Finally, risks of continuing to focus planning practices on solving congestion alone are presented, and some initial ideas to stop this inertia are suggested, followed by a summary of the chapter.

9.2. Addressing the Research Questions

9.2.1. Question 1. What Were the Key Drivers for the Implementation of the BRT?

There are different drivers that motivate planners, politicians, funding agencies, and others for the implementation of BRT systems around the world. Funding agencies such as the World Bank, the Inter-American Development Bank, and the Asian Development Bank support BRT systems in developing countries based on their desire for and ability to provide good transport services to the poorest segments of the population (Scholl et al., 2016). However, the new systems are often priced higher than conventional services to the detriment of poorer users who also lose cheaper alternatives with the introduction of the BRT (Venter et al., 2013). Politicians support their uptake because planning, building, and implementation can be done within a general election cycle of 4 to 5 years (Wright and Hook, 2007).

It is useful to note that operational problems have been found in cities where political pressure meant starting the projects without all their facilities ready, for example Guayaquil in Ecuador and Santiago in Chile (Hidalgo et al., 2007). Cities around the world with budget limitations have the opportunity to develop mass bus transport solutions at a fraction of the cost of rail-based systems (Hensher and Golob, 2008, Levinson et al., 2002). However, high end BRT systems can cost as much or even be more expensive than some light-rail projects. For example, the Australian BRT system in Brisbane had construction costs between US$24 and US$40 million per kilometre (Currie, 2006), whereas, the cost of the newer lines in Curitiba was of US$5 to US$10 million per kilometre (Lindau et al., 2010b).

Environmentalists support their implementation, as BRT systems have the potential to displace journeys that would otherwise be taken by individual motorised transport (Wright and Hook, 2007). In developed, countries the environmental impacts will be directly related to the ability of the systems to attract car users, but in developing cities the biggest environmental benefits are produced by the introduction of better technology buses replacing old smaller units (Wirasinghe et al., 2013, Cervero, 2013).

In Quito and Cambridgeshire, as noted in Section 6.3.1 and 7.3.1 the main drivers to implement the systems were the desire to reduce congestion and to increase access to the centre of the city. In Quito, a big problem of congestion was identified in the extended city centre. This is an important area of the city due to its high concentration of jobs, hospitals, education opportunities, and leisure activities. In Cambridgeshire, congestion was also identified on the A14 road link between Huntingdon and Cambridge. The connection of those two centres, together with the promotion of new housing along the corridor and the integration of land use and transport policies, was implemented to promote economic growth in the region of Cambridgeshire. In Quito, the change was driven by the local government, which established the TSU that created the plans and actions needed to solve the problems of congestion by delivering the BRT.

Additionally all legal requirements were coordinated with the Central Government to provide the city with any needed powers. In Cambridgeshire, the Guided Bus was one of the recommendations given by a Central Government multi-modal study, CHUMMS. Road improvements on the A14 and integrated policies to promote public transport and other non-motorised modes in the region were also part of the recommendations made by the final study. In Cambridgeshire, the implementation was led by the County Council, which started building the case for the Guided Bus in 2001, and got the final agreement from the Central Government in 2005.

9.2.2. Question 2. Who Benefited with the Introduction of BRT? Which Mechanisms of Power were Brought to Bear?

Poor cities in the developing world that do not have the financial means to fund heavy-rail systems have relied on the “humble” bus to provide public transport for their citizens (Gilbert, 2008). However, poorly managed transport companies had historically delivered inefficient, unreliable, and uncomfortable services (Vasconcellos, 2014). The development of BRT has been a game changer for rapidly developing cities that did not have the financial means to build rail systems. The benefits of implementing BRT are many and varied. For example, BRT

systems could in general be an effective means of reducing human exposure to traffic-related air pollutants and associated health impacts (Wöhrnschimmel et al., 2008). However, the areas of a city where a BRT system is not implemented keep suffering the consequences of old polluting vehicles. Competition for passengers was common in what has been described as the "penny wars" (Chaparro, 2002). BRTs brought peace to contested street space, reducing the number of accidents in areas where BRTs are implemented (Hidalgo and Graftieaux, 2008). Nevertheless, in places like Quito, a recent study has found that the competition for passengers is still a common practice between transport providers (Buendia et al., 2017). Cities also win financially if they can introduce a mass transit system at a relatively lower price and with faster implementation times than rail systems (Hodgson et al., 2013).

The existing evidence of implemented BRT systems shows them to be a global success in terms of transport policy implementation; however, there is also evidence that points out the important challenges these systems need to overcome. Several authors (Jaramillo et al., 2012, Gilbert, 2008, Bocarejo and Oviedo, 2012, Scholl et al., 2016) have pointed out that the claimed benefits of the BRT are not felt at equal levels because the poorest segments of the population are left out from the benefits of the system. The poorest people are often priced out of the new systems because they cannot afford the higher introduced fares (Gilbert, 2008). Some are physically left out of the system because the BRT is either not accessible or does not cover their transport needs (Jaramillo et al., 2012) and in other cases the service is described as "spotty", since there are few poor areas served (Scholl et al., 2016)

In the selected case studies, some of the benefits described in the literature were found. In Quito, a modern transport system was implemented with lower pollution levels, faster travel times, and a reduction in accidents. In Cambridgeshire, an innovative guided bus system over a disused rail track meant benefits in reduction of travel times, mainly for commuters. The case studies found additional beneficiaries in a more disaggregated way. For example, after the introduction of the BRTs, some actors received important promotions in their roles as planners in their cities, and also at national and international levels.

In the case of Quito, politicians also won with continuous re-elections. Additionally, the Mayor of the city that implemented the system eventually won the Presidency of the country based on his success in the city. In Cambridgeshire, private developers benefit from a system that created access to land with a modern transport system, which encourages new investment. Existing developments like the science parks in Cambridge, and all the existing infrastructure in the extended centre of the city in Quito, gained a new system with the capacity to bring large

numbers of people from more parts of the city. However, in both Quito and Cambridgeshire, the benefits are not felt by all segments of the population.

The case studies revealed that the more deprived communities were less likely to be served by the newly implemented systems. In both places, the systems run through areas of the cities where the less vulnerable groups live. The systems had the ability to create additional services with the introduction of feeder services, but feeder routes did not receive the same level of prioritisation as the main BRT routes, thus reducing the claimed benefits resulting in no feeder routes and loss of previously existing services. In Quito, the new system also meant the introduction of new regulations regarding the size of buses for traditional services, but the new buses are not suited to reach some hilly neighbourhoods in the city. In Cambridge, there are limited powers to mandate improvements to feeder services, and in fact service support is in decline. Both cities failed to develop the full potential of feeder services.

The winners and losers of the implementation of BRT systems result from the constant exercise of power. Several mechanisms of power were identified during the implementation of BRT systems in Quito and Cambridge. Authority in the form of knowledge is the most prominent mechanism. However, other mechanisms identified were used to promote some knowledge or undermine other knowledge. For example, in Quito, the knowledge generated by the TSU was used to build the political support needed for the introduction of the system. The Mayor used this knowledge to persuade the local council, whilst at the same time the head of the planning team used knowledge to argue the findings with the transport providers, and the marketing advisors created a strategy to communicate the project to the media and general population.

In Cambridgeshire, the results of the CHUMMS Report were used to promote the introduction of the Guided Bus to the public, and that same information was used to argue against the knowledge generated by the rail advocates, Cast.Iron. Organised groups, such as housing associations or cycling supporters, also used knowledge to exercise power over the Council. Many different actors shaped the system; power was exercised not only to make some voices heard but also to silence other voices. Not all the actors that had an opportunity to exercise power changed the outcome of the system, however having a voice gave more opportunities to shape the final system.

9.2.3. Question 3. Is the Development of the BRT Desirable?

As described in Chapters 6 and 7, the answers to the question of desirability depends on the stance of the beholder. Many decision makers around the globe find BRT systems and their

outcomes desirable. This is demonstrated by the continuing implementaion of these systems. Before the 1990s, only 21 cities had implemented BRT systems around the world; by 2010, 140 cities had BRT; and, as mentioned before, by 2017, 205 cities around the globe have implemented BRT solutions (BRT Centre of Excellence, 2017). Additionally, 55 cities are currently expanding their systems and 121 new cities are planning or building new BRT lines (BRT Centre of Excellence, 2017). The desirability of the systems is not exclusive to a particular region of the world, as BRT systems are found on every contintent, in both developed and developing countries (Deng and Nelson, 2011). The key drivers mentioned in section 9.2.1 above make the systems desirable at different levels for a variety of stakeholders.

In Quito and Cambridge, the situations are similar in the sense that both planners behind the systems and users of the most important economical areas (car drivers), find the implementation of BRT systems desirable. On the other hand, for the communities who are left out of the benefits of the system, the implementation is not desirable. BRT systems concentrated their efforts on solving the congestion and creating access to central areas of the cities, but this left out any benefits for the areas where congestion was not a problem.

Areas with less congestion were also the parts of the cities where the more deprived population live; they are also the areas with fewer jobs, education, health, and leisure opportunities. The results from the accessibility assessment in sections 6.2.5 and 7.2.5 show that BRT corridors in both case studies are not serving big areas where the more vulnerable segments of the population are located. Additional measures or policies could be implemented, however, in Quito, 20 years after the introduction of the Trolebus, peripheral exclusion remains in the city. This is a development that is not desirable in democratic societies.

9.2.4. Question 4. What, if Anything, Should We do to Improve the Current Reality? 4a: How do Existing Power Relations Shaped the Outcome of the System? 4b: How Can These Relations be Challenged?

The systems that are now in operation are serving the various segments of the population unequally. Some correction measures were identified by the participants, particularly the inclusion of more feeder services in the areas with lack of transport services. In Quito, the participants agreed that, in order to improve the current reality, more transport is still needed. They understand that the main issues with the existing system are: increasing congestion and overcrowding on buses. Therefore, from their perspective, future capacity increase is required in the system. In Cambridge, participants also believed that more feeder services could be

incorporated into the Guided Bus system. However, just incorporating more services without a deeper understanding of the more vulnerable groups' needs is at risk of making the same mistakes all over again.

Planners, operators, and politicians, as well as local and international consultants, had the opportunity to exercise power, and their expectations and needs are continuously shaping the planning processes for any future systems. The existing power relations are concentrating on solving congestion and improving the efficiency of the road network. The same power relations leave out important segments of the population that do not have the opportunity to exercise power during the planning process of the system. In order to challenge the existing power structure, the voices of vulnerable groups need to be heard so as to understand their needs and objectives. Simply bringing them into the process does not guarantee different or better outcomes. New mechanisms of power that will bring to light the needs of vulnerable groups are needed, including mechanisms of power that will allow a wider set of stakeholders to incorporate those needs into their own working frameworks.

9.3. Limitation of the Research

The two case studies chosen for this research are very different in nature, as are their contexts. This limited the capacity to make direct comparisons. The most important difference is that Quito's BRT was a complete makeover of the transport system in a city, including changes in the regulatory, operational, and administrative frameworks of the city; while Cambridge was a project that was intended to solve a specific problem in a specific part of the county.

In Cambridgeshire, and in the UK in general, an important part of planning is done by private consultancies. The dynamics of power relations could benefit from more discussions with such entities, helping to understand the government's requirements for the studies. However, it was not always possible to trace the individuals involved, as they were not named on reports, no longer work for the companies concerned, and were difficult to track down. As mentioned in Section 4.2.5, some of the planners involved at the beginning of the process argued, when contacted, that they were no longer involved in transport planning and did not want to participate.

Methodologically, this research did not have all the necessary methods to develop an understanding of the tools and techniques that the more vulnerable communities lacked to exercise power. The accessibility analysis developed in Chapter 6 section 6.2.3, characterises Quito in terms of where the more vulnerable people are located in relation to where the BRT is

implemented. However, it said nothing regarding the restricted opportunities for them to exercise power during the planning processes.

In Cambridgeshire, as part of the inquiry process, some consultation venues were provided. However, the research failed to identify fully how those consultation processes took place, including the participants, their characteristics, and their opportunities to exercise power. For future research, vulnerable groups that were left out of the benefits of the new system could be included in focus groups or be interviewed. This could provide more understanding, not only about how those processes happened, but also provide some tools for them to exercise power. Understanding available tools could help design alternatives, such as training or network building, for a more productive exercise of power.

The phronetic approach suggested that the researcher could work with participants after the publication of these results. This is an important next step that the author of this document plans to take forward during the rest of his career as a transport planner and policy advisor. The intention is to raise awareness of the unintended consequences of current transport planning practices and work together with all participants, including the vulnerable communities, in order to solve any identified problems.

9.4. Implication for Future Research

Transport planners in general, and BRT planners in particular, have acknowledged the importance of participatory planning to develop better outcomes. Transport planning is far from being a centralised practice where a group of highly informed and educated actors adopt the best solutions for a variety of transport problems that cities face. The number and heterogeneity of actors involved that have different and sometimes conflicting interests, make the planning process more complex and sometimes contradictory. Existing theoretical frameworks with a Hobbesian understanding of power, where a single dominant person or group exercises power over a dominated group of people, can help identify existing power dynamics in transport planning practices (Koglin and Rye, 2014). They do not, however, help to uncover all the intrigues of modern planning processes.

In contrast, the studies of power developed by Foucault, following a Machiavellian strategic understanding of power, help to break away from common power beliefs and help to understand complex modern processes, such as planning that includes relations of power. His work in a variety of fields, such as psychiatry, medicine, and history, evidence how some people are excluded from society as a consequence of the knowledge created by the existing power relations.

Foucault's ideas can help understand such relations by noting that, although there are actors that have a higher degree of development of mechanisms of power, there are opportunities for other actors, normally seen as powerless, to resist power and make their voices heard. Having knowledge, generating new knowledge, and incorporating this knowledge provide basic tools to exercise power. Transport planning is normally informed by highly technical knowledge that is of extreme importance, however limited. New knowledge about the objectives and requirements of people living in more vulnerable conditions can help create more inclusive plans and strategies.

Foucault's work is limited in the development of a specific methodology to study power (Brass, 2000). However, his work is full of guidelines that Flyvbjerg (1998b) incorporated to develop his 'phronetic' approach to study the role of power and rationality in planning practices. The guidelines developed by Flyvbjerg, presented in Section 4.1.3, were used to understand the role of power in the planning processes of BRT systems in the case studies selected. The existing literature on transport policy acknowledges the importance of power in the design of policy, but it is still limited in understanding how it operates during different planning processes (Marsden and Reardon, 2017).

This research helps to fill the existing gap between transport policy studies and the actual social processes of policy making. This research is an initial attempt to understand how power relations work to shape a particular policy, such as the BRT, with enormous potential, especially in places with limited economies, such as cities in the developing world. Interviews with high-level officials were really helpful to understand the mechanisms of power present during the planning processes of BRTs, as their objectives and means to achieve those objectives were collected first hand. In Quito, the close relationship between the planners and the decision makers helped deal with the challenges faced during the process, as they acted in a team during the exercise of power.

This research has provided a unique oportunity to understand the process of planning a complete transport policy, such as the BRT, from its initial conception through to its implementation. It has relied on historical research of events, which permitted study of the development of transport policy from the voices of the actors that where directly involved in the planning process of BRT systems. Some challenges of historical accounts need addressing; for example, some of the reflections of the participants may be a factor more associated with the passing of time than the intervention itself (LeCompte and Goetz, 1982). Additionally, as mentioned in Chapters 6 and 7, the planners involved in planning the systems received benefits from important advancements in their careers. This influenced the way they

understood the system, particularly in Quito, where the systems had important repercussions for later uptake of similar systems in the country and later in the region.

BRT systems were shaped by a set of power relations that were fixated around the idea of solving congestion. Improving accessibility to the areas of increased congestion acted as the main driver for the adoption of the systems and the areas of higher congestion received the most benefits of the new systems. However, as found in the research, the areas of high congestion were not the areas where the more deprived live. Political pressure to improve existing conditions drives elected officials to solve the more visible problems. Therefore, the new infrastructure, implemented in the areas of high congestion, offered a marginal service to the more vulnerable.

Furthermore, in the areas where the systems were implemented, there is a higher concentration of opportunities such as work, education, leisure, etc. The new infrastructure attracts even more investment as new development is implemented in the areas served by the new BRT lines. This development prioritises new business opportunities over housing, putting pressure on new housing development outside of the areas where the opportunities lie. More trips are made to the same area by various modes, particularly the mechanised modes such as the new BRT and private vehicles.

Unfortunately, the problems of congestion have not been permanently alleviated. In Quito, the new system got quickly overcrowded and congestion returned to the same critical level that drove the implementation of the BRT. In Cambridge, congestion levels on the A14 decreased in the beginning, but rose back up after a few months. All this happened while the more deprived areas still struggle to get a transit system capable of dealing with their daily needs. This research does not advocate ignoring ways to solve congestion. However, policies that focus on improving the efficiency of existing transport conditions need the support of other policies to avoid increasing the number of trips to the already congested areas. Other policies may indeed exist to tackle some of these other problems. However, none were identified through CHUMMS or in the development of the Quito bus system, suggesting that these proposals were not part of some wider narrative or strategy.

Several mechanisms of power were identified in both case studies. Similar to previous planning research (Albrechts, 2003, Flyvbjerg and Richardson, 2002), intimidation, manipulation, persuasion, authority, and coercion were present. Authority in the form of knowledge is more prevalent. The generation of knowledge and the use of other mechanisms to impose that knowledge seem to be the most common tools to exercise power. Knowledge generation

appears to be the key element to exercise power. Once knowledge is generated, other mechanisms come into action in order to implement that knowledge, such as manipulation and persuasion. Therefore, it is important that the generated knowledge is not only technically supported, as it currently is by advanced planning techniques, but also that it is empirically tested, and is informed by the realities, objectives, and aspirations of the most vulnerable groups. If new interventions consider these three variables, current planning practices could benefit.

In both cases, some communities were not considered or were maginalised from the planning process. This reality is not only true for the case studies selected, but is also found in a more general set of processess in transport planning where benfits of systems' interventions typically fall into time savings for users of those interventions (Banister, 2005). Incorporating the marginalised communities in order to understand their needs and objectives is important and, as mentioned in Chapter 2, forms part of the comunicative turn of planning (Healey, 1996). However, without incorporating notions of fairness and justice into the frameworks of policy makers and planners when designing policy or deciding on investments, the voices of some communitites can be lost in the planning process. In the implementation of transport policy there will inevitably be winners and losers and the results of this research have shown clear examples of such winners and losers in the implementation of BRT systems selected.

The lack of a broader transport strategy limited the impact of the new transport infrastructure in the cities of this study. Neither project considered additional policies that would offset the limitations that any implementation brings. The introduction of sustainable modes such as the BRT, or any other policy, must not ignore the social elements of the introduction of new schemes.

Reducing congestion, improving the quality of the environment, stimulating healthier lifestyles, strengthening the economy, and many other positive objectives of transport policy need to be balanced with improving access to those who have poor access and making sure that those segments of the population on lower incomes do not lose out relative to those in higher income groups.

Transport planners and their current limited participatory practices are lacking tools to integrate vulnerable groups into the planning processes. New tools are required for the different actors to include a wider set of participants and their voices. Politicians need to be aware that not only people who vote are important; planners also need to realise that a household's mobility is varied and requires a different set of capacities and capabilities. It is

not the same to travel to work every day compared to taking children to school, shopping, visiting friends, etc.

Policy makers need to broaden the networks of actors involved in the planning process, in order to understand the needs of all groups. Policy makers that develop tools —allowing for more opportunities to listen to the communities that are more likely to be left out of the planning processes— can benefit from political gains and can also deliver more oportunities to the more vulnerable groups of society.

9.5. Concluding Remarks

The magnitude of the transport problems sometimes is shadowed by increasing congestion and lack of accessibility to key points in our urban areas. Political pressure from social unrest drives planners to make decisions without understanding in depth the transport problems of the different areas. Community involvement is a key feature for understanding the needs of citizens (Handy, 2008). Participation has been proposed as a means to integrate more actors and ideas into the planning process (Healey, 1997).

However, after a few decades of incorporating participatory practices into the planning process, the results are still unsatisfactory. The findings of the analysis of power in Quito and Cambridge suggest that the inclusion of the communities need to be as early as possible in the planning processes. Power from the different stakeholders, particularly from the communities with higher needs, need to be exercised from the beginning of the process. An early involvement of these communities can help the planning to concentrate in solving the needs of the people rather than the implementation of a specific scheme. The success of the system can be measured not by the implementation of the BRT or similar, but by addressing the real problem of the community. Currently, the opportunity to exercise power for the communities is given after the decision of implementing the scheme is made, and only marginal changes are achieved.

The introduction of the communities does not guarantee that their needs and objectives will be incorporated into the planning process. A set of mechanisms of power need to be developed by all members of the process. The purpose of incorporating the mechanisms of power is twofold: first, the mechanisms must help bring to light the needs and objectives of the vulnerable communities. Second, the mechanisms of power must help the other stakeholders of the planning process incorporate the needs and objectives of the vulnerable communities into their own working frameworks. With the knowledge incorporated, planners can then look for the best possible evidence and develop plans to satisfy the existing needs

and objectives. The extended knowledge from communities is enlarged by incorporating the concerns of vulnerable voices into the dialogue. This additional input can help transport planners develop new projects that incorporate the knowledge and needs of the vulnerable communities.

The analysis of power of this thesis brings understanding about the role that transport planners have in order to guide projects towards objectives of reducing inequality by creating more and better access opportunities for the more deprived groups in our cities. In moments of critical junctures planners can use different mechanisms of power such as knowledge to bend projects towards productive results. Process of continuous accountability that ensures the objectives and aspirations of deprived segments are achieved should be implemented throughout the planning, implementation and follow up process.

Therefore, a way forward is to include all those involved in planning and implementing improvements to transport systems in the future. Until all actors are represented from the beginning of the process, the systems will continue to fall short of serving the growing transport problems. Use of power must be well understood, because simply drawing up new plans does not address the underlying issues.

10. References

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Appendix 1 Out-Line Questions

1. Who was the key personality/agent promoting the project?
2. Was someone against the project? Why?
3. How the idea of a Guided Bus did come about?
4. What were the original objectives of the introduction of the Guided Bus?
5. Was the introduction of the Guided Bus intended to solve any particular issue?
6. What were if any, the assumptions about the users' needs? The institutional needs?
7. What kind of data was used to understand how the Guided Bus was going to satisfy the transport needs of the communities?
8. Was there an alternative?
9. Whose needs have been satisfied by the implementation of the Guided Bus? How?
10. Has the introduction of the Guided Bus brought more resources, decision making/planning freedom, to any particular institution?
11. Where there any constraints on how the BRT had to be implemented?
12. Did you ever felt that the project was not going to be delivered? Why?
13. How has the introduction of BRT improved the previous reality?
14. Do you believe that transport needs have improved with the existence of the BRT?
15. What can be done differently to improve?
16. How do you imagine the city to be without the Guided Bus?

Appendix 2. Consent Form Protocol

Leeds, 17 February/2016

Information Sheet

The following Questions should clarify the research intentions, if you have any additional question don't hesitate to ask the interviewer.

1. Research Project Title:
"Understanding the existing power relations during the implementation of BRT projects"

2. Invitation paragraph
You are being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask the researcher if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

3. What is the project's purpose?
The purpose of the project is to understand how decisions during the planning and implementation of BRT projects are being taken and how those decisions affect the people the projects are built for.

4. Why have I been chosen?
You have been chosen because of your participation during the planning process of the Guided Bus in Cambridgeshire.

5. Do I have to take part?
It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep (and be asked to sign a consent form) and you can still withdraw at any time without it affecting any benefits that you are entitled to in any way. You do not have to give a reason.

6. What will happen to me if I take part?
Your participation is intended to be for one hour, while an interview will take place. The interview will be in your office to avoid any unnecessary movement.

The interview will be about the planning process of the Guided Bus in Cambridgeshire. Your experience during the process of implementation will be asked, as well as your impressions of the positive and negative events that took place during that process.

The questions will enable open answers. All the questions are related to the planning process and the implementation of the BRT, how you see the system now and what could be done to improve it.

The same process will be repeated with around 15 persons, all the answers will be analysed to find patterns, disagreements and suggest planning improvements based on the findings.

7. What do I have to do?
The interview will require one hour of your time.

8. What are the possible disadvantages and risks of taking part?
The interview has been designed not to cause any personal disadvantages or any way that may put you in risk of any kind. However if you feel any kind of discomfort, disadvantage or risk during the interview you can ask to stop the interview, no need to give explanations. If you do not want to answer any particular question you are in your right to do it.

9. What are the possible benefits of taking part?
Whilst there are no immediate benefits for those people participating in the project, it is hoped that this work will point out any significant differences between the stakeholders and will make recommendation on how to address them in future projects or improvements of the existing systems.

10. What happens if the research study stops earlier than expected?
If the research study stops earlier than expected you will be contacted to explain the reasons.

11. Will my taking part in this project be kept confidential?
Given the nature of the research and the position of the interviewee during the planning of the Guided Bus project anonymity cannot be kept. Names will not be used in the documents however the role of the participants at the time of the implementation will be specified.

12. What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?
As stated before the study requires information of planning process of the Guided Bus in Cambridgeshire. As you where one of the people who took part of the process your knowledge is very important for the study.

13. What will happen to the results of the research project?
The results of the project will be edited in the PhD thesis of the researcher.

14. Who is organising and funding the research?
The research is being funded by the SENESCYT.

15. Contact for further information
The researcher can be contacted to his email, conventional mail or telephone number.

Email: ts09ang@leeds.ac.uk

Address: ITS
34-40 University Road
University of Leeds
LS2 9JT
United Kingdom

Telephone: 01133431791

16. Will I be recorded, and how will the recorded media be used?
The interview will be audio recorded the audio recordings of the interview will be used only for analysis and for illustration in conference presentations. No other use will be made of them without your written permission, and no one outside the project will be allowed access to the original recordings.

You will keep this information sheet along with the attached consent form.
I really appreciate and thank your participation on the research.

Appendix 3 Participant Consent Form

Institute for Transport Studies

UNIVERSITY OF LEEDS

Consent to take part in "Understanding the existing power relations during the implementation of BRT projects"

	Add your initials next to the statement if you agree
I confirm that I have read and understand the information sheet dated 17/02/2016 explaining the above research project and I have had the opportunity to ask questions about the project.	
I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline. In the information sheet are the contact details for eventual decline after the interview takes place.	
The responses given can be used as established in the information sheet.	
I agree for the data collected from me to be used in relevant future research.	
I agree to take part in the above research project and will inform the lead researcher should my contact details change.	

Name of participant	
Participant's signature	
Date	
Name of lead researcher	Alvaro Guzman Jaramillo
Signature	
Date*	