

The role of Management Accounting Practices in shaping efficiency in a Colombian
Utility Conglomerate

Claudia Barrios Álvarez

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List of Abbreviations and acronyms

CEO:	Chief Executive Officer
CUC:	The Colombian Utility Conglomerate
EBITDA:	Earnings before interest, taxes, depreciation, and amortization
IBRD:	International Bank for Reconstruction and Development
IDB:	Inter-American Development Bank
IFC:	International Finance Corporation
IFRS:	International Financial Reporting Standards
NPM:	New Public Management
TVA:	Tennessee Valley Authority
EU:	European Union
WB:	World Bank
WTO:	World Trade Organization

Abstract

The thesis contributes to generating an understanding of the role of management accounting practices in shaping efficiency in a Colombian Utility Conglomerate (CUC)¹. Data for the thesis was derived from multiple sources including interviews, non-participative observations and document analysis, reports and archives about CUC, which has helped to understand the studied phenomenon.

The thesis, which builds on structuration theory (Giddens 1984, Giddens 1993), delineates the interplay between social structures and agency at CUC, the way this interplay led to the reproduction of the very notion of efficiency. In addition, the thesis extends the work of Englund and Gerdin (2008) by illustrating how management accounting practices can be analytical constructs integrating not only situated recurrent (inter-)actions but also the structural principles that underline those practices. Thus, the thesis analyses the influence of the managerial autonomy, the long-term financial approach and the technostructure in shaping efficiency at CUC (Aristizábal *et al.* 1988, López 2005, Varela 2011). Additionally, the thesis analyses the broader influence of the School of Mines and multilateral development banks to enable an understanding of why management accounting practices shape efficiency at CUC.

The approach of structuration theory applied enables move beyond how efficiency is understood within New Public Management reforms, to consider the way

¹ The real name of the company has changed to protect its identity.

how CUC manages to adapt the structural adjustments as demanded by multilateral development banks. The empirical insights show that in CUC efficiency is constructed more as a corporate value exercised through management accounting practices rather than being an exclusive indicator calculated through input/output relationships.

The analysis unfolds how CUC creatively undertook the changes and adjustments to enable a public company to work with the profitability criteria prevailing in private enterprises. In this way, the thesis demonstrates how social structures related to utility companies as profitable businesses and public utilities as economic commodities are reproduced through management accounting practices in a public company within a Latin-American emerging economy.

Chapter 1: Introduction to the thesis

1.1 Introduction

The purpose of this thesis is to provide an understanding of how and why management accounting practices have shaped efficiency in CUC. This conglomerate operates in the household service sector² where the parent company of CUC created a group of 50 companies at the end of 2014 (CUC 2014b). 36 companies are in Central America, South America and the Caribbean. The rest of them are in Colombia. CUC is the second largest public company in Colombia and has been a business conglomerate since 2000 (Varela, 2011). In addition, it has been a paradigmatic case because it was able to stay as a state company (Varela, 2011) while other Latin American utility organisations from Argentina, Chile, Brazil were privatised under pressures from the World Bank (WB) and the International Monetary Fund (IMF) (De Araújo and Cullen 2012).

In analysing how management accounting practices have shaped efficiency in CUC, these practices will be analysed using structuration theory as actions towards controlling material and non-material organisational resources. Management accounting practices will be studied as analytical constructs that integrate not only situated recurrent (inter-) actions but also the structural principles that underline those social practices

² The household service sector in Colombia includes services that people receive in their homes or work places and serve to satisfy their basic welfare and health needs. These household services are water supply, sewerage, garbage collection, electricity, gas and telephone. The public policies of these services are considered sectorial in Colombia and are managed by central organisms such as: the Superintendence of Public Utilities, Ministries, Regulation commissions and the Congress (Varela 2008).

(Englund and Gerdin 2008, Englund *et al.* 2017). Structuration theory has been broadly used in studying implications of management accounting practices in organisational and social settings (Englund *et al.* 2011). Reviews of previous studies that draw on structuration theory reveal, however, that the conceptualisation of management accounting practices is expressed in different ways maintaining a distinction between the terms “accounting systems and accountability systems”, “ideal” management accounting practices and “actual” management accounting practices and “rules” and “routines” (Roberts and Scapens 1985, Macintosh and Scapens 1990, Burns and Scapens 2000).

Relatively few empirical studies using structuration theory have studied situated management accounting practices by integrating the situated recurrent (inter-) actions but also the structural principles that underline those social practices (Lawrence *et al.* 1997, Busco *et al.* 2000, Dillard *et al.* 2004, Conrad 2005, Uddin and Tsamenyi 2005, Coad and Herbert 2009, Jayasinghe and Thomas 2009, De Araújo and Cullen 2012). There are recent studies that draw on the strong version of structuration theory developed by Stones (2005) and apply it in the analysis of different case study settings to understand how agents draw upon and reproduce social structures (Jack and Kholeif 2008, Feeney and Pierce 2016, Harris *et al.* 2016, Makrygiannakis and Jack 2016, Moore and McPhail 2016, Adhikari and Jayasinghe 2017). This research provides another contribution to the debates relating to our understanding of how agency and structure are shaped through situated management accounting practices.

Studies that draw on structuration theory have been conducted in many sectors, for example, the health sector (New Zealand and Egypt), gas industry (UK), electricity sector (UK), electronic manufacturing (UK), universities (USA), automobile industry (USA) and Tobacco industry (Spain). However, only a few studies have been focused on emerging economies such as: construction companies in Algeria (Ouibrahim and Scapens 1989), indigenous accounting systems in Sri Lanka (Jayasinghe and Thomas 2009), public sector reforms in Ghana (Uddin and Tsamenyi 2005) and the regulated electricity sector in Brazil (De Araújo and Cullen 2012). This research is the first study of public sector management accounting in Colombia that has used structuration theory. There is scope for extending the existing literature by theorising empirical evidence and examining the usefulness of structuration theory to analyse a conglomerate located in Colombia. The analysis of this Colombian conglomerate provides a contribution because the conclusions and analytical categories of previous studies cannot be transferred directly to Latin-American contexts because these countries have undertaken public sector reforms in different ways, which have influenced the structures of their organisations (Zurbriggen 2007, Varela 2008a, Varela 2011).

The very idea of reforms in the public sector is anchored in the notion of efficiency and effectiveness and management accounting practices are presented as important mechanisms through which to ensure efficiency in public service delivery (Adhikari *et al.* 2013, Andrews and Entwistle 2014). In this regard, the literature about public sector management accounting in emerging economies and New Public Management (NPM) reforms in Latin America offered an additional perspective for

understanding how and why efficiency has been shaped through management accounting practices in CUC. Efficiency was a key agenda of CUC prior to the adoption of NPM reforms in Colombia, however, the reforms proposed for CUC were meant to improve the company's efficiency; management accounting practices were considered important mechanisms in this regard. Even though some authors have studied the implications of NPM reforms in different settings (Neu *et al.* 2009, De Araújo and Cullen 2012, Adhikari *et al.* 2013), analysing a specific context is significant because “while they may use similar “ingredients”, each country carried out its own specific translation of NPM ideas (Liguori and Steccolini 2013). Additionally, from the perspective of structuration theory the different ways broader social structures are mobilised through situated social practices give particular insights in the research area (Seal *et al.* 2004).

Previous studies have found that public organisations within emerging economies lack the structural conditions for adopting NPM reforms (Van Helden and Uddin 2016, Adhikari and Jayasinghe 2017). This research finds in the case of CUC that the organisation had developed conditions earlier such as: managerial autonomy, accrual accounting practices and a long-term financial approach (Aristizábal *et al.* 1988, Varela 2011) that enabled the company to embrace the reforms and take advantage of them to expand their services within and outside Colombia. This finding may evince that structural conditions are necessary in order to apply NPM principles as other studies argue (Van Helden and Uddin 2016). This research seeks to fill a gap in the literature by providing a detailed qualitative research on efficiency and management accounting practices in public utility companies within emerging economies. There are contributions

in the literature about management accounting and organisational effectiveness but there are few studies about management accounting practices and efficiency in emerging economies from an interpretative approach. Especially, the thesis seeks to extend the scope and application of structuration by deeply exploring why and how agents actively reproduce efficiency meanings through their management accounting practices in a Latin-American context, which has been an under-researched area.

1.2 Research questions

The general research question to be investigated is:

How and why management accounting practices have shaped efficiency in a Colombian Utility Conglomerate (CUC)?

1.3 Research objectives

The main objective of this research is to understand how and why management accounting practices have shaped efficiency in CUC. Other objectives include:

- (i) To characterise CUC transformations by identifying the extent to which its management accounting practices and efficiency were connected to the introduction of development models in Colombia.
- (ii) To explore the construction of efficiency as a corporate value in CUC.

(iii) To identify the role of management accounting practices in shaping the perception of efficiency in CUC.

1.4 Theoretical framework

This research uses Giddens structuration theory to understand how and why management accounting practices have shaped efficiency in a CUC. Structuration theory acted as a sensitising device to guide the empirical research (Busco 2009, Adhikari and Jayasinghe 2017, Englund *et al.* 2017). The significance of structuration theory lies in the fact that it does not provide any pre-established causal relationship about the studied phenomenon. By contrast, a part of structuration theory analysis provides 3 broad and abstract dimensions (signification, domination and legitimation) with 3 levels of analysis (structures, modalities and interactions) that can help to grasp the rules of meanings and resources that are embedded in each setting. In this way, structuration theory not only offered a broad range of analytical categories but also guided the question-type that was formulated in this study and the composite research strategies that were designed from a structuration approach (Stones 2005).

1.5 Research method

This research was carried out through a case study, using a combination of three data sources: documentary evidence, unstructured and semi-structured interviews and non-participative observations. A case study method was recognised as compatible with

structuration theory because it facilitated richer results through ‘in-depth’ and dense descriptions of the studied social phenomenon (Yin 2013). Ryan *et al.* (2002) state that by studying the specific circumstances of a social system it is possible to build some bases to explain it by examining individual parts and how these are connected to form the larger system. In this way, to focus a study about the role of agency and structure in shaping management accounting practices, a public utility company is appropriate because these companies have undergone broader public accounting reforms in recent years (Tsamenyi *et al.* 2006).

The chosen case is CUC, which is a public utility company that holds an important place in the Colombia economy particularly in Macondo³ where the company resources have contributed to the development of the city. In addition, CUC has been acknowledged as an efficient public organization and its management accounting practices were considered when reforming the Colombian public sector during the 1990s (Garcés 2004). CUC became a paradigmatic case of application of NPM reforms in Colombia (Varela 2011). Additionally, as the notion of efficiency is at the heart of public sector accounting reforms (Hood 1995, Guthrie *et al.* 1999, Adhikari and Jayasinghe 2017), this made CUC a meaningful case to illustrate the distinctive features of management accounting practices and efficiency in this conglomerate and to connect the analysis with wider political structures related to these reforms.

³ The real name of the city has changed to protect the identity of the company.

1.6 Expected contributions to knowledge

The expected contributions to knowledge have been grouped into 3 categories: empirical, theoretical and policymaking contributions. The first category of contributions refers to the detailed empirical understanding of how management accounting practices and efficiency are interconnected. This contribution is valuable because there is a scarcity of detailed qualitative studies about how management accounting practices shape efficiency at the organisational level. Additionally, in a recent and extensive literature review about public sector management accounting in emerging economies (Van Helden and Uddin 2016), a Colombian case was missing in the list of 69 countries reported. The study of this setting from a structuration theory approach is relevant to understanding efficiency in public sector organisations and how this has played a role in driving management accounting practice changes in Colombia.

The second category refers to the theorisation of the empirical evidence from the case study. The analysis of the case study turned back and forth to examine the usefulness of structuration theory for understanding how management accounting practices have shaped a perception of efficiency in a Colombian Utility Conglomerate. Structuration theory, more than a framework for conceptual analysis, was the basis for the creative assembling of abstract categories of the theory and the emerging categories from empirical data in order to build new theoretical insights (see Stones 2005, cited in Coad *et al.* (2016).

The last category focuses on providing an in-depth study, which can provide input into state policy debates. Even though this study does not attempt to make generalisations about the Colombian public sector, the documentation of a paradigmatic case such as CUC (Varela 2011) may give insights about what structural conditions promoted the articulation of management accounting practices in shaping efficiency in the company. The case can be critical itself by challenging one of the often advertised and debated NPM doctrines that privatisation of public organisations was desirable because the public ones had been accused of being inefficient (Almquist *et al.* 2013, Andrews and Entwistle 2014).

1.7 Structure of the thesis

The thesis is organised as follows. Chapter 2 provides the literature review. Chapter 3 presents the theoretical approach and the methodology of this research. Chapter 4 is the first empirical chapter and it examines key features of CUC development by particularly highlighting the extent to which the transformations of CUC were connected to the development models introduced in Colombia. Chapter 5 is the second empirical chapter, which identifies the construction of efficiency in CUC. Chapter 6 is the last empirical chapter and it presents features of management accounting practices in CUC. Each empirical chapter contains a section for theoretical discussion and analysis. The conclusions of the thesis, the limitations of the research and possible future work are presented in Chapter 7.

Chapter 2: Literature review

This chapter begins with a review of how accounting researchers have defined management accounting practices using Giddens' work. The objective of this review is to generate an understanding of how structuration theory is applied to management accounting studies. Additionally, the chapter reviews public sector management accounting studies within emerging economies, NPM reforms in Latin America and studies about efficiency in utility companies, the research setting of this study. The literature review about public sector management accounting within emerging economies, NPM reforms in Latin America and efficiency in utility companies has provided a specific social context on which management accounting practices can be studied and offered a contextual framework for this research. This chapter also presents a brief literature review about studies that link management accounting and efficiency. The final section provides a conclusion of the chapter.

2.1 Management Accounting Practices from Structuration Theory Perspective

Englund and Gerdin (2008) analyse Giddens' structuration theory and its utilization in management accounting practices. This review finds that in defining management accounting practices, previous studies maintain a distinction between the terms "accounting systems and accountability systems", "ideal" management accounting practices and "actual" management accounting practices and "rules" and "routines". The revision demonstrates that the concept of management accounting practices has been

defined differently in the extant literature. While some authors have defined management accounting practices as concrete tools (Hassan 2005), others have conceptualised management accounting practices by integrating the situated social practices of agents and the social structures that underline those social practices (Busco *et al.* 2000, Englund and Gerdin 2008). The revision of this literature concludes that there is still a scope for extending the existing literature by theorising empirical evidence that capture social structures that underpin the situated management accounting practices in particular settings. This research seeks to contribute to fill the gap by examining management accounting practices and efficiency in a Colombian Utility Conglomerate using structuration theory.

2.1.1 Accounting systems and systems of accountability

Roberts and Scapens (1985) developed a theoretical framework based on structuration theory to overcome the excessive technical perspective that has dominated management accounting studies. They propose a distinction between accounting systems as abstract sets of rules and resources used by individuals in their social interactions, and accountability systems as sets of institutionalised practices, which would represent the actual use of Accounting Systems. The study by Roberts and Scapens (1985) provides some insights on how connecting structuration theory and management accounting can assist in illuminating the study of communication, sanctions, and power relations within management accounting practices.

Roberts and Scapens (1985) differentiate between two kinds of systems: accounting and accountability. In doing so, the authors' emphasis is on Giddens' concept of systems, which are central to Giddens' work, as interdependent social practices, where accounting systems are not conceived as isolated abstract designs, but as systems that are operational and embedded into the actual accountability practices of individuals. Roberts and Scapens's (1985) paper is a seminal work which uses structuration theory in explicitly defining management accounting systems as an abstract set of rules and resources (modalities) used by individuals in their social interaction contexts. This seminal work has inspired the extant structuration-based literature (see for example Macintosh and Scapens (1990); Scapens and Macintosh (1996); Lawrence *et al.* (1997); Burns and Scapens (2000); Uddin and Tsamenyi (2005); Scapens (2006); Fay *et al.* (2010); Englund *et al.* (2011); Roberts (2014).

For instance, Lawrence *et al.* (1997) draw upon Roberts and Scapens (1985) distinction between accounting systems and systems of accountability in order to analyse the institutionalised modes of interaction before and after the health sector reform in New Zealand initiated in 1993. They use the term accountancy to refer to the practices of accountants as part of wider social practices that are implicated in social reforms, a definition also used in Lawrence and Doolin (1997). These authors contribute to the development of structuration theory by connecting the changing structures to the way in which accounting practices are embedded into systems of accountability. With this analysis, the authors address one of the critiques of structuration theory about its lack of connection between theoretical debate and empirical research. Their contributions to the

structuration theory have been valuable in this study to identify changes in the political, economic and social structures within which public sector organisations operate.

Lawrence *et al.* (1997) argue that before the health sector reform, health professionals controlled the information about their social practices. After the reform, accounting systems became an authoritative resource used by control organisms to monitor activities of doctors through performance measurement systems. Public resources started to be allocated based on doctors' productivity, making health professionals accountable for the responsible rationalisation of resources. Lawrence *et al.* (1997) identify some structures of signification, domination and legitimation as the changing meaning of health organisations from provider of care to successful business. In addition, the authors identify the changing moral order from health service as a fundamental right to health service as an economic commodity, which could be transacted regarding market rules that reduced the power exercised by health professionals. The findings of Lawrence *et al.* (1997) contribute to this research, even though the sector of study is different. Similar to this study, this research aims to theorise the empirical evidence in the fieldwork and turn back/forward to examine the usefulness of Giddens' analytical categories in a Latin-American context as Colombia, which has not been examined from a theoretical proposal of management accounting practices based on structuration theory.

In a further study that utilises the Giddens framework, Conrad (2005) focuses on the gas industry. The author also draws upon Roberts and Scapens' (1985) distinction between accounting systems and systems of accountability to analyse how these systems

were implicated in the transformation of the nationalised British Gas Company into the privatised British Gas. Using a similar approach to Lawrence *et al.* (1997), Conrad (2005) analyses the structures of signification, domination and legitimation before and after the privatisation era in order to explain how accounting language helped to transform the organisational culture of British Gas. These three concepts are pillars of Giddens' modes of structuration.

Conrad (2005) reveals that accounting information as an interpretative scheme played a relevant role to change from a culture of public services to a competitive culture guided by market rules. Accounting information became important to measure the cost of new activities that were highlighted in the new business units where managers were held to be accountable to achieve financial targets in a competitive environment. This contextual analysis of management control and organisational change in the gas industry constitutes the contribution of the author to the literature on the impact of regulation on privatised industries. The examination of Conrad (2005) has been useful to connect the structural conditions revealed from the empirical analysis of CUC with broader social structures of signification, domination and legitimation. The following sub-section discusses studies that have established a distinction between management accounting systems and management accounting practices.

2.1.2 Management accounting systems and management accounting practices

While some studies are focused on structural analysis, others have drawn on modalities, as the medium and the result of social practices, to distinguish between the abstract design of management accounting systems and the usages of those systems in practices. For example, Macintosh and Scapens (1990) do not refer to systems of accountability as prior work did but they have introduced the idea of management accounting practices at the level of social interaction. Macintosh and Scapens (1990) critically analysed Dirsmith *et al.* (1997) work regarding the budgeting system of the University of Wisconsin to analyse the modalities of structuration implicated in the relationship between the University and the State. The analysis of Macintosh and Scapens (1990) about Dirsmith *et al.* (1997) work reveals the relationship and interdependence between structural dimensions proposed by Giddens (1984). The analysis especially illustrates how dimension of signification materialised in the use of budgetary discourse over-conditioned dimensions of legitimation and domination. This interwoven analysis of structures of signification, legitimation and domination provides an example for this research about how these dimensions of the structure are inextricably linked in the empirical evidence.

Using a similar approach, Macintosh and Scapens (1991) analyse two case studies to identify modalities of structuration. The first case is a detailed description of the development of financial controls in General Motors. The second case exposes the evolution of management accounting systems in the Department of Defense of The United

States. Macintosh and Scapens (1991) reveal how accounting and financial system of the Department of Defense of The United States were useful to resist to direct control of the Congress over the Defense Department Budget. In the case of General Motors, the structure of signification introduced steady changes from the 1920s and 1980s, becoming part of daily practices of the company through legitimation of social structures. The study illustrates how communication, sanction and power as part of social life result in the reproduction of social structures.

Uddin and Tsamenyi (2005) draw on dialectic of control concept developed by Giddens to reveal the complex power relationships between a Ghanaian state enterprise and the SEC. In doing so, they examine changes in budgetary control and performance monitoring in the company influenced by World Bank sponsored reforms. The authors found that those reforms did not improve accountability and performance practices in that company and neither did the changes serve the public interest in the context of an emerging economy. The contribution of the paper focuses on revealing the public interest role of management controls in the context of public sector reforms. The paper has in this way illustrated how analytical categories of structuration theory can be used as a lens to reveal broader structural principles in reproducing budgetary control and performance monitoring practices within an emerging economy.

Macintosh and Scapens (1990) analysis of modalities of structuration has also inspired the work of Jayasinghe and Thomas (2009), who support the view of accounting as a social and institutional practice *per se* and propose the assumption that accounting

language constitutes a modality of structuration (abstract sets of rules and resources). The authors have introduced the term social accounting practices when studying how these practices are embedded in the daily life of an indigenous fishing community. The analysis of research is crucial in explaining how accounting practices are implicated in the reproduction of the prevailing patronage political system, which is claimed to be a major issue for public organisations within emerging economies (Van Helden and Uddin 2016). The following sub-section shows how the management accounting literature that draws on structuration theory proposes a distinction between rules, routines and roles in studying management accounting practices.

2.1.3 Rules, routines and roles

Similar to Roberts and Scapens (1985) and Macintosh and Scapens (1990), Burns and Scapens (2000) propose a differentiation between the rules that compose the abstract management accounting systems (how people should do things), and routines as the “actual” accounting practices (familiarity with doing things). In their work, Burns and Scapens (2000) conceptualise management accounting practices as the actual ways of doing things that may differ from the abstract rules set up in the design of management accounting systems. Despite agreeing on the relationships between rules and routines, the authors argue that there is a distinction between these terms and this distinction is important to understand how these rules and routines are emerged and institutionalised in a dialectal process. This analysis has been used by several authors (see for example Joseph (2006). Burn and Scapens (2000) work has drawn interest due to its attempt at

explaining how practices and routines of management accounting are part of a broader spectrum of organisational routines and how these practices become the way things are done.

In an attempt to broaden the notion of structuration, Dillard *et al.* (2004) draw on Burns and Scapens (2000) conceptual framework in order to link it to socio-political influences of rules and routines in organisational contexts. In doing so, the authors combine structuration theory, Institutional Theory and Weber's framework referring to the work of Colignon and Covalleski (1991). The authors have conceived management accounting practices as practices that can be generated, developed, implemented, changed, appropriated or eliminated over time in the institutionalisation process. Their research adds to the literature on the production and re-production of social structures especially as it relates to management accounting practices. By referring to the decoupling notion of Meyer and Rowan (1977), Dillard *et al.* (2004) also recognised an abstract distinction between organizational structure or practice and the actual practices that are not structurally integrated to organisational processes. Dillard *et al.* (2004) work extends an understanding of structuration theory by explaining how the economic and political levels influence the organisational level, which exemplifies how the abstract dimensions of structures of structuration theory can be articulated to the analysis of organisational practices.

Efforts are also made to define management accounting practices within broader social structures. For example, Busco *et al.* (2000) embrace the definition of management

accounting practices as social, cultural and political phenomena (Cooper 1980, Tinker 1980, cited in Busco, 2000). They also embrace Burns and Scapens (2000) conception of management accounting practices as “carriers of organisational know-how”. The concept of organizational know-how is legitimised in the rules and routines that Giddens describes in his theory. When management accounting practices are institutionalised, these might contribute to stabilise organisational processes by communicating shared knowledge about how to act, what the relevant values are, what the appropriate way of expressing thoughts is, aspects all contained in the organisational culture. They draw on these definitions to carry out empirical research that is related to performance control through management accounting practices. This research studied the Italian company, Nuovo Pignone, which has undergone two important changes: acquisition by General Electric and the implementation of a new quality program based on Six-Sigma measurement.

Busco *et al.* (2000) show how management accounting practices helped to incorporate measurement culture in everyday social practice. For instance, regarding their performance, employees were classified from a ranking that went from A to C. The Chief Executive Officer (CEO) of General Electric used the ranking to state that Employees A were players that deserved to be in the company because they shared in the organisational values and objectives. In contrast, employees C were considered players that simply deserved to be fired because they were not in tune with the company’s interests and it is a waste of time and resources -according to the CEO- to try to co-opt them. Busco *et al.* (2000) argue that management accounting systems based on measurement of performance

and accountability have the power to structure organisational order through the legitimisation of rules, roles and routines related to shared organisational values.

Busco *et al.* (2006) also share a similar conception of the rules and routines as explained in Burns and Scapens (2000) conceptual framework. However, they extend the definition by incorporating the roles as access points to expert systems of management accounting to conceptualise management accounting practices, the authors have explicitly developed a notion of practices supported by the view of Gherardi and Nicolini (2001). This notion of practices considers the recursive constitution of practices, which attaches the action itself and the reflection of agents about what they do. In their analysis, Busco *et al.* (2006) define, in an innovative way, the paradox of embedded agency expressed in structuration theory. For Giddens, social systems contain structures that are at the same time the means and outcomes of social practices. The paradox here is expressed as the recursive relationship where social structures shape and are shaped by agents through their social practices. This gives rise to Giddens' duality of structure, the backbone of his theory. Busco *et al.* (2006) draw on Giddens' paradox to express that management accounting systems are at the same time the source and object of trust/distrust as socially constructed and institutionalised practices.

Organisational rules and routines have drawn a particular interest of management accounting researchers in order to study how values are embedded within organisational practices (Burns and Scapens 2000, Dillard *et al.* 2004). While some researchers explicitly focused on management accounting practices, others have more emphasis on general

accounting issues. For example, Carmona *et al.* (2002) define accounting practices as a coding system that functions as time-space ordering devices. They draw on this definition to empirically study performance control through accounting practices. The authors have studied ways in which accounting practices condition, and are conditioned by, spatial practices in the Royal Tobacco Factory (RTF) at the time when this company moved from an urban area to the countryside of Sevilla (Spain). These authors have illustrated cost centres created a useful analytical accounting space from which to control physical spaces and to quantify, codify and assess workers in every step of production. An important contribution of this paper is its analysis of how accounting practices function as a space-time ordering device to link spatial practices and reinforce the surveillance of managers over employees.

In tracing the meaning of practices in management accounting research, there is a need to establish some connections between the seminal distinction of Roberts and Scapens (1985), i.e. between accounting systems and accountability systems, and later developments. For example, Macintosh and Scapens (1990) define management accounting systems as modalities (abstract set of rules and resources) used by individuals in their practices (social interactions) to interpret, control and approve both their own actions and those of other people. Later, Burns and Scapens (2000) shift the focus from the distinction between accounting systems and accountability systems to the distinction between rules and routines. Subsequently, Busco *et al.* (2006) add the roles to the framework of Burns and Scapens (2000). Several authors have incorporated some of these key definitions in their work and have extended the application of structuration theory in the field of management accounting research by theorising the empirical evidences of

their studies (see for example Ouibrahim and Scapens (1989) Macintosh and Scapens (1990); Scapens and Macintosh (1996); Lawrence *et al.* (1997); Dillard *et al.* (2004); Uddin and Tsamenyi (2005); Scapens (2006); Fay *et al.* (2010).

These studies are important in understanding the vital role of theorising management accounting practices in organisations to create meaning and social help shape organizational outcome. The revision of these studies provided an opportunity to discuss how previous works have defined management accounting practices by using Giddens' work. In doing this, the revision enabled clarification of how the concept of management accounting practices was going to be used in this research and to consider the methodological implications of its usage for the research design. The following subsection presents critiques about the limitations of the application of structuration theory on management accounting studies and the critics of the theory itself.

2.1.4 Critics of the application of structuration theory on management accounting literature and critics of structuration theory

Some researchers have criticised the definition of management accounting practices as presented in Macintosh and Scapens (1990) work. For example, Boland (1989, 1993, 1996) argues that agency possesses a stock of knowledge in the form of interpretative schemes to use in reproducing social practices. This stock of knowledge represents words, sentences and images that agents share. However, Boland (1996) argues that management accounting systems (as interpretative schemes defined by Macintosh and

Scapens (1990)) are “not the coherent, consistent, uniform and “monolithic”, meaning structures” (p. 692) and do not determine in an unequivocal way the meanings that individuals ascribe in their interpretations as Macintosh and Scapens suggest. For Boland (1989, 1993, 1996), the interpretative act is dynamic, and individuals produce and reproduce the meanings in each social interaction using several interpretative schemes. Boland claims that the conception of management accounting systems as modalities would be too structuralist in its conception of human action, while the emphasis on situated practices are more related to the daily decisions of agents (Boland 1996). Similar to Boland (1996), this research places the focus on management accounting practices as situated actions where agents and structures are integrated in the reproduction of social life to produce meaning.

Englund and Gerdin (2008) also offer a critical literature review by analysing Burns and Scapens (2000) conceptual framework to illustrate some theoretical and methodological implications generated by the diverse use of mediating concepts of structuration theory in management accounting research. Englund and Gerdin (2008) argue that when management accounting researchers locate routines and rules at the level of interactions or modalities, they sometimes choose inappropriate research methods because examining social interactions differs from analysing abstract modalities. When some researchers conceptualise rules and routines as abstract modalities that generate action, they may fail in capturing social practices. These practices are carried out in organisations to create and produce meaning to social life. On the other hand, when researchers indifferently locate the rules and routines concepts at the level of interaction,

they seemingly fail to capture the structural principles of action, which may not be in specific practices.

Similarly, Englund and Gerdin (2008) argue that the attempt to define rules and routines as scripts may lead to confusions among researchers because researchers may perceive that a change in script equates to a change in structure. However, Englund and Gerdin (2008) argue that following different instructions does not necessarily mean that different structural principles are being reproduced. They suggest that researchers must clarify their positions regarding the location of mediating concepts in the earlier stage of their research. They also argue that to capture management accounting practices by following the duality of structure principle, researchers must account not only for the recurrent social practices that are observable but also the non-situated modalities that guide those practices and that are not necessarily observable. The findings of Englund and Gerdin's work is valuable because the authors identify many elements that should be considered when undertaking fieldwork. Thus, these aspects are useful in terms of choosing the analytical categories and research techniques to develop the case study of this research.

Critiques on the application of structuration theory are evident also in Stones (2005) work. In developing a strong version of structuration theory, Stones (2005) reviews the main arguments of the theory in several important aspects and reviews the main critiques made by John B. Thompson, Margaret Archer, Nicos Mouzelis, and William Sewell Jr. Stones' (2005) analysis of these critiques can be summarised as follows: in

Stones' (2005) view, Thompson has debated the notion of structures on structuration theory arguing that Giddens does not clearly define what structures mean when he identifies them in terms of rules and resources. In addition, it is not clear what can be considered a relevant rule, which should be different to simply follow a principle guiding how people behave or the way things are done. Thompson argues that this notion of structure "fails to address some of the most important concerns of structural analysis" (Held and Thompson, 1989, p.66 cited in Stone, 2005, p. 50). The failure lies in the limitation of the notion of structures conceived as rules and resources to capture the wider and diverse social structures.

Similarly, Stones (2005) explains that Archer questions the heart of structuration theory by arguing that structure and agent are conflated in the notion of duality of structure making it difficult to distinguish analytically between structures and agents. Archer appeals for a dualism to differentiate the action and the cultural and material conditions in which the action occurs. In doing so, Archer develops a morphogenetic approach making clear four temporal dimensions (time 1 to 4) that frame the interplay in which agency and structure shape each other. The interplay where agency and structure are defined by time following sequences: Time 1 (structural conditioning), Time 2 and 3 (social interaction and its immediate outcome) and Time 4 (structural elaboration) (Archer, 1995, pp. 157-8; pp. 192-4, cited in Stone, 2005, p. 53). The strong version of structuration theory takes into account the temporality involved in the interplay between agency and structure in the reproduction of society and includes some of Archer's developments. Even though this research does not follow the morphogenetic approach of

Archer, it is useful to acknowledge the need of identifying structural conditions that shape management accounting practices as a pre-requisite to understand how agents update social structures through the flow of their practices⁴.

Stones (2005) argues that the reflections of Mouzelis on internal structures and agency do not constitute contradictory arguments against structuration theory rather than conceptual refinements that allow further developments of Giddens' theory. Mouzelis (1991), cited in Stones (2005) introduced the notion of continuum to analyse the relationship between agents and internal structures by considering when agents follow habituated routines and when agents take a distance and critically reflects on the internal structures and creatively responds through the flow of their actions. This notion of continuum contributes that ontology-in-general towards to the in situ and empirical level, which has been central to the further development of strong structuration theory.

Stones (2005) also analyses the main critique of William H. Sewell Jr. about Giddens' work, which questions the virtual character of both rules and resources within structuration theory. Sewell Jr. states that rules should be considered virtual because, as it is argued by Giddens (1984), its existence cannot be reduced to particular space or practices. However, different from Giddens' thought, Sewell Jr. argues that resources should be considered actual because material things occupy specific space and time. Sewell Jr. also argues that the term "structures" may be better recalled "cultural schemes"

⁴ As Giddens (1984) argues, social institutions have a "supra-individual" existence that goes beyond the life of any individual. Social structures are updated through the flow of daily social interactions and the character of reversible time. The character of reversible time enables agents to appropriate their past experiences and reorient their present and future through the reflexive registers of their practices (Giddens, 1984, p. 35).

because the latter is a more flexible term and it considers many possibilities of meanings and meaningful actions (Sewell Jr, 1992, p. 30, cited in Stone, 2005, p. 57). Stones (2005) finds problematic Sewell Jr.' distinction between rules as virtual and resources as actual for two reasons. Firstly, this classification does not consider that the virtual feature of internal structures has a specific dimension when people in specific circumstances actualise them. Secondly, the distinction made by Sewell Jr. does not recognise neither that agents are engaged with a phenomenological perception of resources, in terms of the different ways as agents can comprehend them, which also would contain a virtual character. These points are considered in the quadripartite nature of structuration developed in the strong structuration theory, which is a reinforced version of Giddens's developments (Jack and Kholeif 2007).

Even though this research does not draw on the quadripartite nature of structure developed by Stones (2005), the revision of this literature offered insights for this research. Perhaps, the main insight understanding that it is important to distinguish between the internal conjecture that agents make about a social structure, and the existence of the structure itself, which has a transportable dimension that it is independent from interpretations that individual agents make about social structure. This insight is useful to establish limitations about structures that can be traced during the analysis. These limitations are necessary because time, resources and data access constrains faced during research process do not enable to explore the entire universe of multiple meanings that agents can ascribe to social structures when they face them. There is a necessary trade-off between the broader social structures that can be analysed and the identification

of how these structures are embedded in spatio-temporally situated social practices within specific contexts.

The critiques and revision of structuration theory by Stones (2005) enables a deeper understanding of Giddens' work and reinforces the idea that structuration theory is still a valuable theoretical approach to examine the interlink between agency and structure in reproducing social life. The application of strong structuration theory in recent management accounting studies has included the role of accounting information in new product development (Feeney and Pierce 2016), the development of carbon accounting framework at the macro, industry and organisational levels (Moore and McPhail 2016), strategic investment decision-making area (Harris *et al.* 2016), the development of a framework that is based on strong structuration theory for studying the changes of management accounting practices (Makrygiannakis and Jack 2016). The focus of these studies has been the duality analysing both the context and the conduct of agents.

The application of strong structuration theory has also included studies of public sector accounting reforms in emerging economies. For instance, Adhikari and Jayasinghe (2017) analyse how Nepalese Government accounting was embedded into daily work and the role of agency in resisting the World Bank-led reforms. The authors study accounting practices from a micro level approach connecting practices with broader social structures. In analysing Nepalese Government accounting practices, the authors show that it is possible to analyse the notion of duality not only by observing social interaction systems but also by analysing dialogues, processes, developments, reports and so on.

Even though this case study does not draw on Stones' Strong Structuration Theory, the findings of these studies are relevant to understand how the principle of duality of structure can be applied in the research process. In the accounting literature that draws on structuration theory and strong structuration theory, there is a recurrent call for more micro-situated studies that increase our knowledge about what structural meanings and resources agents reproduce, which realities they are configuring through their management accounting practices, and which assumptions may shape the conduct of agents (Jayasinghe and Thomas 2009, Englund and Gerdin 2014, Roberts 2014, Jack 2017).

This research provides another contribution to the debates relating to our understanding of how agency and structure are shaped through situated management accounting practices. Previous works based on structuration theory and strong structuration theory have not been focused on how and why management accounting practices shape efficiency in Latin-American emerging economies. Further studies on these contexts are relevant due to the conclusions and analytical categories of previous studies cannot be transferred directly to Latin-American contexts because broader social structures have influenced organisations of these economies in different ways (Zurbriggen 2007, Varela 2008a, Varela 2011). The present study contributes to filling this gap in the structuration theory based studies by considering the historical social structures that have shaped management accounting practices in a public conglomerate in an emerging

economy as Colombia's and the way agency and structures are embedded in these practices.

The analytical unit of this study is set in the field of public sector management accounting in a utility conglomerate within the emerging economy of Colombia. In studying this analytical unit, this chapter also provides a contextual framework through the analysis of three additional sets of literature. The first set of literature was focused on the academic field of public sector management accounting studies within emerging economies. Then, the chapter presents a brief literature review about NPM reforms in Latin America and finally the chapter reviews studies about efficiency in utility sector to provide the contextual framework for this research.

2.2 Contextual Framework about Public Sector Management Accounting in Emerging Economies, NPM reforms in Latin America and Efficiency in Utility Companies

With reference to the Colombian public sector context within which CUC operates, there was a need to review the literature about public sector management accounting studies within emerging economies, NPM reforms in Latin America and studies about efficiency in utility companies. These studies helped to set the contextual framework of this study.

2.2.1 Public Sector Management Accounting in Emerging Economies

This section provides the contextual framework for changes in the political, economic and social structures within which public sector organisations operate. These include changes from state-led development to market-led development, changes in the meanings of public utilities from welfare organisations to successful businesses and changes in the perception of public services from a fundamental human right to an economic commodity (Lawrence *et al.* 1997).

For instance, in their literature review, Van Helden and Uddin (2016) show the extant work studying changes in public sector management accounting. These are related to a shift in the World Bank's development discourse during the 1980s and 1990s, where "free market" and "private ownership" replaced "welfare" and "public ownership" in development agendas. These agendas demanded new forms of public sector management accounting controls in emerging economies, such as performance budgeting, full costing pricing, accrual accounting and performance auditing (Hassan 2005, Umesh and Stewart 2005, Neu *et al.* 2008, Van Helden and Uddin 2016). These studies are important in understanding the context of management accounting practices in a Colombian company, especially since Colombia is an emerging economy. Even though multilateral development bank loan conditions have encouraged the introduction of management accounting tools in public sector in emerging economies, the extant work show a mismatch between the structural conditions needed to "appropriate" adoptions of NPM reforms and the absence of these conditions in some emerging economies (Hopper *et al.*

2009, Junaid Ashraf and Uddin 2013, Van Helden and Uddin 2016). These needed structural conditions to incorporate NPM reforms include:

“well-developed accounting professions, well-developed capital and labour markets, and well-resourced judicial systems and regulatory bodies.” (Van Helden and Uddin 2016, p.49)

Prior findings of public sector management accounting research provide insights to analyse this case study by enabling it to connect the specific circumstances of CUC with broader social structures that have shaped management accounting practices in other emerging economies. For instance, the work of Ashraf and Uddin (2013) identify the structural dynamics of management consultancy in public organisations in emerging economies. The insights of this research are relevant for this study because the authors explain both the structural constraints that face the state- owned organisational actors and agential issues from the clients’ and consultants’ perspectives. Such an understanding of the way to identify structural and agential strategies is relevant to CUC because of the influence of consultancy firms in the transformation processes of the company during the period that covers this study.

Chandana *et al.* (2007) discuss the key findings of published research about management accounting in emerging economies. Two findings may be traced in CUC case to connect the study with broader social structures. The first theme is about the political intervention and clientelism practices in public sector management accounting, which has been stated as a major obstacle to achieving efficiency pursued by NPM reforms in emerging economies, which is also evident in the work of other researchers

(for example Varela (2008b); Ni Putu *et al.* (2007); De Renzio (2006); Wickramasinghe and Hopper (2005); Roberts (2004); Tillema *et al.* (2010); Goddard *et al.* (2016); Otusanya (2011); Ni Putu *et al.* (2013). These previous studies provide findings about how clientelism practices are manifested through management accounting practices, which are useful to analyse as to how this phenomenon is manifested in CUC and how the company has dealt with political intervention.

Another theme highlighted by Chandana *et al.* (2007) is related to the fact that the usage of management accounting tools as administrative devices may not be a general feature in public sector organisations in emerging economies. For example, Jones and Sefiane (1992) observe a modest use of accounting information to support decision-making process and control in four state-owned companies in Algeria. The authors stated that accounting was more of a legal requirement to meet external authority controls than a key tool to achieve profit targets because of social attitudes and organisational objectives.

Similar observations were made by Alam (1997) when he compared budgetary processes in two state-owned organisations in Bangladesh. This study found that there was an uncouple process in high uncertainty budgeting. Budgeting was used more as a tool to handle management external relationships between the company and institutional actors rather than to functionally be implicated in the organisational tasks. These social attitudes can be linked to Giddens' theory of duality of structure, where agents and

structures are inextricably linked to and dependent on each other in the production of social outcomes.

Similarly, Tillema *et al.* (2010) argues that public sector performance measurement in less developed countries are more ceremonial tools to obtain external legitimisation than management tools that provide useful information to measure performance. Otusanya (2011) explains how multinational companies that operate in Nigeria take advantage of the laxness of the fiscal system of the country to evade and avoid taxes. The author argues that management accounting systems are used to hide capitals impeding social investments in the country.

Iyoha and Oyerinde (2010) also study the context of Nigeria to analyse accounting infrastructure and accountability in the management of public expenditure in that country. Iyoha and Oyerinde (2010) argue that accountability practices are key to wealth generation and maintaining a free society. The authors highlight the fact that accounting infrastructure is not very well developed yet in Nigeria and has been impacted by the lack of qualification of accounting professionals. Similarly, Ni Putu *et al.* (2013) focus on the lack of institutional capacity and infrastructure problems to design and use performance information in Indonesian local governments. The authors argue that there is a need for more studies about management accounting practices in local governments to improve our understanding about the use and design of suitable public sector accounting systems.

This literature review of studies about public sector management accounting in emerging economies reveals that there are some studies about public sector reforms in Latin America, but public sector management accounting in Colombia is largely under researched. For instance, the recent and extensive literature review of Van Helden and Uddin (2016) shows that a Colombian case is missing within the list of 69 emerging economies reported. This study seeks to fill this gap. The existence of this gap provides an opportunity to reveal the complex historical social structures embedded in the particular management accounting practices to study. Analysing this specific context is relevant because even public utilities within the Colombian household public sector have faced similar NPM reforms; the case of CUC shows a development of its management accounting practices that shape a specific perception of efficiency. The following subsection reviews literature about NPM reforms in Latin America.

2.2.2 NPM reforms in Latin America

This subsection addresses literature about NPM reforms in Latin American countries. The term NPM is a broad label that refers to the public sector reform agenda carried out in many OECD countries over the 1980s (Hood 1991, Hood 1995). NPM reforms emphasise on the need of obtaining results on the management of public officials, making them accountable for the results through clear established objectives and indicators and assessments of their performance based on the values of economy, efficiency and effectiveness (Pollit, 1993, cited in Oszlak, 2013). NPM reforms promote a reduction of functions of the State and the transference of these functions to private

organisations, which operate within competitive markets (Hood 1991, Zurbriggen 2007). The doctrines of NPM reforms assume, among other ideas, that the introduction of private business practices and market competition into the public sector will promote efficiency (Almquist *et al.* 2013).

The application of NPM reforms in Latin American countries has had supporters. For instance, The Latin American Centre for Public Administration and Development promoted the managerial reform of Latin American States, which was reported by the World Bank (WB) in 1997 to be implemented in public administrations in these countries. Management reform of public administration in Latin America was understood as a tool that enables the recovery of the management capacity of public administration through the implementation of a managerial reform considered democratic and progressive (CLAD 1998). The findings of this study provide an understanding of the managerial reform recommended by the WB, which influenced the transformation of CUC in a commercial and industrial enterprise of the State. The Latin American Centre for Public Administration and Development argued that these reforms strengthened institutional stability of Latin American countries and promoted a development model of a more inclusive society (Bonilla and Ortiz 2013).

There are critics of the application of NPM reforms in public sector of Latin American countries. For instance, Cunill Grau (2012) argues that the role of the State in Latin American countries has been diminished after the vertiginous growth of external contracting and privatisations in the field of social services. The reduction of the State creates a paradox in Latin American countries because the State still holds the

responsibility of guaranteeing universal access to social services as fundamental human rights but the State ends strengthening private businesses and loses control over satisfaction of social demands by citizens. The loss of control is due to a lack of strong regulatory capabilities of Latin American states to monitor the delivery of social services by private operators.

Other scholars argue that transformations of the States of Latin America were focused more on instrumental aspects such as the management of resources and technological developments than on development of structural conditions such as elimination of corruption practices and institutional strengthening of the State needed to apply NPM reforms in Latin American countries (Bresser-Pereira 2001, Campero 2006, Zurbriggen 2007, Villoria 2011). In the same line, Fleury (2001) argues that the application of NPM reforms in Latin American countries have not considered the technical and political capabilities of their governments to carry out these reforms. For instance, there is a lack of government accountability practices, strong democratic systems, professionalisation of public servants and clear norms to regulate public service provision (Ruíz Alanís 2006, González 2008, Català 2012).

Boehm (2005) states that regulation of public services seeks to protect the interests of users (or society) against monopolistic power and protect companies against arbitrary decisions of the government. However, Boehm (2005) argues that existing practices of corruption that capture the regulation of public services, which distortion of regulatory rules is in favour of service providers at the expense of users. For this research, Boehm's (2005) work provides a framework to understand how public services

management model can be captured for the benefit of companies, increasing corruption practices.

In order to propose alternatives to overcome the lack of conditions to implement NPM in Latin American countries, scholars have drawn on the corporate governance approach for public sector management as a means to achieve more reliable and efficient markets (Natera Peral 2004). Corporate governance approach considers multiple stakeholders that are involved in decision-making processes in the allocation of resources in public organisations (Martín 2011). This literature gives insights for this research to understand how CUC seeks to establish an autonomous administrative model in the management of the company.

There are studies about corporate governance and capital markets in Latin American. For instance, Núñez *et al.* (2009) examined the economies of four countries in Latin America (Brazil, Chile, Mexico and Colombia). The study analyses the relationship between corporate governance and market development capital. The study provides insight into why a Colombian public organisation such as CUC had to develop a corporate governance model to obtain a good rating in the Colombian Stock Exchange. The participation of CUC in the stock exchange is also part of the reforms of the Colombian household public service sector in 1994.

Varela (2008a) states that the reforms of the Colombian household public service sector led to public utilities to become commercial and industrial enterprises of the State.

Varela (2008a) argues that after these reforms, public utilities embraced mercantilist logics in their management reflected in the pursuit of financial results and efficiency. The transformation of public utilities in Colombia has been focused on the productive dimension of efficiency, which has been the core of recent NPM reforms across the world (Andrews and Entwistle 2014).

Andrews and Entwistle (2014) explain that productive efficiency in the field of public services means reducing inputs and maximizing outputs to reduce “waste” in the production of these services. Those reforms recently have focused on two directions to achieve efficiency, productivity in public services delivery: the first orientation is related to economies of production (optimal scale, scope and flow) through integration of small organizations, reengineering and integration of administrative processes regarding emerging calculations. The second direction is related to institutional arrangements to incentivise efficient management of public resources through techniques such as budget maximization to save cost and improve performance. The usual strategies related to these reforms are competition, collaboration, disaggregation and performance management.

Andrews and Entwistle (2014) argue that this focus leaves behind other important aspects of efficiency on the public sector such as: quality of services and how those meet the different needs of citizens. Andrews and Entwistle (2014) define a much broader set of efficiency dimensions, which go beyond productive efficiency, by also including distributive, dynamic and allocative efficiency. These dimensions broaden implications of public service provision by taking account, for instance, how current services are

affected by future investments to provide better services. These dimensions of efficiency are especially relevant in a sector such as household services where there is the need for huge investment for a long period of time to build hydroelectric power stations. The characterisation of productive efficiency in the context of NPM reforms as stated by these authors help to understand the trends that CUC has followed in the efficiency-oriented organisational transformation in 2013, which will be analysed in chapter 5.

The following sub-section contributes to the contextual framework by exploring the meanings of efficiency in utility companies. The exploration of efficiency meanings is relevant for this thesis because previous studies have shown that does not exist a unified view about public service efficiency. In addition, assumptions, beliefs, political views and values of policymakers, politicians and public managers that guide public policies are diverse across countries (Andrews and Entwistle 2014). This inquiry is also relevant because the meanings of efficiency in the field of utility companies may be different to studies that have explored efficiency meanings in the health sector, educational field or public transportation. For these reasons it is important that the current study enquires about different views of efficiency through management accounting practices in the context of a public utility organisation.

2.2.3 The Meaning of Efficiency in Utility Sector

The nature of efficiency varies significantly depending on the main focus of the research. Worthington (2014) decomposes efficiency into several components. The

author defines technical efficiency as the ability of relevant organisations to use productive resources in the most efficient way (maximum output from given inputs). This type of efficiency is found in piping infrastructure or labour for water utilities. The technological development can be a critical component. The ability to use inputs in optimal combinations refers to allocative efficiency. Productive efficiency represents the mix of both allocative and technical efficiency. Only if allocative and technical efficiency are present, can total economic efficiency be achieved. Worthington (2014) studies efficiency through input-output relationships where outputs are represented by the volume of potable water while inputs are total costs incurred.

Whiteman (2012) associates the procedure for measuring technical efficiency with the measurement of the public expenditure and financial accountability score in public financial management systems. Technical efficiency could be measured as the ratio of public expenditure and financial accountability score on credibility of budget to the maximum score calculated via Data Envelopment Analysis, which is a mathematical programming technique that identifies best practices performance. The researcher studied the efficiency of 69 companies where 13 companies were found to operate at technical efficiency of 100%. In contrast to the work of Whiteman (2012), Punita *et al.* (2016) are more focused on detecting inefficiency. The researchers utilise non-parametric approach based on Data Envelopment Analysis method. Stock markets were chosen as an indicator of economic conditions. The researchers assess the performance of 24 business units operating in Oil, Gas and Power sector. 15 companies were found to be inefficient (63%).

Huque (2009) argues that one of the conceptual elements of efficiency is ideology. The outsourcing of some business functions became a strategy incorporated in public sector because it promises being a cost-effective mechanism. Regarding the author, the burden of services provision can be alleviated if government agencies borrow the best strategies that were found to be successful in private sector. The researcher focused on the efficiency of Hong Kong Special Administrative Region and Shenzhen Special Economic Zone of China. Huque (2009) compared contracting out practices in both cases and found that the principles for awarding contracts were similar (the lowest bid gets all). Even though, the liberal capitalist system of Hong Kong was expected to be more effective than the communist system in Shenzhen, the results showed the opposite. The author concluded that ideology seems not to affect efficiency in a negative way based on the findings of the analysed cases. Huque (2009) argues that what really matters is effective mechanisms that guarantee effectiveness along with the arrangement of performance monitoring.

In support of methods described above, García-Sánchez (2006) used Data Envelopment Analysis (Yang *et al.* 2016) to evaluate the efficiency of water supply. The authors decomposed efficiency into scale and technical components. While technical efficiency is similar to the description given by Worthington (2014), the author defines scale efficiency as the level of operations related to the efficient production surface. The result of econometric tests shows that the density of population in each municipality was directly associated to the efficiency of urban water sector in specific regions. Private

ownership of water facilities did not indicate the higher degree of efficiency. Thus, the author rejected the hypothesis of ownership influence.

Molinos-Senante *et al.* (2016) studied 23 Chilean business units. The researchers identified three steps for the measurement of efficiency. The authors selected the extreme values of the inputs and outputs by using Data Envelopment Analysis. The scholars identified 9 efficient units under the optimistic scenario and only one efficient company under the pessimistic scenario. The ranking of water and sewerage companies supports water regulators. The authors suggest that competition between companies may be enhanced if appropriate policies are designed and implemented.

Walter *et al.* (2009) offer a literature review of the elements of efficiency. The authors found that the measure of efficiency was driven by specific institutional settings. The authors argue that population density and water losses were equally important. The review of empirical evidence provides evidence of the importance of economies of scale in efficiency. The scholars suggested that mergers could help to enhance efficiency significantly.

Empirical studies provide evidence of how researchers have measured efficiency in the private and public sector. The most common methods applied are the Data Envelopment Analysis and Stochastic Frontier Approach analysis (Andrews and Entwistle 2014). For example, Lannier and Porcher (2014) aim to find differences in the efficiency of public and private companies in France. The researchers tested efficiency in

180 French companies. They represent public companies as organisations in which the government had a share. The approach that mix the application of both Data Envelopment Analysis and Stochastic Frontier Approach methods provided evidence of superiority of public sector in terms of efficiency.

Another set of studies defines the public sector as public utility companies that provide services to communities. One example is the sector of urban water supply that has become the subject of increased research (Renzetti and Dupont 2003). The authors state that even though the necessity of measuring efficiency of the urban water utilities sector is highlighted, the appropriate econometric and mathematical models for these measurements are still developing. Researchers define the efficiency of water supply differently and suggest various methodological approaches. According to Worthington (2014), there is a concern about the ability of natural monopolies operating in the water sector to meet its short and long-term targets. Their conditions such as variability of supply and high transportation costs create additional barriers in the way of required efficiency.

Efficiency in the public sector presented by utilities companies with government ownership has been considered a barrier that generally is called the natural monopoly of the sector. This perception has been used to legitimise the privatisation of the sector in many countries. For example, the water industry in the UK went through the process of privatisation at the beginning of 1980s (Veljanovski 1987, Bishop *et al.* 1988, Vickers and Wright 1988). The UK government justified the program arguing the potential

improvement of industrial performance. The idea was that nationalized companies would become more disciplined due to its increased market exposure.

Thus, privatisation has been used as a choice to boost efficiency in the public sector by making the industry less monopolised. However, Shaoul (1997) did not agree with that assumption and challenged the idea that privatisation was a strong solution for increasing efficiency in the public sector. In doing so, the author tests several hypotheses including the one mentioned above using a case study based analysis. The author found that the UK government's claim was not confirmed. The researcher stresses that greater efficiency was not achieved by the set of suggested reforms. The costs related to production of output did not decrease. More importantly the author found that the major growth in efficiency took place prior to privatisation.

In many countries, for instance Italy, the private and public sectors are integrated and often these operate in the same industry. This allows researchers to compare their efficiency in each industry. For example, Romano and Guerrini (2011) study the efficiency of private and public water utility companies. Researchers analysed 43 Italian companies. These companies were divided into three separate groups regarding the number of customers served. The researchers marked those companies as efficient if all efficiency criteria were satisfied. They found efficiency scores to be the highest for public-owned companies. The companies located in Southern and Central Italy had higher efficiency scores in comparison to Northern Italy.

It is important to note that the studies reviewed are not limited to developed countries. There are also studies about efficiency in utilities companies in emerging economies as well. For instance, Hon *et al.* (2016) assess the Malaysian Water Sector from the perspective of technical efficiency. This study is particularly relevant because the Malaysian Water Sector implemented similar reforms to the UK sector related to privatisation (Geron 1995, North 1996, Cook and Kirkpatrick 2003). The study assessed the impact of privatisation in the efficiency of companies that operate in the water sector of Malaysia.

Instead of measuring efficiency of sewerage and water supply organisations, Thomas *et al.* (2015) measure electric energy efficiency. The researchers stressed that there is an increased interest in the European Union (EU) about measuring the efficiency of the usage of electrical energy by households. The authors used the econometric model developed by Filippini and Hunt (2011). The authors applied the econometric efficiency to assess fluctuations in levels of energy efficiency. The authors argue that prioritised regions determined where electricity consumption could be made more effective.

Kuo-Tai (2014) also studies the effect of public utility sector privatisation. The author states that the process may be beneficial in developed countries but in emerging economies there are some crucial barriers for successful implementation. The researcher concluded that even when there was a change in ownership, that change did not affect the efficiency of the companies. The results may vary from countries depending on environmental factors and results cannot be generalised (Kuo-Tai 2011). The researcher

argues that instead of privatisation, governments in emerging economies should focus on creating appropriate conditions to improve efficiency in the public sector.

In their research Mukokoma and van Dijk (2012) highlight the relevance of NPM reforms in delivering urban water services. The authors used Data Envelopment Analysis with Tobit regression to establish relationships in studying NPM reforms. They found that NPM implementation caused changes in technical efficiency of Decision-making Units in the corporations responsible for the water supply in Uganda. They did not find this relationship in Tanzania. The researchers concluded that increasing managerial autonomy of Decision-making Units needs to be monitored.

In contrast to the studies reviewed above, there is a lack of work which focused on public sector efficiency using government agencies rather than state-owned companies as the focus of the study (Guthrie and Parker 1990, Lapsley and Oldfield 2001). For example, Lampe *et al.* (2015) focus in determining the relationship between the efficiency of local governments and the introduction of the accrual accounting principle in Germany. The authors evaluate efficiency during a time frame of three years (2006-2008) using the Stochastic Frontier Approach. They found a positive relationship between implementation of accrual accounting principles and the cost efficiency of local governments with the cost-efficiency increasing over time. The evidence obtained puts an emphasis on the importance of switching to accrual accounting principles.

Another sector where efficiency has been explored in previous studies is the healthcare services. For example, Navarro-Espigares and Torres (2011) argue that the efficiency and quality of public organisations providing health services is important. The researchers measured efficiency through indicators such as length of stay in hospital premises, percentage of surgical turnover, number of nurses and physicians and number of beds. They sent questionnaires to Andalusian and Catalanian hospitals in Spain. They used Data Envelopment Analysis and Malmquist productivity index (Grifell-Tatjé and Lovell 1995) for their analysis.

Although most of these studies have employed quantitative measures to describe efficiency, they are important in understanding how utility companies operate under different systems (free market, capitalist, communist) that gives rise to social constructs. This research employs a qualitative approach but uses these studies only to acknowledge how efficiency has been defined in the field of utility services, which is the context of this research.

The approach used on previous studies to study efficiency in utility companies may not be enough to understand the complex and changing social structures that are embedded in the reproduction of efficiency through management accounting practices in a utility conglomerate located in an emerging economy. Additionally, literature on efficiency in utility companies using qualitative approach is scanty. Thus, this research aims to contribute to the present literature and available knowledge by exploring the

concept of efficiency through management accounting practices combining macro level analysis of social structures with micro level perceptions of efficiency.

The literature review about public sector management accounting, NPM reforms in Latin America and efficiency in utility companies provides a context for understanding how and why management accounting practices and efficiency are interconnected in CUC. There are some gaps in these studies particularly in terms of delineating how and why management accounting practices shape efficiency. By conducting a case study of management accounting practices within the context of wide-ranging reforms within the Colombian household service sector, this study will contribute to understanding how and why management accounting practices played a role in shaping efficiency. This literature review shows that there are few works that study the interconnections between management accounting practices and efficiency in the context of utility sector from an interpretative perspective. This research attempts to fill this gap. The following section will present literature that connects management accounting and efficiency.

2.3 Literature that links management accounting and efficiency

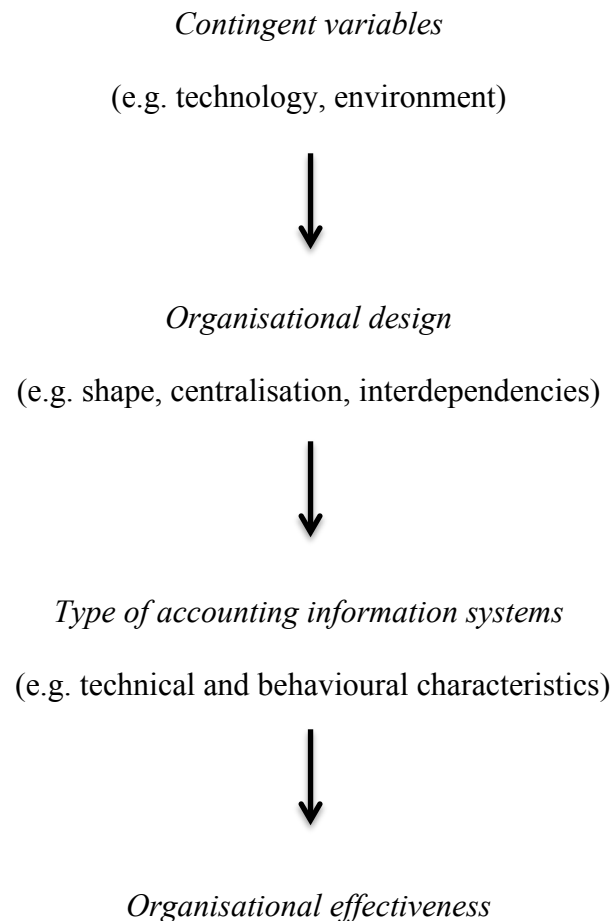
Management accounting researchers have applied approaches such as general system and contingency to demonstrate a relationship between efficiency and management accounting practices in controlling input costs to achieve desirable outputs (Wickramasinghe and Alawattage 2007). Ludwig Von Bertalanffy originally developed the general system theory after the Second World War in an attempt to extend and

applied it in a range of systems including biological, physical, galactic, human and social systems. The application of the general system theory was extended to different fields such as: sociology, psychology, biology, informatics and ecology (de Guevara 1985). The general system theory describes management control systems by using a metaphor of living organisms. Management control systems are based on four mechanisms as necessary conditions to achieve self-regulation: “the existence of an objective, measurement criteria, predictable effects of potential control actions, and reduction of deviations from the objectives” (see Otley and Berry, 1980, cited in Wickramasinghe and Alawattage, 2007, p.149).

Later contingency theory was proposed, which reflected very much an extension on the general system theory, mentions are made that it is rather difficult to design universal management control systems because it is relevant to consider the particular contingent factors that organisations face (see Lawrence and Lorsch, 1967, Otley and Berry, 1980, cited in Wickramasinghe and Alawattage, 2007). Contingency theorists argue that management accounting systems are shaped by tough or liberal operating environments (Otley 1978), cultural factors (Hofstede 1984) and environmental uncertainty (Harrison 1992). It is also argued that there are factors that play an important role in shaping management accounting systems such as: organisational form (Khandwalla 1972), organisation structure (Bruns and Waterhouse 1975) and structural decentralisation (Chenhall and Morris 1986). Contingency theorists identify factors that must be considered when designing management control systems to bring organisational

effectiveness. For instance, Otley (1980) proposes a linear framework for accounting information system design, as shown in Figure 1:

Figure 1: Linear framework for accounting information system design



Source: Otley (1980, p.420)

Otley's (1980) framework considers in the first place contingent variables such as technologies and environment. Variables that led to the designing of organisational forms taking into account features such as: shape, centralisation and interdependencies. The contingencies and organisational design in turn shape the technical and behavioural characteristics of accounting information systems. Finally, this framework considers how

these variables bring effectiveness measured in terms of organisational objectives (Wickramasinghe and Alawattage 2007). The framework has been further extended, whose achievements have been synthesised by Otley (2016) into 6 categories: reliance on accounting performance measures, environmental uncertainty and hostility, strategy, culture, effectiveness and discussions about management control as packages or systems.

The literature review about contingency theory perspective on management accounting shows that there are few studies those connect efficiency and management accounting practices as main themes within the research problem. Most of the studies were focused more on effectiveness than efficiency. For instance, the work of Ahrens and Chapman (2004) provides an example of a contingency study focused on efficiency. This work will be detailed not only because the authors explicitly connected efficiency and management accounting but also because they conducted a case study, which is an emerging methodological trend within contingency theory on management accounting (Wickramasinghe and Alawattage 2007).

Ahrens and Chapman (2004) illustrated how and why management accounting systems have been used to support operational management through the following system design characteristics: repair, internal transparency, global transparency and flexibility. The authors stated that this typology of 4 principles have contributed to extending contingency theory by enabling researchers to grasp the processual nature of management control systems. The analysis of Ahrens and Chapman's (2004) work contributes to the development of this thesis by illustrating how efficiency meaning can

be linked to management accounting practices through control practices over financial targets.

Even though contingency-based management accounting studies how management accounting systems produce organisational effectiveness, the study of how and why management accounting practices embed efficiency meanings is still an under-researched area. Of the imitations of contingency theory, a key limitation concerns that most of the studies from this perspective limit the external organisational pressures to competition and market stability without considering other broader social structures (Wickramasinghe and Alawattage 2007). Thus, this thesis attempts to explore other social structures of signification, domination and legitimation to understand the social complexity where efficiency is deeply embedded in management accounting practices in CUC by using Giddens' structuration theory as a theoretical lens.

2.4 Conclusions

The thesis attempts to contribute to the literature of management accounting studies, which have drawn on Giddens' structuration theory. In addition, this study also extends the literature that has a focus on efficiency in the public sector and public service delivery.

The review of management accounting studies based on structuration theory perspective identifies that few authors have explicitly stated what they mean by management accounting practices and its meanings are diverse. For example, some

authors have explicitly defined management accounting practices as tools (Hassan, 2005). In other studies, the nature of management accounting practices has been treated as a concrete entity. For example, Dillar (2004) states that practices can be learned, implemented and/or eliminated. Others define practices as analytical constructs that integrate not only situated recurrent (inter-) actions but also the structural principles that underline those social practices (Englund and Gerdin 2008). To contribute to this body of knowledge, this research draws upon the conception of management accounting practices as situated social practices that integrate agency and structure and builds on the definition of management accounting practices as actions of representation towards controlling material and intangible organisational resources.

The literature review about public sector management accounting in emerging economies provides the contextual framework for considering changes in the political, economic and social structures within which public sector organisations operate. These include changes from state-led development to market-led development, changes in the meaning of public utilities from welfare organisations to successful businesses and changes in the perception of public services as a fundamental human right to an economic commodity. The review revealed a need for additional studies to be conducted in specific contexts to give insights about the social nature of management accounting practices and the way these practices embed social structures.

Indeed, there is a paucity of research investigating how and why those changes have taken place in the context of the region where CUC is located. CUC has been considered

an example of efficiency in Colombia and it would be important to know the specific conditions of modernisation processes in Colombia that enabled the creation of this paradigmatic organisation. In the literature about management accounting in emerging economies, there has been a call for deeply studying state-owned enterprises that are perceived as efficient, which may give clues to further studies that compare private and public organisations in terms of efficiency (Hopper *et al.* 2009). The present study intends to fill this gap in the literature.

The literature review about efficiency in utility companies shows that previous studies on this area have tended to quantitatively evaluate it through the technique of Data Envelopment Analysis (DEA) in conjunction with other techniques such as stochastic frontier analysis (SFA) (Lannier and Porcher 2014), or statistical tolerances (CCC) (Molinos-Senante *et al.* 2016). In these studies, efficiency is recurrently treated as a given concept that can be measured in terms of correlations and causalities among the elements that forms it. The review of this literature showed that the approach to study efficiency in the field of utility services tended to be mainly focused on the measurement of efficiency through statistical methods rather than show how social structures are embedded in shaping efficiency in utility companies. Thus, less attention has been paid to the historical context where efficiency is shaped and how it is embedded in management accounting practices.

The empirical approach of this research differs from these studies by the qualitative approach that seeks to identify the different perceptions of efficiency in a

public conglomerate to study in depth its connection with management accounting practices. In the review of the literature, few cases were identified that connects efficiency and management accounting practices as main themes of the research from an interpretative perspective. On this view, this thesis contributes to the body of knowledge by adopting a structurationist approach that integrates agency and structure through “duality of structure” notion. This approach may give explanations as to how and why management accounting practices have shaped a perception of efficiency in the context of a public utility company in an emerging economy. This chapter argues that the way efficiency has been shaped through management accounting practices at CUC cannot be understood without knowing the historical development of the company and its interplay with wider social structures.

Chapter 3: Theoretical approach and methodology

This chapter discusses the theoretical approach and research design chosen in this thesis. The chapter is divided into five sections. The first section will briefly describe three philosophical approaches: positivism, interpretivism and the critical perspective and then explain the significance of interpretivism for this research. The second section provides an overview of the main features of the structuration theory approach to undertaking research. The theoretical approach, applied for understanding management accounting practices and efficiency in CUC, is discussed in the third section. The fourth section explains why structuration theory has been chosen as a theoretical approach for carrying out this study, while the last section discusses the research strategy, the sources of data, analysis and writing up process. The purpose of this chapter is to provide a framework that enables the understanding of how and why management accounting practices have shaped efficiency in CUC.

3.1 Features of each philosophical approach

This section briefly discusses three philosophical approaches: positivism, interpretivism and the critical perspective. The first sub-section discusses the ontological and epistemological assumptions that underline the positivism approach, as well as noting its limitations, for this research. The second sub-section considers alternative approaches such as: interpretivism and the critical perspective and provides arguments for the selection of the interpretative approach in order to advance this research.

3.1.1 Main stream

Positivism is a philosophical approach, which began its development in the nineteenth century in a historical moment in which all knowledge considered to be “scientific” had to be formulated through the models of physics and mathematics (Mardones 1991). Thus, the social sciences started to be studied using the same methods as the natural sciences (Mardones 1991). The so-called the main-stream is still dominant in both the natural and social sciences. The approach is primarily based upon the following assumptions: 1. Reality is objective, and boundaries exist between the subject (the researcher) and the object (the studied reality). 2. There is a true reality that can be discovered through the research process. 3. The purpose of theory is to formulate general explanations through the generation of hypotheses, which can be empirically tested (deductivism) Bryman and Bell (2011, p.15). 4. Variables about studied reality are concrete entities that exist regardless meanings of people and contexts (Bryman and Bell 2011, p.16). 5. Social and natural phenomena can be explained by establishing causal relationships among analysed variables.

Because the aim is to give an understanding of how and why management accounting practices shape efficiency in a specific time-scape location (Macintosh and Scapens 1990), a positivist perspective was not chosen as the approach for this study. A positivist management accounting approach does not work for this study because such perspective is more centred on formulating generalisations about the studied phenomenon (Ryan *et al.* 2002). Thus, this approach might not explain particular

processes of management accounting in specific organisational settings (Scapens 1990). Additionally, management accounting practices and efficiency will not be conceived as concrete, objective or measurable variables in this study. Instead of studying efficiency and management accounting practices as universal phenomena, this case study will document how and why management accounting practices, as contextualised social actions, have constructed a perception of efficiency in the studied setting.

3.1.2 Alternative approaches

Interpretivism is an alternative approach, which challenges the principles of positivism approach. It evolved through a methodological concept developed in Germany, which has been entitled “hermeneutics” (Mardones 1991). This concept argues that there is no unique reality because social phenomena and their meanings are defined and redefined by individuals in their social practices (Bryman and Bell 2011). Regarding this ontological assumption, reality does not exist as an objective entity separate from people’s conceptions. Hines (1988) states that there are many things that are real, such as physical objects, but our ideas about these things are diverse, relative and contextual.

Similarly, the critical approach is more focused upon researching practices of domination which stagnate in certain aspects of social reality to favour some privileged groups at the expense of other, less privileged groups. Using this approach, it is possible to reveal social structures in order to challenge and change them, as opposed to merely

confirming them (Alvesson 2003). This approach assumes that there are some potentialities, which are historically built and constrain social practices. These potentialities are considered true from a dominant conception of the world and, even though social reality is built through social interaction, this became objective, and it is not a result of individual voluntarism, because these structures constrain social action (Chua 1986).

An interpretative approach is more appropriate because of the aim and objective of this research. An interpretative perspective “avoids unitary constructions of practice because of its varied theorisations of a particular phenomenon” (Baxter and Chua 2003, p.104). Interpretivists do not assume that reality exists regardless of how people perceive and experience it. However, this does not mean that researchers who use this approach deny the existence of the physical world. Indeed, their arguments state that objects remain outside our minds, but that their meanings and how we experience them are the intentionality of our consciousness (Lewis and Staehler 2010).

An interpretative approach provides an in-depth understanding of the phenomena under study. The chosen theory for this study is structuration theory, which fits with the interpretative approach as will be explained in the following sub-sections.

3.2 Main features of Structuration Theory

This section provides an analysis of some relevant aspects of structuration theory to support the theoretical approach of this research. In his work “*New Rules of Sociological Method*”, Giddens (1993) proposes an idea of structuration that differs from other schools of thought such as, functionalism, structuralism, and existential phenomenology. For Giddens, it is necessary a reconciliation between the reproduction of social life and social reproduction. This reconciliation must consider not only social interactions but also reproductions of social systems, to understand how agents produce modern societies. Structuration theory argues that social life is neither the outcome of pure perceptions of individuals nor that agents mechanically reproduce social structures without being capable of negotiating divergent frame of meanings.

Giddens (1984, 1993) structuration theory consists of some core concepts and assumptions, which are integrally connected to the idea of the duality of structure. The duality of structure represents a dynamic process of structuration that integrates in space and time the reproduction of social life by considering agential interactions and the reproduction of structures. Reproduction in this theoretical approach implies that, social practices have the potential to generate changes in the structures. Structuration theory emphasises the idea of an active and mutual relationship between agency and structure. This means agency will not function without structures and structures cannot persist without the agents that reproduce them through their social practices. Thus, agency not

only is constituted through structures but agency also has an active role in the constitution of the sense of the lived-world.

The application of this principle of duality of structure requires that agency and structure be connected in analysing how management accounting practices have shaped efficiency in CUC. The adoption of this principle implies that agency and structure will have the same level of relevance in analysing and understanding the social phenomenon under research. To capture the main features of this approach for undertaking research, the following sub-section reflects how abstract concepts of structuration theory influence the research process.

3.2.1 Structure

Structures in this approach refer to abstract sets of rules and resources. Structures include two aspects of rules: normative elements and codes of signification; and two kinds of resources: authoritative and allocative (Giddens 1984). Regarding the rules, Giddens (1993) distinguishes between normative rules and abstract rules. Normative rules are considered as sub-categories of abstract rules. They are located at the level of modalities and refer to social conventions that agents draw upon in their social interaction with others. Abstract rules in the structural level mean more than following social conventions and are more than generalisations about what people do. Abstract rules are virtual memory traces that bind social practices across spans of time and space (Englund and Gerdin 2008). Abstract rules as a broader term in the structural level include social conventions or

norms. Regarding resources, structuration theory conceives that both allocative and authoritative resources enable and constrain the transformative capabilities of agency.

Both rules and resources as abstract structures may be studied out of time and space. However, the ways the structures operate in the production of society needs to be captured in situated social practices in which these abstract structures are materialised. Even though structures lack situated spatio-temporal locations and only come into existence through situated social practices of agency, it does not necessarily mean that structures do not have historicity. Structures have a duration that goes beyond the life of any human being. However, they only are perpetuated, reinterpreted, reviewed, or challenged through the reproduced social practices of agents. Situated social practices are the intersections where agency and structures reproduce social life and social reproduction.

Within the context of this study, the conception of structures in structuration theory has two implications in the research process. Firstly, the fact that agency drawn on social structures, which have a historicity that goes beyond the existence of any human being, led the study to search for the structural principles that may be embedded in management accounting practices in CUC. In doing so, it was important not only to study the social dimensions that have influenced the household service sector in Colombia, but also to observe how CUC has produced a context by influencing the regulation of the sector. Additionally, the acknowledgment of the recursive interplay between agency and

structure in the reproduction of social practices encouraged uncovering the categories that are specific to Latin American companies such as CUC.

Secondly, the fact that social practices embedded in structural principles, which are not situated in a specific setting, required the collection of data from different sources because the structures were not always revealed by only observing people's actions. The use of multiple sources of data enables tracing modalities in management accounting research through revision of business plans, financial contracts and other formal documents that may have encoded more institutional principles about the studied setting (Seal *et al.* 2004, Englund and Gerdin 2008). Having outlined the notion of structure in Giddens' (1984, 1993) work and some of its implications for this research design, the next section will continue with the notion of agency as applied in structuration theory.

3.2.2 Agency

The conception of agency in structuration theory is connected to the idea of intentional and purposive actions. Agency is interlinked to action in terms of individuals exercising some sort of power through their social practices (Giddens 1984). Human beings carry out their actions in a purposive way regardless whether their purposes or intentions are valid, conscious, and logical or not. The connection between agency and intentional actions is conceived as a basic condition through which to facilitate social interaction in which agency reproduces signification, domination and legitimation relationships. Agency in circumstances of interaction reproduces routinised social

practices through space-time binding drawing on structural proprieties. Social structures enable or constrain agency capabilities of making or abstaining for making a difference in their world. This idea implies that social life and social reproduction are not possible without the flow of action. Agency produces social life as a novelty episode where in each act there are possibilities of making a difference even though agents are conditioned by social structures.

This conditioning is expressed in the reproduction of social life through daily routines of agents where they apply social knowledge and follow consensual norms without constantly questioning them. However, that agents follow normative rules without continually questioning them does not mean that they are always consciously producing society or that social actors are exactly following consensual norms as these are prescribed. There is also space for recreating meanings and negotiating some moral rules. Social conventions have a negotiated character because of the possibility of multiple interpretations regarding different interests of social actors and regarding diverse struggling relationships that they hold. The idea of purposive or intentional acts does not imply that human beings manage to control all consequences of their actions. They will always face unacknowledged conditions, which can derive in unintended consequences that escape the absolute control of agency intended actions.

The notion of agency in structuration theory implies reflexivity, which is developed by the fact that agents have some level of self-understanding of their own actions and they are capable of understanding the actions of others. Giddens (1993) argues

that actions are not intrinsically meaningful because social actors give meanings to their actions in a retrospective way by reflecting on the actions that have already occurred but not on those actions that are being experienced. The account of past actions is basic to the continuity of social life because those accounts incorporate past actions into the present through reflexivity. In this way, agents are permeated by structures through the recursive character of social life where past and future are connected to a continuous present of individual lives (Giddens 1990).

The connection between agency and the recursive character of social practices in structuration theory has at least two implications for this research. Firstly, to study the ways in which management accounting practices shape efficiency through the lens of structuration theory it is necessary to understand how agent actions are guided by social structures. This idea led the study to be more focused on social practices because it is there where social life is constituted through the decisions that agents make. To broaden the understanding about agents who were key to the development of CUC, their biographies were consulted to complement historical data about their contributions in the company. Their biographies helped in understanding which positions these agents occupied in the Colombian political and institutional field, which reinforced their transformative capabilities as deployed over CUC.

Secondly, the idea that agents can incorporate their past experiences into the present helped in comprehending how management accounting practices have been shaped in CUC. In this sense, management accounting practices are conceived as spatio-

temporal rearrangements that not only connect agents who are located in different places, but also connect their experiences in different times (Seal *et al.* 2004, Barrios and Rivera 2011). For instance, standardised software-based management accounting packages make multiple connections enabling time minimisation and produce a proximity sensation among people who are physically absent (Hyvönen *et al.* 2006). Also, different times can be connected through the flow of daily management accounting practices, while agents can appropriate their past experiences and reorient their present and future by means of accounting information (reversible time of daily experiences) and with “supra-individual” existence of social institutions (institutional reversible time) (Giddens 1984, p.35). Also, it was important to consider that the aim of the research was not focused on establishing if the reflective accounts of agents about their social practices were true or not because the work was to capture the meanings into their responses. The research struggle is focusing on grasping meanings and how these insights contribute to the comprehension of the studied phenomenon and not focused on finding an ultimate truth in the interviewee responses (Quijano Valencia 2012).

The feature of structuration theory about the reflexive character of social practices was crucial in developing the empirical analysis of the planning-budgeting-accounting triad. The reflexive character of accounting that enables connecting a recreation of past experiences to shape future social practices through budgeting and planning, which is an important feature of CUC as will be explained in the following chapters.

3.2.3 *Double hermeneutic of social sciences*

The dialectic in constituting social life has some implications in knowledge generation. Giddens (1993) argues that there is a “double hermeneutic of social sciences”. Giddens’ interpretation of “the double hermeneutic of social sciences” considers two elements: a logical and an empirical one. The logical one is related to the nature of the human condition. Human beings are susceptible to being transformed by knowledge that they produce and are capable of incorporating knowledge produced by researchers to transform themselves. This transformation may generate consequences in social life because there are potential opportunities that social actors appropriate new meanings reconstituted in social analysis to guide their actions.

The double hermeneutic also implies for Giddens (1984) that agents are “social theorists, whose theories help to constitute the activities and institutions that are the object of study of specialised social observers or social scientists” (p. xxxiii). Their accounts constitute an important and primary source of information for social scientifics in order to grasp meanings about their social practices. When social researchers reconstitute those meanings, their interpretations draw new frames of meanings that enact “second-order concepts” (Giddens 1984, p.284). Descriptions and explanations of those accounts become “second-order concepts” that are connected to the self-interpretations of social actors but also are mediated by analytical categories used by researchers to explain social practices. The choice of those categories is already an interpretative act, which must connect notions used by social actors in attaching meanings to their social practices. A

practical consequence of the double hermeneutic for the research design is the acknowledgement that the knowledge that social actors have about their social practices is an important source of information to comprehend their practices.

The empirical side of “the double hermeneutic” of social sciences is related to the reflexive aspect that is intrinsic to “modernity” as a mode of life. The knowledge produced by social researchers may potentially change societies because of the dialectic relationship between social sciences and the matters that are studied. For Giddens, modern forms of life are constituted by systems of social interactions where social practices take place in specific settings that integrate agency and structure in duality. Social practices embedded across diverse sets of space and time (re) produce structural properties as foundational aspects of everyday life. That is why social practices in specific systems of social interactions constitute a basic unity of analysis in structuration theory. By studying the situated social practices of individuals, it is possible to grasp meanings, rules and beliefs that social actors draw on in their actions to make sense about what they do. Social practices not only consider the observable aspects through social actions but also the unobservable aspects that are referred to as the “stock of knowledge” that agents possess to accomplish their encounters with others.

The double hermeneutic of social sciences influenced the research process in two ways. Firstly, before data collection, Giddens’ idea that knowledge of social actors is an important source of data about what they do, led to the choice of interviews as a research method because of the prominence that this method gives to the knowledge of social

actors. Secondly, the idea of that knowledge of actors as an important source of data does not necessarily imply that interviewees are always aware about the structures that drive their actions. During the analysis process, the researchers make social practices an object of analysis and introduce categories such as: domination, signification and legitimation dimensions to interpret these practices.

In terms of Giddens, the analytical categories used by researchers constitute “second-order concepts”, which build on the “first-order concepts” developed by agents (1984, p.284). In this way, one important issue to consider was the necessity of grasping insights of interviewees by using their own words to describe their social practices. These “first-order concepts” came out as emerging themes during the earliest stage of the analysis and these were clustered into the abstract dimensions of structuration theory in the last stage of analysis and the writing up process.

3.2.4 Forms of institution

To explain how society is constituted, Giddens (1984) synthesises key concepts of his theory through three dimensions of structuration: signification, domination and legitimation. What Giddens (1984) calls structures are abstractly conceptualised as rules of meanings (signification), sanctions (legitimation) and authoritative and allocative resources (control over “material” and “non-material” resources) connected to the structure of domination (Giddens 1984, p.373). “Modalities of structuration’ refer to interpretative schemes that include: rules of meanings in the structure of signification; and

norms that refer to rules in the structure of legitimation and facilities as resources within structures of domination. Finally, 'interactions' refer to: interactions of communication at the level of signification; sanctions regarding structures of legitimation; and power in relation to the dimension of domination (Giddens 1984). In this way, structure, modality and interaction are three forms of institution used to synthesise structuration theory. The application of these three forms of institution to management accounting empirical research will be presented in the following section.

Giddens (1984) emphasises that all these dimensions and concepts are only analytically separated because they must be inextricably connected to form social systems. Social systems are understood as located activities of human agents reproduced across time and space. In order to understand how social systems are constituted, Giddens (1984) suggests to study:

“...first, the routinized intersections of practices which are the ‘transformation points’ in structural relations and second, the modes in which institutionalized practices connect social with system integration” (p.xxxi).

It is important to state here the difference between social integration and systemic integration, where integration is understood as a reciprocity of practices that supposes autonomy as independence among actors or social groups. Social integration is the level of 'systemness' where co-presence (face-to-face) encounters are produced. For instance, management accounting practices can be considered scenarios of social reunions ordered by work relationships. Two or more people in co-presence contexts coincide in such

scenarios. Management accounting practices are social contexts in which multiple individuals regularly take part. These scenarios are not occasional and are highly routinised, which enable several reunions to happen, dissolve and occur again.

On the other hand, systemic integration refers to reciprocity among actors or collectivities through broad bands of time-space (Giddens 1984, p.28). Systemic reproduction of similar social practices through variable segments of time and space is made possible through structural proprieties, which enable routinised reproduction of social practices produced by agents in their social interactions. Every social system is “grounded in the knowledgeable activities of situated actors who draw upon rules and resources in the diversity of action contexts” (Giddens 1984, p.25). In this way, it is possible to argue that management accounting practices reinforce systemic integration because individuals are influenced by circumstances that occur in diverse contexts of action through accounting information. Thus, the separate analysis of agents or structures itself does not explain how management accounting practices shape efficiency in CUC. Rather, it is necessary to focus on social practices where agency and structure are linked through the duality of structure.

Given the relevance of the forms of institution for developing the theoretical approach of this research, the next section will explain how these modes of structuration could be applied to investigate management accounting practices in a public conglomerate by means of a case study in the context of the Colombian household service sector. The main areas of inquiry are management accounting practices and their connections with

efficiency. This section comes up with an interpretative scheme, which is used for the empirical analysis of the research.

3.3 Theoretical approach for understanding management accounting practices and efficiency in CUC

3.3.1 Structures of signification

Structure of signification refers to rules of meaning or codes of signification that are updated through communication practices with the mediation of interpretative schemes as modalities. Within the context of this research, the shared view of utility companies as businesses that should be profitable constitutes a signification structure drawn by regulators in the Colombian household sector and organisational members in CUC to make sense of their practices. These structures of signification are traced not only from the moment that NPM reforms were introduced in the household service sector in Colombia but also when the structures of signification were formed from the structural conditions that constituted CUC as a public conglomerate.

In terms of signification, the interpretative schemes comprise words, phrases and images that agents shared in the form of stock of knowledge, which is available for them to recreate meanings (Boland 1993). In this research, management accounting is considered an interpretative scheme that enables organisational members to assess their performance, make decisions and plan their future (Macintosh and Scapens 1990). In guiding people's actions, management accounting does not simply act as a neutral

communication instrument or to depict a reality. Management accounting portrays social and economic facts through shared meanings regarding accounting rules (Townley 1995).

Management accounting, as an interpretative scheme, legitimises shared meanings. Reality and accounting representations of that reality condition social practices of subjects that are depicted (Burchell *et al.* 1980). This fact makes accounting a persuasive means (Burchell *et al.* 1980) through which it is possible to condition time, space, and material resources within organisations. In order to understand the social complexity where management accounting is embedded it is necessary to go beyond the functional properties of accounting and study broader contexts that management accounting helps to shape (Ahrens and Chapman 2007).

This study concerns generating an understanding of how and why management accounting practices shape efficiency. In doing so, the study shows how management accounting terms like profitability, return on equity, among others, were integrated in pursuing efficiency in CUC by combining engineering and financial knowledge (Conrad 2005, Coad and Herbert 2009, Moore and McPhail 2016). By using structuration theory as the theoretical approach, these structures of signification were studied together with domination and legitimation structures that will be discussed in the following sections.

3.3.2 Structures of domination

According to Giddens (1984), agents can exercise some sort of power through their social practices (p.14). Structuration theory logically connects power with action. Power in a narrow sense represents the capability of people to control other peoples' activities but in a broader sense, power represents the transformative capabilities of human beings. Those capabilities may be enabled or constrained because of access to material and non-material resources that are applied to achieve desirable outcomes. Even though the access to resources can be concentrated in few hands in some social contexts, from the perspective of structuration theory there is a dialectical conception of control, because all social actors have the possibility of exercising power in some way (Giddens 1984). Social actors possess great power despite the fact that they are conditioned (but not determined) by social structures. Here, the interplay between autonomy and dependence embodies the structuration conception, which not only includes restrictions upon conduct, but also the means through which to enable actions.

The conditionings of agency power occur because authority relationships favour agents with strategic hierarchical positions. The influence of privileged agents is legitimised and deployed over other organisational members through surveillance, which is characterised by connecting “two related phenomena: the collation of information used to co-ordinate social activities of subordinates, and the direct supervision of the conduct of those subordinates” (Giddens 1984, p.127). In the context of management accounting, these two phenomena can be expressed through forms of control that enable surveillance

over subordinates by establishing organisational discipline through accounting information as an authoritative resource (Lawrence *et al.* 1997).

Accounting information as an authoritative resource acts as a recall mechanism, which permits the remembering of the actions of past times, the reassignment of different meanings in the present and the planning of possible futures (Macintosh and Scapens 1990). The reflexive register of social practices through accounting information enables the assessment of people's performance and the introduction of new meanings and sets of categories which guide individual and group actions (Jayasinghe *et al.* 2011). In this sense, the strength of management accounting not only lies in the provision of financial and non-financial information for decision-making processes, but also lies in the introduction of meanings that legitimise certain representations of reality.

Studies show that it is difficult to use accounting information in allocating resources without management accounting as an interpretative scheme (Lawrence *et al.* 1997). The multiple meanings that can be drawn from accounting information make it an authoritative resource through which transformative capabilities can be exercised. The constitutive authority of accounting information, as authoritative resource, does not come from the exact representations of organisational facts but from its capacity of producing diverse representations used by agents to make and to justify their decisions. Also, from its capacity of modifying social practices regardless of whether the representations and facts coincide (Hines 1988).

In terms of domination structures, this research concerns with the allocative and authoritative resources used in the strict control of material and non-material resources to seek efficiency in CUC. The analysis traces social structures that are embedded in management accounting practices, which make CUC organisational members concerned about performance and efficiency. In doing so, the research enquires into the influence of multilateral banks, those that drew upon allocative and authoritative resources to reinforce the financial discipline of CUC. In the analysis, management accounting devices are considered modalities that were the result and the medium of the interaction between CUC and the multilateral banks. This analysis is connected to the legitimation structures, which will be explained in the next section.

3.3.3 Structures of legitimation

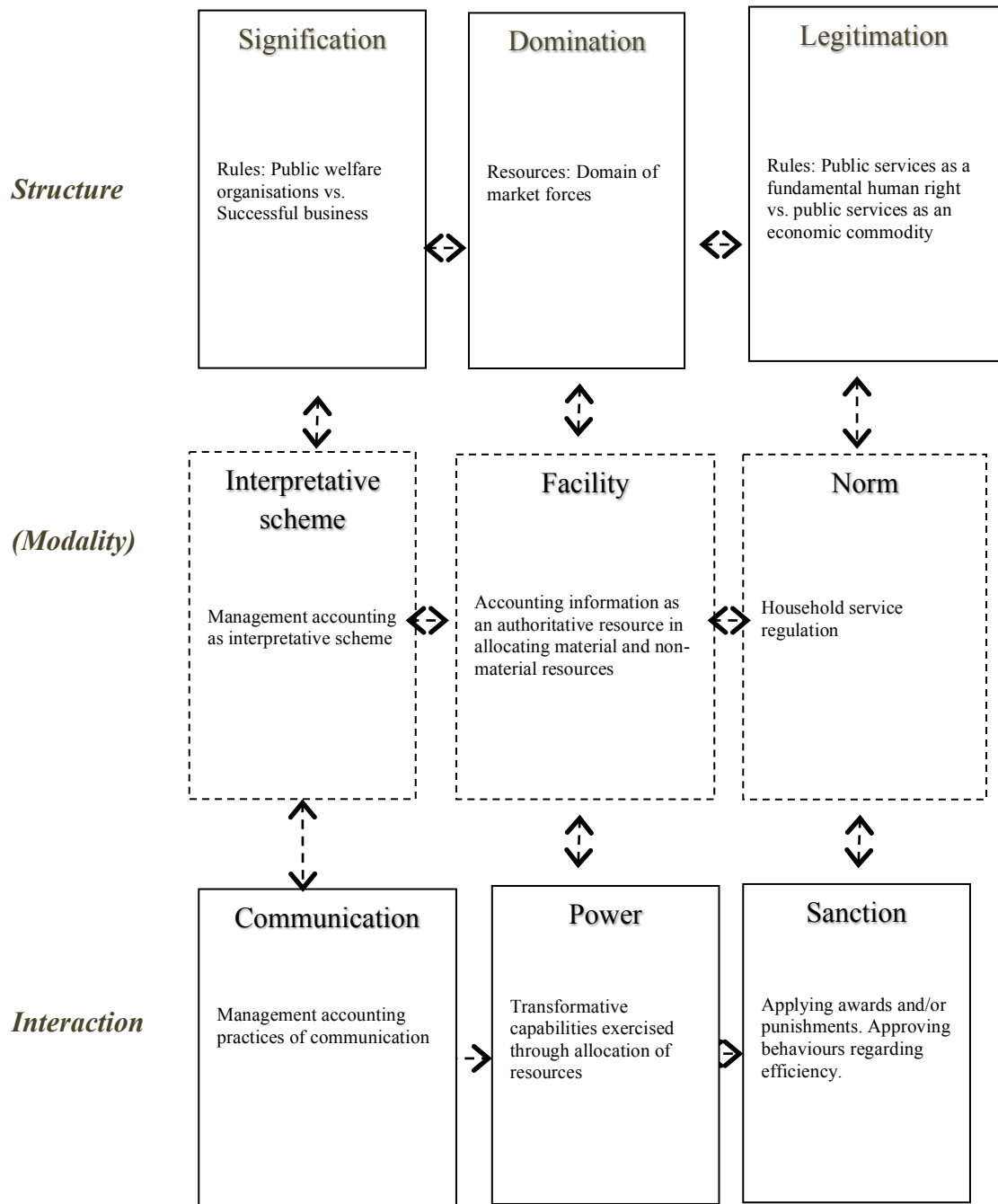
Legitimation structures are normative elements and moral obligations that enable ordering of social life. In terms of modalities, the legitimation dimension considers norms that demarcate values, codes, and principles that orient social actions and reproduction of social practices. Practices of sanction reward or punish agent behaviour regarding normative expectations. In this study, management accounting can be considered a sanctioning device that helps to redefine what behaviour is legitimate in a public organisation (Englund *et al.* 2011). This analysis is connected with broader legitimation structures embedded in the view of public services as an economic commodity (Lawrence *et al.* 1997), which has been reinforced in Colombia by the Superintendence of Public Utilities.

Management accounting as a sanctioning device can provide a basis for indirect control through accounting information and promote practices of rewards and sanctions (Burchell *et al.* 1980). This functionality of management accounting can be analysed from two points of view. Firstly, management accounting may be presented as a practical instrument to base decision-making processes. In this case, management accounting function cannot be explained only for its capability to provide financial and non-financial information but also for its ability to produce certain behaviour among receptors of the information. Secondly, management accounting can be presented as a “constitutive lens” that establishes which organisational activities are meaningful or not (Englund *et al.* 2011).

Figure 2 synthesises the interpretative scheme developed in analysing this case study, which interlinks domination, signification and legitimation structures embedded in social practices in CUC. In this framework, the accounting system, in particular, the accrual basis of accounting, is understood as an interpretative scheme that guides the social practices of organisational members. Accounting information and the planning-budgeting-accounting triad are considered as facilities that enable and constrain agent actions through access to authoritative and allocative resources. The regulations of the household service regimen are considered norms that sanction approved and disapproved behaviour.

The focus of the research is management accounting practices at the level of social interactions where agents recurrently enact social structures when agents are using technological devices in their practices. The research is focused on how efficiency is shaped through management accounting practices, which are consequential for the shaping of organisational and social structures. This framework will provide the foundation for the empirical analysis of this research. The following section will justify why structuration theory was chosen as the theoretical approach.

Figure 2: Theoretical approach for understanding management accounting practices and efficiency



Adapted from Lawrence *et al.* (1997)

3.4 Reasons for choosing structuration theory as the theoretical approach

The selection of structuration theory comes before data collection because this allows having the theory in mind and influencing the research design. The use of structuration theory was dynamic by enabling the data to enrich the empirical analyses (Makrygiannakis and Jack 2016, Jack 2017). Structuration theory not only offers a broad range of analytical categories but also guided the question-type that was formulated in this study and the composite research strategies that were designed from a structuration approach (Stones 2005). By selecting a “why and how” question, the research design was required to ensure data about wider social structures involved in management accounting practices at CUC and the perceptions of efficiency of CUC members from a micro level analysis. Thus, the focus of this thesis was not only in analysing how social structures were involved in management accounting practices in CUC but also how agents appropriated these structures that condition them to make a difference in their reproduction. This was one of the reasons for choosing a theoretical approach that takes account of the perspective of the agents and their capability of making a difference.

The selection of structuration theory as the theoretical approach of this research is also based on ontological and epistemological aspects. As has been stated in previous studies, the ontological assumptions are a choice of researchers, who must conduct their studies in coherence with the chosen ontology (Englund and Gerdin 2016, Jack 2017). The main ontological assumption that supports this study states that reality is constructed through the flow of social practices. This ontological assumption challenges the taken for

granted dualism between subject and object by stating that there is an interdependent relationship between them in comprehending the lived-world within phenomena in perception (Chabrak 2005). In this way, the duality of structure that lies at the heart of structuration theory gives a suitable guide to this research when it states that structures shape social practices, but at the same time, that agents are able to change or reproduce those structures through their social practices (Giddens 1984).

Even though agency does not change social structures at every moment and actors do not think about every action they take, it is necessary to emphasise that those structures exist and are important because agency recognises them as such. The core of structuration theory is studying how society is constituted through reproduction of social practices where agency and structure are interconnected through the duality of structure. In this analysis, there is a dialectical conception of control because all social actors have the possibility of exercising power in some way (Giddens 1984).

The second reason for choosing structuration theory as the theoretical approach is based on an epistemological argument. This research is supported by the idea that it is possible to understand the complexity of social phenomena when it is deeply studied how and why realities are constructed through social interactions. Based on that assumption this research attempts to study how and why efficiency is shaped through management accounting practices in a public conglomerate. Because the focus of this research is analysing management accounting practices in an organisational setting, structuration theory fits very well with this aim for the reason that the main domain of this theory is

studying “social practices ordered across space and time” (Giddens 1984, p.2). The domain of structuration theory has been extended to accounting literature, where some authors have studied how management accounting practices are re-embedded across diverse spans of time and space (Seal *et al.* 2004, Barrett *et al.* 2005, Hyvönen *et al.* 2006, Englund *et al.* 2011).

Because structuration theory fits with the ontological and epistemological assumptions of this research and offers a theoretical approach to understand how the social life is produced and reproduced through social interaction, this makes structuration theory a suitable theoretical approach for this research. For instance, prior work in accounting has drawn on structuration theory to investigate the reproduction of the social phenomena in various settings including indigenous accounting systems (Jayasinghe and Thomas 2009), public sector accounting reforms (Lawrence *et al.* 1997, Uddin and Tsamenyi 2005) and privatisation of public utility companies (Conrad 2005, De Araújo and Cullen 2012). Whereas the previous sections described the main features of structuration theory approach to undertake research, the next section describes the research methods.

3.5 Research method

Having stated the ontological and epistemological assumptions behind this research and the connections with the adopted theoretical approach, this section characterises the selected research method for this research. The correspondence between

the chosen theoretical approach and the ontological and epistemological assumptions that underpin the research is important because these assumptions influence the way reality is understood, methods are chosen, data are collected and findings are analysed (Burrell and Morgan 1979, Chua 1986, Laughlin 1995, Hart 2001, Ahrens and Chapman 2004, Laughlin 2004, Cunliffe 2010, Bryman and Bell 2011). The next section will justify the choice of method by explaining why this was consistent with the chosen approach and how it aids to carry out the research.

3.5.1 Data collection: Fieldwork design and challenges

This subsection explores the data collection method and the sources of data used to study how and why efficiency is shaped through management accounting practices in CUC. The case study approach relied on a combination of three data sources: documentary evidence, unstructured and semi-structured interviews and non-participative observations. The subsection explains why a case study was selected to collect data, what kind of data this method helped gather, how the fieldwork was designed and how this data was accessed. Next is an exploration of each data source by justifying why the data sources were chosen, the practical issues faced during data collection and how these issues were addressed.

3.5.2 Case study approach

For the in-depth study of efficiency through management accounting practices in CUC, this research followed a case study approach. When the boundaries between the studied phenomenon and context are not clearly defined and there is limited control over the unit of analysis, a case study is a suitable piece of empirical research, which provides a detailed examination of social phenomena in a real-life context (Yin 2013). As such, a case study method was used to understand ‘how’ and ‘why’ efficiency has been shaped through management accounting practices in CUC. The diversity of perceptions about how efficiency was produced in a spatio-temporally defined historical context (Nicolini 2009). In this way, this research not only gained richness through ‘in-depth’ and dense descriptions about efficiency (Yin 2013), but the research was connected with NPM reform elements implemented across different countries (Candida Smith 2003, Scapens 2004).

The fieldwork of the case study was divided in two stages (see Appendix 1). The division of fieldwork into two stages extended an understanding and applicability of structuration theory in the study through preliminary data analysis. In this way, the first stage of fieldwork concerned with generating a general understanding following unstructured interviews. The interviews conducted during the second fieldwork were more specific integrating the themes that emerged during the first stage of the fieldwork (see interview question in Appendix 2).

3.5.2.1 Data access and ethical considerations:

This research explores the meanings attached to efficiency shaped through management accounting practices in a specific context. A structuration theory approach was followed to examine in depth how and why agency and structures were involved in the shaping of those meanings by means of management accounting practices in CUC. To get the information required, ten (10) unstructured and twenty (20) semi-structured interviews were conducted. Access to the company was very difficult to obtain. During the fieldwork, detailed notes were taken to describe how access was obtained and how interviewees were contacted.

Once the interviewees were contacted, a formal letter was sent informing them about the objectives of the study, methods for data collection and confidentiality issues (see Appendix 3). Regarding, interviewee consent, before each interview, the participants received a consent form explaining their rights during and after the interviews (Appendix 4). By signing it, the interviewees confirmed that they were informed about the purpose of the research and their right to withdraw from the study any time. All the interviews were transcribed and sent to the interviewees to confirm their responses.

3.5.2.2 Documentary research:

Based on a thematic analysis technique, the documentary research was used to understand how efficiency in CUC was shaped through management accounting practices over time. Management accounting practices were conceived as analytical constructs that

integrate not only situated recurrent (inter-) actions but also structural principles underpinning those social practices (Englund and Gerdin 2008). To capture these structural principles, it was important to consider historical data and to use thematic analysis to reveal these social structures, which were not always clearly or explicitly expressed. In this regard documentary analysis was important to generate insights into which social structures were embedded in the reports of the management accounting practices in CUC.

The majority of research evidence for this study was collected during fieldwork stages. At the beginning of fieldwork, the revision of documentary archives was very useful to overcome limited access to management accounting practices in CUC. Annual reports from 1946 to 2001 were examined at a public library that CUC built in 2005. Information about loan agreements between CUC and multilateral development banks was available there. Apart from the CUC public library, personal libraries of some CUC directors were examined taking advantage of the access allowed by them. The sorts of documents collected were: training manuals, annual reports, financial charts, strategy plans, emails, newspapers and internal magazines.

3.5.2.3 Unstructured and semi-structured interviews:

Remaining consistent to the ontological and epistemological assumptions of this research, unstructured and semi-structured interviews were conducted because this technique enabled social interaction with the units of analysis. The reason why unstructured and semi-structured interviews were chosen was because the preliminary

analysis of unstructured interviews enabled the researcher to ask more focused questions and to use the vocabulary of interviewees to design the semi-structured interviews (Hollway and Jefferson 2000, Ritchie and Lewis 2003). As Holstein and Gubrium (2003) state: “from the time a researcher identifies a research topic, through respondent selection, questioning and answering, and, finally, the interpretation of responses, interviewing is a concerted interactional project” (p.14). In this way, the use of this technique generated some reflexivity moments in the research process because interviewees were able to ask questions and assist in the generation of knowledge based on their experiences and training (Riach 2009).

During the interview process, there was reflexivity from politically sensitive issues because of the complexity of the studied social phenomenon (Alvesson 2003, Adhikari *et al.* 2013). In this research, accountants of the public sector and members of the Colombian government were considered as politically aware actors, who reacted regarding their particular interests or their experiences on the issues in question (Adhikari *et al.* 2013). In this way, interviews were considered in turn as a space of social construction where people could build their concepts and answers through processes of unstructured and semi-structured interviews.

Regarding this technique, there were also some practical issues to consider in the design of this research, such as: who may be interviewed. By reviewing the literature that draws on structuration theory and public sector accounting reforms, it was possible to gain some insight into who could be a key actor for interviewing. For instance, Uddin

and Tsamenyi (2005) interviewed the chief of finance, the budget coordinator and managers from different accountability areas. Adhikari *et al.* (2013) interviewed professional accountants, government officers, budget officers and government accountants. Similarly, Jayasinghe *et al.* (2011) shared detailed information about the interviewees that participated in their research process, such as: general manager, company accountant, company director, previous society treasurer, previous company managing director, society secretary and members of council. Following these guidelines from the literature review, interviewees were selected.

Most of the interviewees were in the top, upper middle and middle level within the CUC hierarchical organisational structure (see Table 1). Interviewees were selected based on their positions and their engagement in decision-making and the setting of plans and targets by using management accounting information. The board of directors imposed some financial goals on them, and then they had to deal with their teams to achieve those goals. So, they imposed some pressure on the rest of the team, this idea was developed by Roethlisberger (1945). In addition, other lower grade employees were interviewed to get perceptions of efficiency from different actors across the organisational structure of CUC. The access to these interviewees was established through links or contact with retired employees who were also interviewed. The following table indicates the hierarchy of interviewees and attempts to guide the reading of their quotes, which state the position occupied by the interviewees within the hierarchic structure of CUC.

Table 1: Hierarchy of Interviewees according to organisational structure of CUC

Position / responsibility	# year of working in CUC	Gender	Duration of interview (minutes)
Top management (Including retired personnel)			
CEO	3	Male	42
Member of board directors	7	Male	97
Ex-member of board of directors1	8	Male	74
Vice-president1	17	Male	32
Vice-president2	23	Male	75
Vice-president3	20	Female	27
Vice-president4	29	Female	33
Vice-president5	30	Male	77
Vice-president6	23	Male	78
Upper middle management (Including retired personnel)			
Ex-manager1	26	Male	85
Ex-manager2		Male	96
Ex-manager3	10	Male	76
Manager1	20	Male	124
Manager2	25	Male	99
Manager3	8	Male	59
Middle management			
Director1	21	Female	73
Director2	28	Male	84
Director3 and 4	19/28	F/M	60
Director5	23	Male	44
Director6	28	Female	Email
Lower grade employees			
Employee1	36	Male	60
Employee2	10	Male	91
Employee3	31	Male	Email
Employee4	22	Female	30
Employee5	24	Female	32
Water supply worker	25	Male	100
Interviewees outside CUC			
Investment officer at International Finance Corporation (IFC)		Female	Email
Senior director of International Bank for Reconstruction and Development (IDB)		Male	30
IDB member		Male	42
PwC consultant		Male	82

Ex sub-accountant of Colombia		Male	120
Community Leader		Female	53
Historian writer about CUC and current manager of technical excellence		Male	70

The above table shows that some external agents such as an ex- sub accountant of Colombia and members of multilateral development banks (IFIC and IDB) were also interviewed. The reason for interviewing these external agents was to get a broader understanding about how efficiency is understood in the context of public administration (see interviewee guide). In addition, to give voice to other social actors, community leaders were also interviewed to understand how they experienced the transformations of household services in Colombia. These interviews enabled the exploration of different perceptions of efficiency of internal and external social actors in CUC.

3.5.2.4 *Non-participative observations:*

Non-participative observations helped to understand how rules and resources were embedded in social contexts related to management accounting practices in CUC. For example, after a long negotiation process, it was possible to get access to the annual accounting meeting in 2014, a meeting of all accountants within the CUC group. Non-participative observations enabled the researcher to look, listen, watch and ask about management accounting routines during the fieldwork (Margot *et al.* 1991).

Detailed fieldwork notes were taken during the annual accounting meeting of

CUC in 2014 following the conversational interactions of the participants. This knowledge was important to identify which social actors were very influential in that meeting by analysing how they took turns to talk and the positions that they took. In this annual accounting meeting, they not only planned how they were going to produce the annual report for 2014 but also how other processes in CUC had to fit in with this process. At the end of the meeting, the general accounting manager of CUC showed the other accountants of the group how management accounting tools like BSC could be used to convince the vice-presidents of the relevance of connecting their performance with the strategic goals of the conglomerate.

During fieldwork, data was gathered from 10 non-participative observations through informal conversations with employees during their workdays and lunchtime. This source of information was very limited because of the strict security controls at CUC headquarters for visitors. The conversations started by informing participants about the research topic. They were asked about examples of what was meant by efficiency in their daily work activities, what could motivate them to work in an efficient way and how they internalised their idea of efficiency if they did. These meetings were not recorded but notes were taken about CUC values and cultures.

3.5.3 Data analysis and developing narratives

The data analysis began with transcribing the (10) unstructured interviews. Each single interview was read to get familiar with the interviewee accounts. In getting

engaged with data, there was a preliminary analysis during and after the first stage of fieldwork. By reading the unstructured interviews carried out during the first stage of the fieldwork, it was possible to make careful observations of the themes to be analysed such as the rigorous control of resources and the technostructure in CUC. The analysis of unstructured interviews aided in identifying categories of analysis regarding Giddens' theory such as: structures, modalities or social interactions and to identify which data was obtained and which data lacked. This preliminary analysis also guided the subsequent data collection and helped to formulate some of the questions for the 20 semi-structured interviews carried out during the second stage of the fieldwork. All interviews were in Spanish, the official language in Colombia.

After finishing the data collection process, the 20 semi-structured interviews were transcribed and then all interviews were re-read. CUC annual reports from 1948 to 2014 were reviewed to verify some of the interview statements. The software Nvivo was used to assist the analysis process of interview transcripts and archival data. Codes were assigned to identify the emerging themes frequently expressed by the interviewees such as: rigorous control of resources, accounting-budgeting-planning triad and the influence of multilateral development banks on CUC. Archival data were organised chronologically and emerging themes from interviews were related to emerging themes from archival data such as CUC autonomy and the technostructure. The analysis of fieldwork data in relation to the three main abstract analytical dimensions (domination, signification and legitimation) of structuration theory took place after the first analysis of

emerging themes was made. During this process, the emerging themes were grouped in sub-categories and clustered into three dimensions.

Based on the emerging themes from data analysis, a first account was written. This was constructed from the coded transcripts of the interviews and archival data analysis. The analysis traced what interviewees may have signified in their responses and what these reflected about the big picture of the organisational transformations of CUC. Organisational transformations of CUC were traced through historical documents written about the company and connected to political, economic and social transformations of the Colombian household service sector. Some interviewees in their responses referred to the Colombian political economy as relevant to understanding CUC in context. The interwoven information from interviews and historical documents aided the building arguments about the specific management accounting practices of CUC such as the ABC technique and its relation to the household service sector regulations. The introduction of the three abstract dimensions of signification, domination and legitimation of structuration theory occurred in the last part of the analysis to make sense of the data. In addition, the three dimensions of structuration theory connected with the emerging themes from the data analysis facilitated the arranging of the empirical analysis chapters and contributed to the flow of the writing process.

3.6 Conclusions

This chapter introduced the theoretical approach and the research methodology for studying how and why efficiency is shaped through management accounting practices

in CUC, using structuration theory and its key insights (Giddens 1984, Giddens 1990, Giddens 1993) for designing, collecting, describing, analysing the data. The chapter also discussed the rationale of drawing on structuration theory and its consistency with the ontological and epistemological aspects that underpin this research. The ontological aspect implies that social reality is constructed through the interplay between agency and structure. The epistemology that assumes that reality is constructed through the interplay between agency and structure focuses on analysing specific social practices for increasing the richness of in-depth data. In this research, these considerations were important to explain why a case study approach was followed, for an in-depth understanding of the studied social phenomenon.

The ontological and epistemological aspects also had an impact on the selection of structuration theory as a theoretical approach and for its articulation with data collection. There were three features of structuration theory that matched the assumptions of this research. First, the duality of structure, as core concept of structuration theory, establishes an inextricable connection between agency and structures to understand how the notion of efficiency has been constructed using management accounting practices. Second, the domain of structuration theory is not centred on agents nor on structures but is centred on studying ordered social practices across time and space. Third, the structuration theory gives importance to the knowledge of the agents, as primary sources of data, for understanding their social practices. These three features of structuration theory influenced the choice of the three data sources used: documentary research, unstructured and semi-structured interviews and non-participative observations. The

chapter also described issues about data access and ethical considerations relating to the fieldwork. Finally, the chapter explained the data analysis and writing up process. The next chapters four, five and six empirically address the research question and discuss the findings of the study.

Chapter 4: Historical development of CUC

The purpose of this chapter is to provide a foundation for the analysis of how and why management accounting practices have shaped efficiency in a utility public company. It will offer a historical perspective that shows major changes of the company during different periods of time. The chapter discusses the links between the transformations of CUC with the changes of the development models introduced in Colombia. The analysis will begin by discussing the earliest distribution of utility services in the 1920s in Colombia, which brought about the development of the cities. The chapter further discusses the economic and social conditions of the country that led to the creation of CUC in 1956 as a decentralised company for the provision of utilities. In addition, the chapter demonstrates how the transformation of CUC as a commercial and industrial enterprise of the State in 1997 relates to wider market-led reforms. Consequently, the chapter considers the extent to which CUC became a public conglomerate after Colombian regulations modified the market conditions for utility companies and allowed the expansion of CUC inside and outside Colombia. The chapter ends by analysing these changes which occurred in CUC drawing on the three aspects of structuration theory, i.e. the main aspects of signification, legitimation and domination structures that led to the emergence of new meanings for utility companies where these are seen to be profit-seeking businesses rather than Welfare organisations.

4.1 Development of municipal enterprises in Macondo during the Colombian State-led industrialisation (1920-1955)

This section describes the context in which the first companies dedicated to deliver household services in the city of Macondo were formed, including CUC⁵. In the first decades of the twentieth century, the local municipality of Macondo directly delivered utilities to support the development of the city as occurred in other Latin American cities where development was supported by the State (De Araújo and Cullen 2012). The development of this geographical region was related to water in two ways: first, it was a raw material for advancing hydraulic technology, which mobilised the mining industry, and second, the water was related to the generation of electricity which was connected to the industrial revolution in the Antioquia Department⁶ (López 2004).

The geographical region of the Antioquia Department is an area of abundant water wealth and a fairly uneven topography, which was very convenient for hydropower generation. This idea was exploited industrially in Macondo since the late 1910s and early 1920s, providing dynamism and encouraging development of the economy in the region. This technological appropriation of natural resources for industrialisation since the nineteenth century stimulated a constant demand for professional staff, thus creating

⁵ Even though CUC was created as an autonomous and decentralised company in 1956, the municipal companies created in Macondo in 1919 were precursors of CUC and for this reason it is important to provide this historical background (Marulanda Valencia, F. A. and Márquez Godoy, J. I. (2016) 'La formación de la Escuela de Minas de Medellín y el aporte de sus ingenieros como administradores en organizaciones colombianas, públicas y privadas (1911-1959)' in López Diez, J. C. and Cerutti, M., eds., *Historia económica y empresarial México - Colombia, s. XIX y XX*, Medellín: Fondo Editorial and Universidad EAFIT, 336.

⁶ The Department of Antioquia is an administrative jurisdiction that contains the city of Macondo, which has been recognised as a hub for capitalist development in Colombia (Valera, 2011).

the conditions for setting up the “Escuela Nacional de Minas” (National School of Mines) in 1888. This school of engineers trained professionals in the technical rationality that helps to explain the management style later established in CUC. The engineers trained in this school administered CUC technically, and looked to maintain their independence from political interests (López 2006). The influence of this school on CUC practices will be explained in depth in the next chapter.

During the 1920’s, the Antioquia Region built the first big hydroelectric power station, which drove industrial development in this region and with it, urban growth. In addition to the water wealth, Antioquia Region is also rich in the production of coffee. Coffee had become the main export product to the European and North American markets. In 1923, coffee was 80% of the products exported by Colombia. Although the production of gold and silver increased after 1885, coffee was the product that opened the Colombian borders to the international economy at the end of the 19th century (Palacios 2003).

Because of the relevance of water, electricity and telephone services for social wellbeing and industrial growth, the local government of Macondo from 1914 to 1919 started to buy other local companies, and in 1919 constituted "municipal enterprises" that grouped three main services: electricity, water supply and telephone services (López 2005). The historical moment where utility services were directly offered by the local municipality of Macondo took place in the economic period known by historians as "the state-led industrialisation". During this period, Colombia adopted macroeconomic

policies to cope with the economic downturn that emerged from the Great depression of 1929 to the end of World War II. The social, economic and political commotion generated by the Great depression of the 1930s resulted in the creation of a new economic world order led by the United States and its main allies. This was given impetus by the meeting in Bretton Woods (New Hampshire) in 1944 which led to the creation of the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (IBRD) or World Bank (WB) (Cabra 2011).

Multilateral development banks⁷ advocated “the state-led industrialisation” as a way of pursuing economic progress through industrialisation/modernisation whilst at the same time paying special attention to import-substituting industries and developing a welfare State structure. This economic model, which was theoretically founded on Keynesian ideas, saw the State as the centre of action involved in funding and managing commercial and industrial enterprises. Multilateral development banks promoted this vision of organising the state, in emerging economies, by sponsoring its development programs (Hopper *et al.* 2009, Van Helden and Uddin 2016).

For Colombia and Latin America by extension, the period called "the state-led industrialisation" occurred from the beginning of the 1930s until the late 1960s. In the specific case of Colombia, economic historians have considered the constitutional reform

⁷"The term ‘Multilateral Development Banks’ typically refers to the World Bank and four Regional Development Banks—the African Development Bank, the Asian Development Bank, the Inter-American Development Bank Group and the European Bank for Reconstruction and Development.” Annisette, M. (2004) 'The true nature of the World Bank', *Critical Perspectives on Accounting*, 15(3), 303-323.

of 1968 as the completion date of this period (Arrubla 1991). This period of "the state-led industrialisation" marked a transformation of Colombian society in respect of the environment, accelerating the process of urbanisation, and of industrialization, including electrification as part of a source of dynamic improvement⁸(Bértola and Ocampo 2013).

"The state-led industrialisation" was a common element across all Latin American countries. The development based on the achievement of technical progress brought about by industrialisation, in turn generated a growth of modern services to the detriment of agricultural production (Bértola and Ocampo 2013). Embryonic industry associations from the private sector supported the period of "the state-led industrialisation". An example of these industry associations was the National Industrial Business Associations of Colombia (ANDI) created in Antioquia in 1944.

In Latin America, the sector consolidated as industrial bourgeoisie, and played a role of beneficiary or subordinate, in relation to the interests of multilateral development banks; i.e., this sector of the population did not act as a partner or ally of these multilateral organisms (Ahumada 1996). By contrast, in the city of Macondo, the period of "the state-led industrialisation" was supported by the industrial sectors that were consolidating and various booming associations, such as transport, finance, trade and construction, as evidenced in the study of Bértola and Ocampo (2013):

⁸ During the presidency of Mariano Ospina Perez (1946-1950), a conservative government, the WB had diagnosed the situation in Colombia in terms of infrastructure requiring changes to meet the demand for public utilities such as electricity. The WB study published in 1951 indicated an average of 9% annual increase in the demand for electricity during the decade of the 1940s, which would fail to be covered by the capacity available at the time. To meet the demand, Colombia had to invest capital that would be provided by international banks (Lopez 2005).

"The manufacturing sector was the engine of economic growth, (...), but also modern services significantly expanded: financial, transport infrastructure (road and aerial now more than rail) and telecommunications and public utilities (electricity, drainage and sewerage). The state played a direct role, by creating public enterprises in the development of some strategic industries" (p.215).

The above quote shows how the intervention of the Colombian State in industrialization processes was necessary to support capitalist development in the country. This action by the State was undertaken because the local municipalities which delivered utilities during this period saw it as necessary for the development of the cities. To invest in infrastructure projects to deliver those services, it was necessary for huge investment over a long-time period and this was provided by multilateral development banks.

The annual reports of CUC highlighted the agency of its managers to negotiate financial support from multilateral development banks. These reports emphasised the relevance of obtaining these loans from multilateral development banks with lower rates and longer grace periods than national and local banks were able to offer to the company. The CUC managers stated that infrastructure projects were only viable through the funding granted by these multilateral development banks (CUC 1967, CUC 1968). In the following quote, the CUC agency is also highlighted in the search for funding its projects:

"The most significant management within electric service consisted in obtaining a loan of 56 million dollars by the WB for the construction of the second stage of the hydroelectric II. This project is very relevant within the 1970-1980 development plan due to its

magnitude and the immense contribution made to the economic and social development of the County and the Nation." (CUC 1972)

The above quote shows not only the role of multilateral development banks as the main funders of CUC, but also relates the achieving of credits with the long-term planning of CUC. This financial planning was a recurring theme in interviews as part of the practices that were learnt by CUC from multilateral development banks. In pursuit of funding for each project, CUC elaborated a financial plan to demonstrate the company's capability to meet debt payments. The financial dependence of Colombian government to execute these projects provided a space for multilateral development banks to influence the constitution of utility companies in the country. The following section details the negotiation process, which took place with the multilateral development banks to legally constitute CUC.

4.2 The legal architecture of CUC: a negotiated process? (1954-1955)

The ideology of the WB's development has been significant in shaping public sector organisations in emerging economies because of the financial dependence of these countries from donor agency funding (Hopper *et al.* 2009, De Araújo and Cullen 2012, Van Helden and Uddin 2016, Hopper *et al.* 2017). Colombia has not been an exception. The country did not have sufficient financial resources to undertake the infrastructure projects required for its development. Since 1949, Colombia received loans every year

from the WB becoming “the highest per capita recipient of resources within developing countries” (Cabra 2011, p.43). Because of this financial dependence, the WB set conditions for the granting of loans that influenced, among other developments, the creation of utility companies in the country (López 2006, Varón Rojas 2017).

In the case of CUC, the influence of multilateral development banks has been a constant even before the company was legally constituted. An example of this influence was a direct request from IBRD⁹, and in 1955 it proposed the participation of representatives from the private sector on the board of directors of the nascent CUC (Varela 2011). Even though this condition was fulfilled, it cannot be said that the recommendations of the multilateral development banks were adopted verbatim by the local officials that worked on the creation of CUC (Cabra 2011). During the creation of CUC, there was a negotiation process, which is an example of how the proposals of the Mayor’s representatives could make a difference, despite the structural conditions of CUC’s economic dependence on funding from the WB.

In 1955 IBRD employees had meetings with officials, lawyers and businessmen to propose the creation of the utility company of Macondo as an autonomous entity. One aspect in which IBRD and the Mayor’s representatives had differences was regarding the integration of different types of services (water, electricity, sewerage and telephone) into a unified company. The idea of CUC’s representatives was that the company would manage not only the expansion of electricity, but also water and sewerage. Additionally,

⁹ The IBRD founded in 1944 is the original institution of the WB.

they argued that the integration of these services was necessary, not only because development in electricity services drove developments in water supply and sewerage systems, but also because in some projects, such as, hydroelectric station building, the services of water supply and electricity generation were physically integrated (López 2004). The WB representatives argued that the idea of integrating all services was reckless and that it could affect the performance of the electricity service, which was the utility company that had received loans. The following excerpts are from a letter written in 1955 by a member of the WB expressing the sentiments outlined above:

“We fully understand and sympathize with the objective of coordinating the operations of the Empresa de Energía Eléctrica with the activities of the other municipal enterprises... We feel, however, that it is desirable to obtain the coordination of the Empresa de Energía Eléctrica with the other municipal enterprises without combining all the empresas in a single administrative unit” (Cited in Aristizábal, Arias and Tobón, 1988, p. 48).

After receiving this correspondence, the local elites of Macondo still disagreed with the WB requirement of creating an enterprise for each utility service. During 1955, there were more written correspondences¹⁰ among representatives of the WB, and Diego Arbelaez Tobón, a lawyer who was a spokesman for the Mayor of Macondo, to come to

¹⁰ In a subsequent letter, the WB representatives directly expressed how the loan approved to the “Electricity Company” might be affected if this company was combined with the other utility companies of water supply and telephone. As is expressed in the following excerpts: “we all know that the Empresa de Energía Eléctrica wanted to obtain a loan from the International Bank for its expansion program. Before the Bank could make such a loan, it would have to assure itself, among other things, that the Empresa was financially sound. This would be a relatively simple matter if the Empresa de Energía Eléctrica were autonomous since the analysis could be limited to the Empresa, which is probably in a good financial position. The matter would be much more complicated, however, if the aqueduct and telephone enterprises were combined with power in a single organization, since the aqueduct or telephone enterprise, the financial condition of which have to be checked, might not be as well off and could reduce thereby the credit worthiness of the Empresa de Energía Eléctrica for a loan” (Cited in Aristizábal, Arias, and Tobón, 1988, p. 51).

an agreement on the creation of CUC as an autonomous entity (López 2005). The intervention of Diego Arbelaez Tobón as spokesman of the Mayor of Macondo was not by chance, he was able to intervene because of his positions in different fields of the Colombian society.

Diego Arbelaez Tobón was president of the city council of Rionegro from 1941 to 1945. From 1945 to 1949, he was the chamber representative from the liberal party, in 1949 he became vice president of the ANDI for 10 years. At around the same time, he became a member of the board of directors of CUC as a representative of industry and banking in 1953. He was an influential person that took part in the legitimization of the decentralisation for utility companies in Colombia through his participation in the National Constituent Assembly that introduced this model in the country (López *et al.* 2005). In addition, Diego Arbelaez Tobón designed the statutes of autonomy of CUC (CUC 1957).

The constitutional reform in 1954, in which Diego Arbelaez Tobón took part, allowed, among other things, the creation of two types of public utility companies. A first type of decentralised municipal companies for medium and large cities was where the size of the necessary utility ensured it would be efficient. A second type of enterprise for small municipalities had support, funding and technical assistance from the State. This financial support from the State was needed because if the municipalities were small then their utility companies could not be self-financed, due to low numbers of users and the huge infrastructure investment that was required (Cabra 2011). Both types of utility companies had independent legal capacities to execute acts to achieve objectives as independent bodies.

This decentralised model in public management was applied in the big cities of the country (Cali, Bogotá and Macondo). In 1954 (a year before the foundation of CUC), the decentralised model was applied to create the Corporación Autónoma Regional del Valle del Cauca, which attempted to replicate the experience of Tennessee Valley Authority (TVA). When the company was formed, part of its remit was to solve the overflows and landslips of the Cauca River and its branches, which occurred since the 1930s. This legal model put emphasis on the decentralisation that was legitimised through the constitutional reform of 1954. Before 1954, in Colombia, only three public management levels existed: national (the country), regional (departments) and local (municipalities). Thus, the creation of autonomous public utility companies was a new element within the public management of Colombia (López 2006).

Following the model of decentralisation, the Mayor of Macondo, officials, lawyers, businessmen, and representatives of political parties took the decision to constitute CUC as an autonomous entity (Aristizábal *et al.* 1988). The innovative and historical act in the creation of CUC was the integration of the services of water supply, electricity, sewerage and telephone which has become a distinctive feature of the company¹¹ (Varela 2011). This signals the emergence of some sort of structuring of the activities of CUC. For instance, each service would have autonomous management policies in respect of

¹¹ The final decision of constituting CUC generated unintended consequences of the action that favored the development of all services. For example, water and sewage system services received loans from electricity services, which were made at the same interest rate conditions of the market given the financial independence for each unit. This financial expansion of water and sewerage networks enabled the execution of projects that otherwise would not have been advanced since these services had little chance of funding in the capital market due to their low profitability rates. This financial cooperation was difficult in cities such as Bogotá, where each service was constituted as a different company as demanded by the WB. Thus, when the electricity company financially supported the development of the water supply company, the WB rejected, in 1956, this cooperation as a condition for the granting of loans to the electricity company (León Paime, 2005).

financial, budget and accounting aspects to address the concern of WB representatives about the financial autonomy of the “Electricity Company”. This configuration sought to ensure that the financial results did not affect one another (Aristizábal *et al.* 1988). The following section will explain some implications of constituting CUC as an autonomous entity.

4.3 The constitution of CUC as an autonomous and decentralised public enterprise (1956-1970)

CUC was established through Agreement No.58 from August 6, 1955, in the city of Macondo. The City Council created CUC as an entity, taking advantage of the autonomy granted by the constitutional reform in 1954. These regulations sought a development in public utilities to meet the accelerated population growth and the demands of growing industry and other services of the Colombian cities. In the case of Macondo, the nascent utility company was a public organisation entirely funded by local government capital. By the time of the constitution of CUC, the city of Macondo had about 358.189 inhabitants (Melo 1988)¹², entitled to receive utility services from the company. The public character of CUC was defined because of its organisational capability to concentrate massive resources, transform and distribute them to the society in which it operated (León Paimé 2005).

Once CUC was legally constituted, the lawyer Diego Arbelaez Tobón designed its

¹² According to the census registered in Colombia in 1951 carried out by the Administrative Department of Statistics.

statutes of autonomy. This autonomy from the legal entity meant that the company could establish clear roles in its relationship with the local government (López 2006). This condition was decisive for the development of the business model of CUC, which was characterised by at least three features: the managerial autonomy of the company distanced from the interests of political groups, the incorporation of a long-term planning approach, and the existence of a solid technostructure that supported such an approach (Varela 2011). The first feature is expressed in the statutes of autonomy designed for the company:

"The institution is apolitical and will be headed with rigorous criteria of administrative efficiency using appropriate technical systems of business organisation in order to obtain its primary objective which is to guarantee citizens the regular, permanent and economical operation of public utilities needed and to promote the progress of Macondo with the stimulus for the development of new industries and growth of those already established" (CUC 1957, p.44).

The apolitical notion refers to the fact that CUC administration was autonomous and would follow technical aspects of scientific management while having independence from political parties, which influenced the configuration of the bureaucratic power in CUC (Varela 2011). This autonomy meant that the Mayor of the Macondo city and the regional political elite would respect the autonomy of management of the company. Although the Mayor of the city participates on the board of CUC, there is a separation in the business model of the company between the owner, which is the municipality of Macondo as a representative of the local community, and their managers who have rights

to control the organisation¹³. In other words, there is separation between political elites, the highest decision-making body and the management of the company.

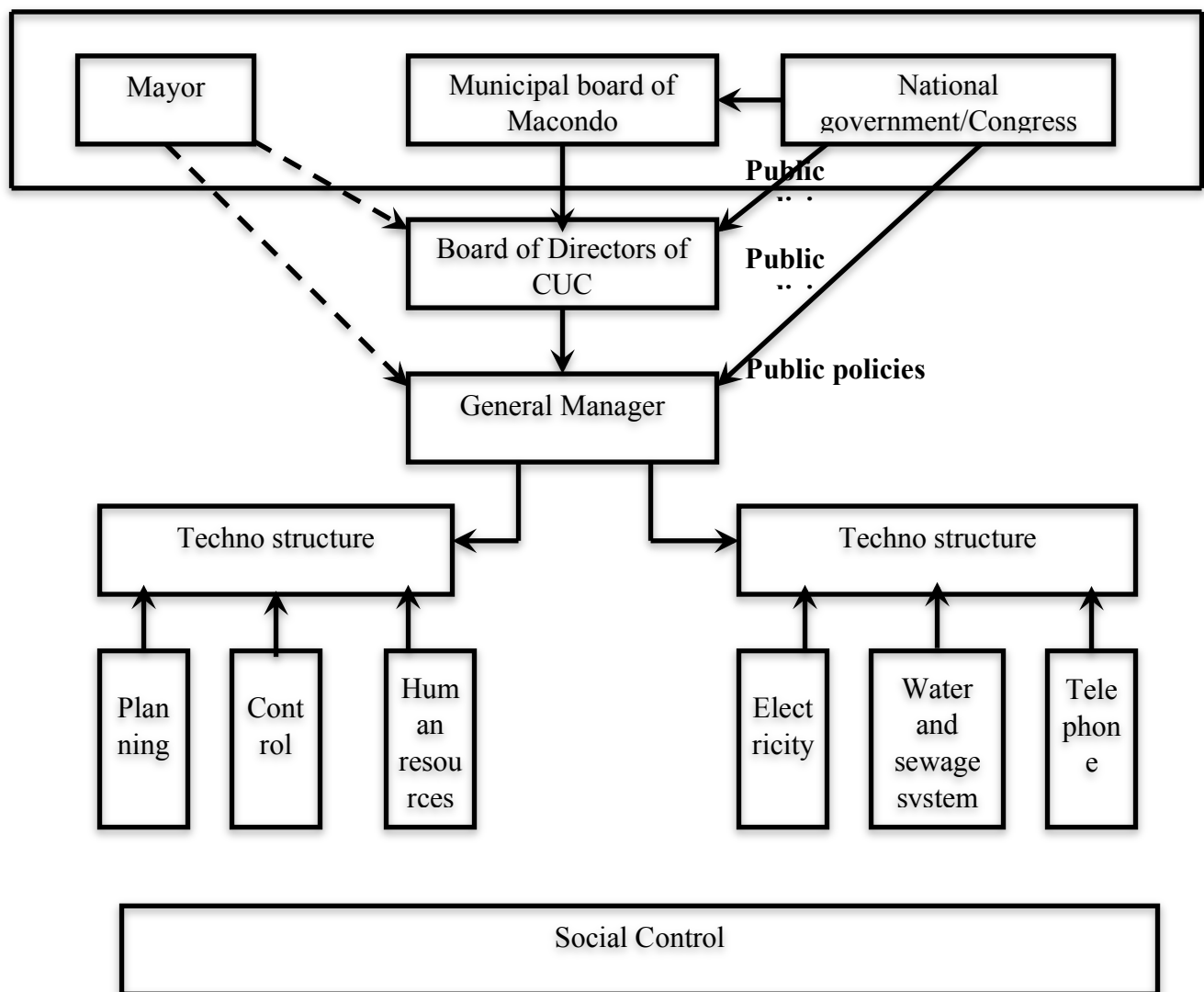
The management structure of the organisation enabled central decision-making power at the CEO level and decentralised power in each individual unit. This management structure was underpinned by a long-term planning approach, which has given meaningful power to the managers of the company and to its technostructure in allocating resources. From the first decades of the company, the managers remained for a long period of time as directors of the company. The management of Diego Calle Restrepo was the longest period from 1975-1986 (Varela 2011, Vélez Álvarez 2013). The managers being in place for a long period established a long-term planning approach in CUC that was significantly strengthened by the influence of multilateral development banks over the company, which will be explained in chapter 6.

The decentralisation in the management of CUC was supported by a solid technostructure (see Figure 3), which is made up of employees who have worked in the company for long periods of time (more than 20 or 30 years). The Board and the General Management decentralise and delegate functions and responsibilities to the assistant managers and heads of division. The assistant managers are accountable for each business unit (electricity, water supply, sewerage and telephone service), with decision-making power on procurement and awarding contracts with a maximum value limit established by the board of directors. However, the board and the CEO made decisions regarding contracts that exceeded the value limit established at that time. The board and

¹³ The distinction between the investor and the manager that constitutes the foundation of agency theory from which it legitimates the objective of the management is the maximisation of value for the shareholders.

the CEO took into account technical, legal and financial analyses provided by specialised employees in each area to make their decisions (Varela 2011). Such a process has been set from the foundation and consolidation of CUC and is part of the company logic, which is illustrated in the following figure:

Figure 3: Bureaucratic power in CUC (1955 - 1970)



Source: (Varela 2011, p.122)

The technostructure represents all the expertise provided by the organisational members, as well as the experiences and talents related to the management of the company's processes. This definition is focused on the skills of the group that compose the technostructure, which also participates in and contributes to the decision-making processes that guide the company (Galbraith, 1970, Aristizábal, Arias and Tobón, 1988). The stock of knowledge of the members that make up the technostructure has made them an influential element in the institutionalisation of the culture of rigorous control of resources in CUC, which will be explained in depth in the next chapter.

The managerial autonomy of CUC, the long-term planning approach and the technostructure that characterises the business model of CUC are interlinked to protect the company against local governments using the company for their own political interests. Because the Mayors of the city have always respected the staff hiring process of CUC, this has meant that patronage has not been a prevalent practice in this organisation. This feature is reflected in the way that employees do not owe fidelity to political parties for being hired in CUC. The control of patronage practices in CUC has created a distinctive management model that contrasts with what has been found in other public organisations inside Colombia and other emerging economies (Roberts 2004, Wickramasinghe and Hopper 2005, De Renzio 2006, Ni Putu *et al.* 2007, Varela 2008b)¹⁴.

The autonomy of CUC in its staff hiring process has also generated low staff turnover

¹⁴ The analysis of this literature will be presented in chapter 5.

and job stability because staff members of the company are not hired and replaced through intervention of political parties. These features have forged a sense of belonging and facilitated the long-term planning approach on which the technostructure is based. The following section will explain how these features of the business model of CUC promoted its consolidation as a multiservice company even after a difficult period during the 1970's. This shows how the development of CUC was driven by a different ideology as compared to many other public entities.

4.4 Institutional crisis of CUC during the 1970s and its subsequent consolidation (1970-1990)

The early 1970s is recognised as a period in the history of CUC where its managerial autonomy was threatened. Representatives of ANAPO¹⁵, who had a majority control over the Council of Macondo by that time, managed to have an effect on reducing the rates of public services, thus motivating an institutional and financial crisis in the company. The rules that established the autonomy between the City council and CUC management were modified through an agreement released in 1970 that reformed the composition of the Board of Directors of CUC. The number of members of the board did not change, but the new board was formed by town councillors and its representatives assigned through rules

¹⁵ The National Popular Alliance (ANAPO) is an organisation of masses with a claiming and social character that presented a popular leader and military man as its candidate; General Lieutenant Gustavo Rojas Pinilla, achieving important presence in the Senate of the country and the City Councils of several important cities of the country, Macondo among them.

of political parity (i.e. 3 liberal anapistas¹⁶ and 3 conservative anapistas) (Varela 2011).

In addition, there were three members on the board who were appointed by the same town councillors who formed the political parity. These 3 representatives were from different sectors that did not necessarily include representatives from business associations as the former board did. The new composition of the board of directors made it difficult to keep a distance between the management of the company and the interests of political parties. This crisis was aggravated because of a financial deficit in CUC derived from the strong devaluation of the Colombian peso with the dollar that increased the international loan costs previously acquired by the company. Even though CUC did not undergo changes in its structure due to the crisis, this period has been considered by historians as the most difficult time in the history of CUC, as reflected in the higher turnover of its managers (López 2006, Varela 2011).

During this crisis, Diego Calle Restrepo assumed the management of CUC. Before becoming the CEO of CUC, this manager had other important positions in the Colombian political and institutional field, such as: Director of National Planning Office in 1963, Finance Minister in 1964, Executive Director of BID in 1966, Antioquia Governor in 1970 and Senator in 1974. These positions occupied by Diego Calle provided him with the experience, skills and transformative and negotiating capabilities, which were subsequently deployed within CUC. His most notable work within his management period in the company was the building of the megaproject “El peñol”, which increased the generating capacity of electricity of the company by 76% (de Medellín 2006).

¹⁶ Anapista is the name for members of the political party ANAPO.

Additionally, Diego Calle Restrepo worked to consolidate the business model of the company through three reforms: firstly, a political consensus was sought to re-establish the relationship between the city council and the management of CUC¹⁷. Secondly, private sector analysts were hired in the mid-1970s to restructure the financial and planning offices of CUC in accordance with the criteria of the private sector¹⁸. Thirdly, a long lasting bureaucratic ethos of the technostructure would be reinforced through rigorous control of resources (Aristizábal *et al.* 1988, Varela 2011). These reforms enabled the subsequent consolidation of CUC, as will be explained in the following empirical chapters.

The business model of CUC followed planning criteria through control elements integrated in management. For instance, management reports since the time of the constitution of CUC highlighted the rigour of the accounting and economic calculations of the company to guide future activities with efficiency criteria based on the information about the past experience of the company (Aristizábal *et al.* 1988). By contrast, in the other public utility companies of Colombia there was not a tool or mechanism for national or local government, that would optimise the operation of the companies and ensure quality of service (Cabra 2011). In addition to the absence of regulatory instruments, the absence of systems of management and lack of evaluation made it possible for employees to pursue activities that were to their own benefit or had a biased

¹⁷ This consensus was facilitated because the political participation of the ANAPO had decreased by 1976.

¹⁸ This reform incorporated management model orientations prevailing in the world, known as management by objectives, where the manager is responsible for successfully carrying out the goals set by the organisation Boltanski, L. and Chiapello, E. (2002) *El nuevo espíritu del capitalismo*, Ediciones Akal..

interest in politics and regional economic groups. This situation was accentuated through the implementation of mechanisms of administrative corruption or patronage logic, emphasising the inefficiency of utility companies (Cabra 2011).

At the macroeconomic level, Colombia began the decade of the eighties with the dismantling of "state-led industrialisation" and a slowdown in the growth of the global economy (Bértola and Ocampo 2013). The emergence of the crisis due to non-payment of external debt by developing countries generated a crisis in the global economy known as the debt crisis. The conditions of the global economy resulted in the implementation of a new set of measures seeking to alleviate the crisis of the eighties and lay the foundations for a new economic model.

In the early nineties and following the recommendations made by the Washington Consensus, the government of Colombia implemented a new development model for the country. This new model was focused on the market, which included a series of reforms and measures such as: fiscal discipline, financial and commercial liberalisation, total opening of the economy to direct investments, privatisation and deregulation (Zurbriggen 2007). This set of measures is known in Colombia as the economic opening model. This new set of procedures included measures for public utility companies regarding pricing that would cover the costs of providing services and ensuring the financial sustainability of public companies (Bértola and Ocampo 2013). In the case of Colombia, the neoliberal government of César Gaviria (1990-1994) developed four instruments to address this situation:

"The first one: separating companies from political decisions and creating them with administrative, financial and budgetary autonomy.

Second: introducing competition by intervening in monopolies. Third: creating a regulatory framework to reduce the discretionary power of the government, thus separating the functions of sectoral policy from the regulation; which would enable a regulation of rates based on costs. Finally, developing privatisation schemes" (Cabra 2011, p.73).

These four instruments incorporated adjustment programmes drawn from the multilateral development banks, which were the triggers to initiate a thorough transformation of all relationships and conditions of provision and operation of public utilities in Colombia. A specialised section of the Constitution of the country in 1991 was dedicated to this subject. Prior to the constitutional reform, local newspapers reported the financial support that Colombia would receive from the WB to implement public sector reforms and the need for privatising public organisations to improve their efficiency (Colprensa 11 October 1990, p.10a). The news about privatisation of public utility companies raised different kinds of social protests within Colombia. An interviewee states that while in other cities of Colombia there were social protests of citizens complaining about the low quality of utility services, in Macondo there were social protests of citizens who believed that CUC should not be privatised. The following quote expresses this issue:

"In 1991 when the government attempted to privatise CUC, there were counterarguments that showed that it was efficient as a public company. We stated that in the last 30 years, CUC had built a capacity to generate and transmit electricity at competitive prices and to transfer profits to the municipality at the same time... When the City Mayor presented the privatisation proposal, we obtained 19 votes from city councillors, who were against the privatisation of CUC and 2 votes from city councillors who supported the privatisation of the company" (Ex- member of board of directors).

The above quote was a reflection that CUC was perceived as an efficient public company not only for its capability in offering electricity services at competitive prices but also for its capability of making a profit to transfer to the municipality of Macondo. Indeed, by the time that the government attempted to privatise CUC, local newspapers identified CUC as an efficient public organisation with an exceptional financial performance (Gómez 13 september 1990, p.4b). It may be suggested that CUC stood out as a public company capable of being self-financing. The next section will show the ability of CUC to adapt to the production model of “economic opening”, where the market would define which substantive elements were important in the structuring of the company.

4.5 The transformation of CUC as a Commercial and Industrial Enterprise of the State (1990-2000)

In the late 1990s, CUC was transformed into a commercial and industrial enterprise of the State, legally becoming a joint-stock public service enterprise. This transformation of CUC was linked to changes in the global macroeconomic model called “Economic Opening”, known in the country as the neoliberal model. This model was introduced and legitimised in Colombia through a new legal order for the country with the promulgation of the new Constitution in 1991, which defined a statute for the model of public services provision called Household Public Services Regime -RSPD-. This section will connect the CUC transformation with these national and global changes.

The economic conditions of a new world order are the result of the debt crisis of the countries of Latin America. For Colombia, this new world order brought a stronger dynamism to the internal changes in the country. After a peace process, several insurgent organisations rejoined civilian life, while creating a space for the construction of a new legal order for the country (Bértola and Ocampo 2013). This new order became a reality with the implementation of the National Constituent Assembly that, after nearly half a year of deliberations, enacted the Constitution of Colombia of 1991.

With the changing economic conditions, a new era emerges, passing from the logic of an interventionist State responsible for market regulation, to a world without barriers. The economic opening model would begin to define the internal and external policies of countries and corporate management of organisations which would have to adapt to the new rules (Boltanski and Chiapello 2002). This new model and these new rules are included in the Washington Consensus formulated by John Williamson (1990). This consensus summarised the market reforms that multilateral development banks demanded from Latin American countries (De Araújo and Cullen 2012, Bértola and Ocampo 2013).

The market reforms in Colombia involved the removal of regulatory barriers to foreign trade and foreign investment, the release of private companies from excessive state controls and competition from government entities. It was the response of the country to a generalised model in Latin America and other emerging economies, which

had the strong support of multilateral development banks and international financial organisations, a phenomenon later known as 'neoliberalism' (Bushnell 2002). This phenomenon covered all of the activities of daily life as expressed by Boltanski and Chiapello (2002) in their work:

"The neoliberal model emerges from a basic principle: the logic of the market and its price signals turn out to be the best mechanism for allocating resources; this idea of efficiency penetrates all areas of social and economic life, in such diverse sectors as education, health, justice and public services " (p.30).

The parameters of the "neoliberalism model" defined the paths of economic policies in Colombia and legitimised the market as an element of mediation between production and demand. The market went from being a simple consequence of the relations established by the production model, to becoming the regulator of the law of supply and demand from the prevailing logic of economic openings. The role of the interventionist state as generator of welfare for the majority would be displaced, becoming instead the guardian of the trade balance of goods, products and services (De Araújo and Cullen 2012), ignoring the gains of the political economy of the mid-twentieth century.

The structural reforms started in Colombia during the decade of the 1990s created the minimum required conditions for the transformation of the legal system of the country. The purpose of this reform was to weaken the role of the welfare State and expeditiously cleared the way for the privatisation of public enterprise in strategic sectors of the national economy (Ahumada 1996). This is also evident in other emerging economies (Neu *et al.* 2009). In Colombia, the constitutional reform of 1991

gave power to the government to sell or liquidate the monopolistic State companies, in addition to the possibility of granting to others the development of their activities when they met the requirements of efficiency as determined by the law. This reform concretely reflects the impact of the model of economic opening on the legal system of the country, which implemented the structural adjustments designed by international funding agencies¹⁹.

During the debates on the constitutional reform, there was a focus on the provision of public utilities due to the serious problems that occurred throughout the 1970s and 1980s. These serious problems were related to inefficiency, corruption, poor quality, political bureaucratisation and bad administrative management. The reforms considered that the crisis in public services was deep enough for the State to intervene to establish a control and surveillance scheme. These substantial modifications were consolidated in the “Household Public Service Regime”, which sought: ensuring efficiency and quality in the provision of services, expanding coverage, enabling private participation, separating the regulation roles of the State, establishing a pricing structure, administering subsidies and ensuring public participation (Cabra 2011).

These modifications had similar goals to NPM reforms across the world, which were

¹⁹ Multilateral development banks such as the WB also guided States to improve the management of macroeconomic policy, through reductions in external and internal imbalances. They also designed a complementary set of reforms known as adjustment reforms and industrial restructuring, where the logic model of economic opening and market regulation of public companies was incorporated. Thus, from 1989 to 1991, after the implementation of the new market policies at the expense of the regulatory role of the State, the WB granted loans for industrial restructuring worth 5.4 billion dollars in five continents Cabra, L. E. A. (2011) *Los servicios públicos frente a las reformas económicas en Colombia*, U. Externado de Colombia..

fundamentally based around three general aspects. Firstly, values of private business culture were incorporated in the public sector to improve its effectiveness and its efficiency. Secondly, organisational structures of state-owned companies were transformed to reduce public expenditure and improve managerial accountability. Thirdly, these transformations were directly controlled through executive power of governments and implemented by executive agencies in order to ensure the responsiveness of public organisations to their customers (Bresser-Pereira 2001, Christensen and Laegreid 2007). In case of Colombia, the “Household Public Service Regime” determined that the Superintendence of Public Services was the executive agency responsible for executing NPM reforms in the field of utility companies. The Superintendence of Public Services had the power to sanction, to intervene and to liquidate utility companies in accordance with the monitoring carried out on its management, its assessment of the administrative and financial performance and its development of a customer-driven approach (Cabra 2011).

The introduction of new entities for control and regulation of the public services sector required substantial changes in the institutional framework, the rate structure, subsidies, coverage and quality of services. Such changes aimed to create more competition and improve productivity practices (Cabra 2011). In this aspect, there was evidence of the influence of NPM elements, which placed a focus on the results of utility companies based on performance indicators and on the definition of concrete organisational objectives (Bresser-Pereira 2001).

In the creation of the “Household Public Service Regime”, there was a dialectic relationship (Giddens 1984) between the regulation process of the Colombian public sector and CUC. During the fieldwork, evidence was found that managers of CUC took part in the regulation process for household public services by setting up a study group of 40 employees to propose what aspects should be included in the constitutional reform of Colombia in 1991 (Garcés 2004). For instance, the pricing structure developed for the Colombian household service sector coincided with the pricing scheme that CUC had already developed before the reforms were introduced in the country. Varela (2011) argues that perhaps there was no other utility company that during the public sector reforms in Colombia achieved to promote its own interests in the design of public policies that would regulate the household service sector for the next few decades.

Varela (2010) shows empirical evidence from the minutes of the constitutional assembly where CUC managers were appointed to take part in regulation commissions to formulate the Articles 367 to 370 of the Colombian constitutional reform of 1991. These constitutional articles were devoted to introducing NPM reforms in the Colombian household service sector, which were applied by laws 142 and 143 of 1994. For instance, these regulations attempted to segment the market for electricity transmission, which has the characteristics of a natural monopoly because of the usage of networks, from the markets of the generation and commercialisation of electricity to introduce competition in these markets. This segmentation of production cycles (transmission, generation and commercialisation) also occurred in other old utility companies across the world, which were vertically disintegrated to liberalise the markets of generation and

commercialisation of electricity services (Boehm 2005, Tsamenyi *et al.* 2006). In the case of Colombia, the regulation enabled the services of generation and distribution of electricity to be offered by the same company, only if such services were integrated in a single company before the regulation was released, as was the case of CUC.

Perhaps, the main advantages for CUC in this regulatory framework were the possibilities of CUC retaining its participation in the transmission, generation and commercialisation of electricity markets. Similarly, it was relevant for CUC that the new regulation enabled utility providers to belong to a local city and to cover utility services at the national level. CUC took advantage of the organisational possibilities offered by the new regulatory framework and became a significant shareholder in other Public Utility companies of the Colombian household service sector (Varela 2010). The participation of CUC in the construction of public policies seems to evidence the CUC capabilities to influence and to be influenced by the transformation of the Colombian household service sector.

These sector transformations created a new institutional framework, which separated the State's responsibility in ensuring access to the provision of services and the provision itself. That is, the State has control of regulation and has the responsibility for ensuring universal access to public services, while a private company, a public-private partnership or the state itself can deliver public services. In addition, this institutional framework established utility companies as joint-stock companies, whose purpose was the provision of public services. For this reason, the statute required all public service operators to

become Public Service Companies. This was a period in which the state's ideology of managing public services changed, and one which had major impact on CUC.

The transformation of CUC as a joint stock “Public Service Company” in the late 1990s drove its process of consolidation as a regional strategic operator in providing public utilities. This expansion of CUC took place in two phases: the first phase focused on the strengthening and growth of the organisation in the local environment of Colombia²⁰, where it is a model company for other operators in the country. The second phase focused on the expansion of CUC at the international level, becoming a strategic operator in the American continent in the field of public utilities. This expansionist period of CUC will be detailed in the following section by showing how the company established itself as a strategic operator at the continental level, after its growth on the regional and national scene.

4.6 The transformation of CUC as a parent company of a business group (2000-2014)

During the first decade of the 21st century, Colombia consolidated the reforms

²⁰ Although the new legal order made it easier for CUC to provide services outside Macondo, it is also clear that CUC provided technical assistance and services to communities from surrounding municipalities, especially with the process of migration and urbanisation that occurred during industrialisation Bértola, L. and Ocampo, J. A. (2013) *El desarrollo económico de América Latina desde la Independencia*, Fondo de Cultura Económica. In this regard, it can be seen in the annual reports how from the 1960s, the organisation began a process of linking with other operators in the region. Operators such as the Antioquia Energy Company and the electrical interconnection company, established a business vision of regional influence operators, almost from the moment of its inception Varela, E. (2010) 'Estrategias de expansión y modos de gestión en Empresas Públicas de Medellín, EPM', *Estudios Políticos*, (36).

carried out in the household public service sector during the 1990s. These reforms led to privatisation of state-owned organisations through a rearrangement of the markets where public, private and public-private operators of utilities compete. These markets are regulated by three specialised commissions (electricity and gas, telecommunications and water), which were created under the “Household Public Service Regime”. These commissions supervise compliance and defend consumer interests.

Taking advantage of these conditions CUC took another step in its consolidation as a strategic operator in the provision of public utilities by reorganising its internal administration in 2000. This consolidated the company as the parent of a business group whose purpose was the provision of public utilities (Varela 2010). This process was consolidated in 2003 when CUC acquired Affiliated3rd²¹ (a company dedicated to generating and transmitting electricity) and Affiliated12th (a company that transmits electricity). In 2007, CUC began to integrate different business sectors, and integrating fully into the regional electricity market by buying most of Affiliated8th’s shares.

CUC reached the limit of 25% of the electricity market in Colombia in 2009, which constrained its capability of buying more national electricity companies. The limit of 25% was the maximum market concentration allowed by the regulatory authorities to prevent market monopolisation. Thus, CUC started to buy international companies in Central America that had been privatised during the 90s. In 2010, CUC invested in Central American electricity companies identifying and investing in those companies that were very well established to expand its services. In 2012 CUC Mexico was established to become the platform for different investment projects carried out in that nation, in the

²¹ The real names of the companies were changed because of anonymity agreement.

areas of domestic gas, water and basic sanitation. Another step towards consolidation as a strategic operator in the international arena was the establishment of CUC CHILE in 2013, to facilitate the consolidation of growth initiatives in South America, through the construction of a generating unit of 109.6 megawatts wind farm in the region of Coquimbo, Northern Chile.

To produce more electricity and increase its capability for expansion, CUC formally assumed in 2010 the financing, construction, maintenance, operation and commercial exploitation of Hidroituango, an electricity generation project with a capacity of 2400 megawatts. This hydroelectric project will be the largest transmission network expansion for the Colombian electrical system, and it will supply 17% of the electricity demand in the country. It is the biggest development project implemented by CUC in recent years. It is expected that the first stage of this hydroelectric project will be completed by the end of 2018 and the following three stages will be ready by 2021.

The parent company of CUC consisted of 50 companies at the end of 2014 (CUC 2014b). 36 companies were in Central America, South America and the Caribbean. The rest of them were located inside Colombia. To consolidate CUC as an “empresa multilatiná”, the board of the company approved in 2012 a strategic management plan that will set the vision for the group until 2022 (CUC 2012c). This strategic management plan looked to rearrange the management model of CUC to work as a business group. This has been challenging because of the accelerated geographic expansion of the company. This plan included a transformation process that started in 2013 to make CUC more competitive by gaining efficiencies as a whole group, and will be explained in the next chapter.

The changes experienced by CUC are an example of the mutability and adaptability of the company, taking advantage of the opportunities available during its sixty years history. The managerial autonomy of the company, the long-term planning approach and its technostructure are the three elements of the business model of the company that were key to its consolidation as a group. The following section will discuss the changing social structures involved in the recent development of CUC. By doing so, the section is going back and forth to historical episodes previously described to connect them with broader social structures.

Before moving to the next section, it is appropriate to provide a brief explanation of the analytical categories of structuration theory that will be useful for understanding the changes that CUC has undergone within contemporary reforms of household service sector reforms in Colombia. In structuration theory, to explain how society is constructed, Giddens (1984) synthesised three dimensions of structuration: domination, signification and legitimation. Structures of domination are conceptualised as authoritative and allocative resources, which constrain and enable control over material and non-material phenomena. Structures of signification are abstractly conceptualised as rules of meanings. Structures of legitimation refer to rules of sanctions. As the next section will reveal, CUC emerged as a public conglomerate where changes in the structures of signification, domination and legitimation took place. Details of structure changes will be provided in the following section.

4.7 Theoretical discussion and analysis

In the preceding sections, the historical development of CUC was outlined showing the capability of the company to become a utility conglomerate. This section aims to provide a theoretical explanation of the changing social structures involved in the transformations of CUC. The theoretical explanation proposed in this analysis draws on Giddens' structuration theory, and on application of this theory in the field of management accounting. As was stated earlier, the analysis will interlink the transformations of CUC with elements of the structures of domination, legitimation and signification involved in the changes of the Colombian household service sector.

Even though CUC has distinctive features in the way the company articulated its growth in line with the reforms in the sector in which it operates, the company's development has been connected to structural transformations that impacted on public organisations across the world (Lawrence *et al.* 1997, Conrad 2005). These transformations reproduced changes in the household service sector in Colombia, which will be explained in the following subsections. The first subsection provides an overview of domination structures that evolved from state-led industrialisation to market-led reforms. The second subsection considers structures of legitimation that transformed public services from being a fundamental human right to an economic commodity and the third subsection examines structures of signification that changed the meaning of the public utilities from being Welfare organisations to become profitable businesses.

4.7.1 From state-led industrialisation to market-led reforms

The State-led industrialisation model in Colombia before the 1990s, demanded the participation of the State in the development of capitalism, among other developments, in its direct intervention in public service provision (León Paime 2005). The market-led reforms after the 1990s were underpinned by NPM ideas, where privatisation and a free market were considered basic to the development of emerging economies (Hopper *et al.* 2009, Jayasinghe and Uddin 2010, Van Helden and Uddin 2016). These market-led reforms were introduced in the Colombia public service sector in 1991, which sought to make utilities more efficient through market competition (Cabra 2011).

Public utilities began a dynamic in the last decade of the twentieth century, where the regulated market was responsible for determining the prices set for these services and a means of resource allocation (Conrad 2005). As it reiterated conceptually, from the perspective of domination of the structuration theory, in Colombia the model of "state-led Industrialisation" changed because of market-led reforms, following the introduction of constitutional reforms in 1991, which promoted free competition of the market. This has resulted in a change in the structure of domination, which demanded the introduction and reinforcement of business-like practices such as market-based budgeting and full costing technologies to inform pricing. (Hopper *et al.* 2009, Jayasinghe and Uddin 2010, Van Helden and Uddin 2016).

The introduction of market-led reforms from this new structure of domination promoted the expansion capabilities of CUC, reinforcing the business-like practices not only in the company, but also in the new companies that were bought by CUC. As an owner or majority shareholder, CUC used its decision-making power to introduce financial discipline in the companies acquired to reduce costs and improve efficiency. The change of business processes that accompanied the decision-making development of the new subsidiaries of CUC is testament to Giddens' assertion of domination. In Giddens' (1984) domination precept, he suggests that organisations would undergo structural change, as a result of changing power dynamics described as domination. This was evident with the transformation of CUC into a market-oriented conglomerate that was connected with the existing conditions in CUC that were transferred to the new subsidiaries as these faced a power shift in decision making, legitimised in their processes of transformation. Three of these changing conditions will be analysed in chapter 6: the influence of the multilateral development banks over CUC in strengthening its financial discipline, the early introduction of accrual accounting practices in the company, and the triad between "planning-budget-accounting" in CUC.

The introduction of free market logic and business-like practices was linked with a legal system that legitimised these changes. This new legal system promoted the commercialisation of utilities as an economic commodity, where operators do not have 'users' but 'customers' who must pay for the service (Ahumada 1996, Ocampo-Salazar 2017). This change of the regulation is directly related to NPM reforms, where public services are defined as services of public interest. This definition emphasises that even

though these services are public in nature, they do not have to necessarily be provided by public organisations (Boehm 2005). These NPM reforms sought to improve efficiency of public services as described in chapter 2. The structure and the practices of agents were linked together through modalities as management accounting techniques to produce and reproduce the structures in which NPM reforms operate. The way in which management accounting practices were implicated in articulating these changes will be explained in chapter 6. The following subsection will explain how structures of legitimation led to a change in the conception of utilities.

4.7.2 Utilities from being a fundamental human right to an economic commodity

The change from “the State-led industrialisation model” to market-led reforms was underpinned through a structure of legitimation that weakened the Welfare State by reducing its financial capabilities and social functions (Ahumada 1996). In the field of public utilities, the State lost its capabilities of directly providing and ensuring access of public services to low-income citizens regardless of their payment capabilities. Public services became economic commodities that were provided by self-financing companies, which offered their products in a competitive market. In this scenario, public services, as fundamental human rights, became part of the framework of market rights that are bought and sold as traded goods (León Paime 2005, De Araújo and Cullen 2012).

Management accounting tools, such as activity-based costing techniques were key to facilitating this change, enabling utility providers to identify costs of services and reduce

inefficiencies, in order to be competitive. The new management accounting techniques implemented is testament to the legitimation concept of Giddens's theory. Since the practices of agents corresponded with the new processes and economic and institutional transformations, which were inextricably linked to structures, then the reproduction of the structures leads to new norms and new meaning for society, interpreted and enacted by the agent. When agents are convinced that being efficient and competitive is good or positive, this is legitimised as a truth and is installed as a moral order through mechanisms, such as the management accounting devices. Management accounting practices act as sanctioning devices that will determine which activities are meaningful or not regarding a moral order that promotes competition and efficiency (Englund *et al.* 2017). This is evidence of Giddens's legitimation. The implication of the new management accounting practices in these changes will be explained in detail in the chapter 6.

This transformation undermined the philosophy that underlies the Welfare State where the provision of public services is considered vital for people and society, and that therefore, access to electricity services and especially drinking water, should be considered a fundamental human right. A notion of legitimation in this logic is that all the citizens must have access to these services as part of the right to a life with dignity (De Araújo and Cullen 2012). In the case of Colombia, these rights were guaranteed by the State through direct subsidies to low-income users before the market-led reforms were introduced in the country during the 1990s.

These market-led reforms were specifically introduced in the household service sector in Colombia through the Law 142 of 1994. This law had seemingly a negative impact on low-income users by prohibiting free public service in conditions of extreme poverty and debt forgiveness when the user cannot pay. This law also gradually dismantled direct subsidies for the low-income population by requiring that public enterprises should be self-financing through the collection of the real cost of service tariffs²². The reduction of subsidies has been part of the structural requirement from international banks (Van Helden and Uddin 2016).

In this situation with the reforms of the Colombian household service sector, the law 142 of 1994 opened the possibility that the user concept overlapped with the citizen, as expressed in the contractual relationship established between the company and the user / client. In this sense, the service of the company is a "public service" on a "contract", which continues being a right, but the user-customer must pay for the right to enjoy and benefit from the service, which is commensurate with a NPM reform. By converting the public service into a product, it is treated as an economic commodity rather than as consumption. This has generated a transfiguration of the social citizenship of the law, into a citizenship framed in terms of access and ability to pay in the market (León Paimé 2005, Ocampo-Salazar 2017).

²² Even though the direct subsidies for the low-income population was gradually dismantled in Colombia, there is still indirect subsidies allocated through the socioeconomic stratification of users. In this way, public services are charged differently according to the social stratum of the user, allowing the allocation of subsidies to strata 1, 2 and 3 and the collection of contributions from strata 5 and 6. What stratification seeks is that people with higher capacity to pay, when classified in the higher strata, contribute through an extra charge in the tariff so that people in stratum 1, 2 and 3 can pay the tariffs of public services.

Prior to regulation, low-income people did not fail to pay their bills because the service tariffs were affordable. After the direct subsidies were eliminated in 2000, more than 80,000 low-income users were not able to pay their bills and consequently they were unplugged from utility services (Varela 2011). After the regulation changes, for the first time, aggressive actions were taken for collection of outstanding amounts. Users who could not pay their bills were classified in the category of "delinquent debtor" and their access to utilities was suspended. These measures weakened universal access to public services as a fundamental human right, and legitimised their status as merchandise that is accessed according to the client's ability to pay. A communitarian leader expresses this issue during the fieldwork:

“Since 2 years ago [2012], CUC started to name “disconnected users” as “delinquent debtors” when they cannot pay their bills. This is a complex semantic burden because this makes the user responsible for accessing to services... we think that CUC and the Colombian State have the duty to provide those services...the issue is not only to build the infrastructure to offer the services but also to guarantee that people can pay their bills”.

The interviewee's response expresses how this linguistic turn moves the responsibility for access of the utilities to citizens who individually are responsible for obtaining the material conditions that enable them to access those services. In the interviewee's view, there is a conception of the social function of the State as guaranteeing access to public services to satisfy the basic social needs of citizens. Satisfaction of social needs are not provided just by including the citizens as users/clients within the enlarged logic of capital, but also by how they can be socially integrated

through the guarantee of their fundamental human rights of access to drinking water. This guarantee is not offered by a regulated market, where services are bought and sold as economic commodities to clients-consumers who must pay to access them.

This changing structure of legitimation where public services are conceived as economic commodities was reinforced in Colombia by the Superintendence of Public Utilities, which emerged in 1994 as a new regulator whose role was to introduce institutional changes. The Superintendence's regulations dictated that all utility companies were governed by a set of regulations, and all were subject to the same maximum price limit, which was an attempt to protect customer interests. Even though the price limit seeks to protect customers from monopoly abuses, Boehm (2005) argues that utility companies can capture regulation through political and lobbying activities to take part in the establishment of tariffs. As Boehm (2005) argues, the intervention of utility companies impede the introduction of effective market competition because prices are not established based on provision costs, and greater efficiencies obtained through cost reductions are not transferred to customers through lower tariffs, as was expected from free market competition. This view is shared by an interviewee, who expressed:

“CUC may charge lower electricity tariffs because the model allows it. However, CUC formed a cartel with other utility companies of the country to collect more money. In the case of CUC, fortunately, this money is transferred to the owner... which is the community” (ex-manager1).

The above quote appears to suggest that there is an agreement among utility

companies in Colombia to collect more income through high tariffs. The interviewee adds that the regulated pricing structure in Colombia establishes a range and CUC might offer cheaper tariffs by locating its electricity prices in the lowest limit within the regulated range because the financial performance of the company enables it to do so. However, from the point of view of the interviewee, CUC establishes higher tariffs because these enable the company to transfer more profits to the municipality. Empirical data about the evolution of electricity tariffs in CUC is presented in Appendix 5. The following table shows a comparison of electricity tariffs of CUC with other electricity operators in Colombia:

Table 2: Residential tariff 2014 \$/Kilowatt-hour. Figures in Colombian Pesos

	CUC	0041 ²³	EMCALI	Affiliated3rd ²⁴
Social stratum1	389,6	378,5	381,5	392,9
Social stratum2	389,6	376,7	397,5	398,7
Social stratum3	387,9	376,3	394,0	396,5
Social stratum4	382,8	373,0	386,0	387,7
Social stratum5	380,5	375,1	386,6	381,8
Social stratum6	372,1	373,9	380,9	373,1
Residential	385,8	375,9	390,3	392,5
Unitary Cost	360,4	379,6	404,7	399,0

Source: (Vélez 2015, p.20)

The above table compares the residential tariffs of electricity among four Colombian operators in 2014. The table shows that the unitary cost per kilowatt-hour of CUC is the cheapest one. This might be because CUC generates electricity differently from

²³ The real name of the company was changed because of anonymity agreement.

²⁴ The real name of the company was changed because of anonymity agreement.

EMCALI and affiliated third, who buy electricity within the market to commercialise it. Even though CUC produces electricity at the lowest unitary cost per kilowatt-hour, CUC does not always offer the cheapest tariffs based on the tariffs in the above table. To supplement this information, secondary data about the electricity pricing structure of Colombia is needed to get a deeper understanding about the economic logic of public policies that are involved in the establishment of electricity tariffs in the country. However, the establishment of the pricing structure was not included within the scope of this research, which is focused on analysing the role of management accounting practices in shaping efficiency in CUC.

However, the assumption of Boehm (2005) about the intervention of utility operators in the establishment of tariffs seems to leave a question mark about whether the market as the main allocator of resources is effectively operating within the electricity market of Colombia. As was shown in the literature review, the lack of well-developed markets is considered a major obstacle in the application of NPM reforms in emerging economies (Chandana *et al.* 2007, Van Helden and Uddin 2016). The identification of lack of developed markets within emerging economies can add insights to the theoretical framework of Lawrence *et al.* (1997) used in this research for the analysis.

The framework by Lawrence *et al.* (1997) considers that after the public sector reforms in 1993, market forces were predominant within structures of domination in the allocation of resources in the health sector in New Zealand. The literature about the household service sector in Colombia shows that practice of patronage, clientelism and lobbying are also dominant practices that impact allocation of resources within the public sector (Varela 2008b, Varela 2011, Varón Rojas 2017). These practices of patronage,

clientelism and lobbying are also considered major problems for the efficient allocation and management of public resources in other emerging economies (Boehm 2005, De Renzio 2006, Ni Putu *et al.* 2007, Van Helden and Uddin 2016, Hopper *et al.* 2017). The analyses of how CUC deals with practices of patronage and clientelism through use of management accounting practices will be presented in the following chapters. The following subsection explains how the attempt by the Colombian government to promote a competitive market for utility companies led to changes in the structures of signification of utility companies from being conceived as welfare organisations to being conceived as profitable businesses.

4.7.3 Utility companies from welfare organisations to profitable business

The market-led reforms in the household service sector in Colombia included criteria from multilateral organisms such as WB, IDB and World Trade Organization (WTO). These institutions conceived public organisations as economic agents and put pressure on them to promote their modernisation to operate within a competitive world. Under their influence, countries had to include market-led reforms, change their regulations, privatise their public organisations and follow standards of regulation for operating in a globalised world (De Araújo and Cullen 2012, Ocampo-Salazar 2017). With respect to Colombia, these reforms were legitimised through State policies that created conditions to liberalise markets and ensure exchange rate stability and the return of capital to investors through regulation.

The influence of these reforms over utility companies demanded that those organisations had to be competitive, generate returns, be self-financing, while the prices set had to cover the costs of providing the service, plus a rate of return to the companies. The basic idea that underpinned these reforms was that a liberalised and competitive market would motivate utility companies to make a profit (León Paime 2005, Ocampo-Salazar 2017). To ensure public utilities in Colombia were part of the market logic, the companies were converted into commercial and industrial enterprises of the State.

In the case of CUC, the restructuring as a commercial and industrial enterprise of the State not only reconfigured its legal status as a joint-stock company, but also changed the idea of who was the owner of the enterprise. After such transformation, the municipality of Macondo, represented by the Mayor, was the controlling shareholder of the company, rather than the idea of the community being the sole owner of the public company. The Mayor as the owner of CUC also brought with it the notion of the shareholder's right to demand a return on capital. The organisation is a capital manager that collects social profits with prices set within the ranges established by the regulatory commission, which would cover the costs of production, capital financing and profit margin required by the local government. The effect of this on the profits of CUC can be seen by the increasing amounts transferred to the local government in the period 1996-2014, as shown in Appendix 6²⁵.

The evolution of CUC as a contributor to the local government can be analysed from

²⁵ CUC contributions to the municipality were legitimised through the municipal agreement 69 of 1997, which established that CUC could transfer financial profits to the municipality of Macondo as a percentage below 30% of CUC annual profits. This agreement also stipulated that the municipality of Macondo must exclusively invest those resources transferred by CUC in social programs.

different points of view. An institutional perspective of CUC reveals the company as an important contributor to the economy of the region where it operates, by bringing significant social income transfers to the municipality in which it is located. From this perspective, CUC has played a leading role in the industrialisation of the region where it operates, not only through the provision of public services that promote industrial expansion, but as a major funder of local government. The role of CUC is considered crucial for the development of the city of Macondo by promoting the social integration of its inhabitants through the provision of public services that are essential for both its inhabitants and for society. From this perspective, the community has benefited from the social programmes implemented from the transfers that CUC makes to the municipality. Appendix 7 summarises the social programmes funded by CUC, which reinforces the view of the company as an important contributor to the development of Macondo society.

As CUC has evolved as a contributor to financing local government this has created a contradiction with the public interest of receiving a good service at prices that are affordable for the poorest strata of the population, living in the marginalised areas of Macondo. From the perspective of local citizens, the prices of utility services may be perceived as a way of collecting taxes to fund programs of the local government, and which have directly impacted on their household incomes. This issue has generated discomfort among citizens, who feel that their sense of belonging with CUC has decreased because of the increasing price of utility services charged by the company. An ex-manager expressed his point of view about this issue as follows:

“There is a tendency in CUC of charging high prices for utility services and this produces loss of citizen credibility, autonomy and sense of

belonging to the community...with the idea that the Mayor is the owner of CUC, the high prices are justified for the need of funding local government programs.” (Ex-manager1)

The interviewee expresses how the perception of the community as the owner of CUC, who benefited through ‘fairer’ utility rates, has weakened. By contrast, the perception of the Mayor as the owner of the company, who is seeking high transfers to fund local government programs, is reinforced (see transfers to the municipality in Appendix 6). The tension between the interests of the community and the Mayor is exacerbated when sectors of the population perceive that the programmes of the municipality do not satisfy their basic social needs. The social income transfers to the municipality has facilitated conditions for the process of expanded reproduction of the country's capital (León Paimé 2005). However, from the perspective of the community, there are still unsolved social needs of the poorest strata of the population. Regarding this, a local community member stated:

“The usage that the municipality makes of CUC transfers does not have a real positive impact on the community. The reality is that each Mayor has built huge infrastructure projects in order to create an attractive city for tourism and investments”.

This interviewee’s response expresses the tension between the need for responding to social demands of the citizens, to ensure their social inclusion, and the need for modernising the city to attract investors. The chapter shows how bringing public utilities within the market logic has generated contradictions in the social function of these

companies. These contradictions reflect a tension between the structural adjustments to become profitable businesses, and their value of serving the public interest and making the provision of utility services available to citizen regardless of their social and economic status.

4.8 Conclusions

This chapter argues that CUC emerged as a national and international conglomerate after the structure of domination changed in the Colombian household service sector during the 1990s. The new structure of domination moved from a state-led industrialisation model to market-led reforms that attempted to create a competitive market for utility companies in the country. CUC took advantage of this new structure of domination and bought utility companies that were offered by local, regional and national governments. In this context, the superintendence of public services emerged in Colombia as a new regulator that reinforced a structure of legitimation.

This structure of legitimation promoted the commercialisation of utilities as an economic commodity. Market-led reforms legitimised public services as economic commodities commercialised for user-customers, which changed the meaning of a utility having access as a fundamental human right of its citizens, regardless of whether they had the ability to pay for them (Ocampo-Salazar 2017). The regulation of the Superintendence of Public Utilities made the commercialization of these services

possible, as expressed in the legitimation structure through its power to sanction, intervene and liquidate the service operators when those were considered inefficient. The introduction of CUC into the market logic reinforced its configuration as a profitable business and modified the meaning of CUC as a welfare organisation.

These arguments are underpinned with a historical analysis of CUC development that shows how market-led reforms reinforced three characteristics of the business model of CUC that already existed and promoted the configuration of the company as a profitable business. These characteristics of the business model of CUC are its managerial autonomy, long-term financial planning approach and its technostructure, which will be explained in the following chapters. Managerial autonomy allowed the pursuit of the independence of CUC from the interests of the political groups, which was later consolidated through a corporate governance model, demanded and funded by IDB in 2011 as a condition for the granting of loans to CUC. The adoption of corporate governance agendas in emerging economies has been almost become a mandatory requirement from multilateral development banks before they provide financial assistance (Hopper *et al.* 2017). These practices are part of the packages of recent public governance reforms (Almquist *et al.* 2013). In the case of CUC, the long-term financial planning approach was strengthened through the influence of multilateral development banks on the management of the company, and together with the technostructure of the company, permeated its technical rationality that defended the administrative autonomy of the organisation.

The structural reforms in the Colombian household service sector and the management model, adopted by the company since its inception, enabled CUC to build its expansionist plan at local and regional level firstly, and then on the international level, positioning itself as an operator of strategic public services throughout Latin America. This growth of CUC is a measure of the success of the company. However, in this chapter this is contrasted with the views of community members that perceive the loss of the legitimacy of the community because of the pursuit of profit. This analysis shows that the transformations of CUC, because of the market-led reforms, are not exempt from contradictions and conflicts among the interests of the reformers, the municipality and the community.

The following chapter will focus on an analysis of perceptions of efficiency in CUC by emphasising the role of the technostructure in shaping efficiency in the company. To do this, the chapter draws on historical data to explain the role of the “School of Mines” in strengthening and embedding a technical rationality within the technostructure of CUC.

Chapter 5: The construction of efficiency

This chapter focuses on the research question, of why and how efficiency has been shaped through management accounting practices in CUC. The chapter provides an understanding of the way efficiency has been defined and interpreted in CUC, taking into account the views of interviewees and documentary analysis of historical data. The analysis is informed by a historical background that explains the role of the School of Mines in shaping the construction of efficiency in CUC, and how efficiency was shaped by management accounting practices as a result of the constant pursuit to lower costs and increase income through a rigorous control of resources. The chapter argues that the views held by CUC employees have been shaped by the influence of multilateral development banks, the School of Mines, CUC technostructure and its management accounting practices. These insights enable an understanding of why and how management accounting practices have sought to control the outputs of CUC and to monitor the performance of each activity so as to maintain rigorous control over the resources spent and results accomplished.

This chapter begins with the historical context, which is relevant for an understanding of how efficiency has been historically rooted in CUC. This is followed by the efficiency in the utility sector and the perceptions of efficiency from the perspective of the interviewees in the study. The role of technostructure in legitimising efficiency in the company is then explained. In the discussion section, attempts have been made to

relate the findings of this research with that of prior work. Thereafter, the conclusions of the chapter are drawn.

5.1 The meaning of efficiency derived from The School of Mines

The influence of the School of Mines over the practices, methods and objectives of CUC has been studied in detail by different authors (Mayor 1989, Murray 1997, Gonzalez 2014). The municipal enterprises of Macondo were recurrently considered as a kind of laboratory in which engineers, who graduated from the School of Mines, deployed their technical and administrative capabilities (Mayor 1989). Indeed, 20 of the 22 general managers of the first municipality companies dedicated to the delivery of household services in the city of Macondo during the period 1920-1954 were graduates from the School of Mines and all of them were mining and civil engineers (Gonzalez 2014). Similarly, 3 of the 4 general managers of CUC from 1955 to 1970 also graduated from this school (see Appendix 8).

The aim of this section is to provide a historical framework that enables a broader understanding about efficiency in CUC by tracing the origins of the meaning of efficiency in the School of Mines and its internalisation through the academic training of its engineers. To achieve this, this section develops two elements: first, how the directors of the School of Mines constantly sought to embed the concept of efficiency in the academic training of engineers, and second, what accounted for efficiency in this school. Though the School of Mines underwent several transformations and the meaning of

efficiency also changed over time, the school was always committed to training engineers for obtaining greater efficiency in all processes they were involved in. This feature of the School of Mines can be traced since its creation in 1886.

5.1.1 The aim of the School of Mines towards efficiency education

Since its creation in 1886, the School of Mines concentrated its endeavours to offer to students, and the city of Macondo, a model that promoted the rational calculation of daily behaviour, which expressed the spirit of a new society that started to be configured in Colombia at the end of the 19th century (Mayor 1989). The aim of the School of Mines was not only to educate good engineers but also honest and hardworking people to act with moral values (Gonzalez 2014). During the opening speech of the school, its first vice-chancellor rector stated:

“... Our mines, although almost inexhaustible, are not rich: their true wealth has been made by the exemplary virtues of our people. To make them productive it is necessary to work them with order and economy; and the miner needs to be sober, economic and orderly” (Mayor 1989, p.37)

The above quote reflects the pressing need to forge the character of students from this school underpinned by moral and ethical values. The slogan of the School of Mines was “work and rectitude”. This slogan was emphasised to students during their formation process, and as one of the values to learn to avoid unscrupulous practices that might destroy any organisation, especially public ones where managers were more exposed to

bribery (Murray 1997). The quote also reflects values of the protestant ethic that were part of the culture of inhabitants of the region and that were adapted for the education of future engineers in the School of Mines. Thus, the aim of the school was to support the development of the city of Macondo. In this regard Mayor (1989) states:

"The statistical and accounting organisation of the first factories and companies demanded in parallel that both employers and workers take an uninterrupted control of their progress in the various virtues of work, something like a kind of moral accounting"(p. 17).

The above quote expresses the importance given to accounting in supporting emerging industries and how the economic development of Macondo required trained workers in order to facilitate the conditions for the reproduction of capitalism in this region (Cubides 1991). The following subsection captures the idea of efficiency that shaped the engineering mentality from the School of Mines that was disseminated later in CUC through its technostucture.

5.1.2 What accounts for efficiency in the School of Mines

The concept of efficiency was introduced in the School of Mines in 1912 through the course of “industrial economy” taught by Alejandro López, who drew upon the ideas of Henri Fayol and Frederik Taylor. Alejandro López instructed students in practical knowledge, especially on business matters about transforming money in capital through cost rationalisation, forecast of profit and markets (Gonzalez 2014). Alejandro López put into practice managerial rationality, which assumed the following definition of

efficiency: “it is the virtue or power to produce the greatest functional and economic effect at the same time” (López 2011).

The training of students focused on the constant pursuit of profit (Gonzalez 2014). The students learnt practical subjects such as: thermodynamics and locomotives, hydromechanics and compressed air. However, in the inclusion of subjects such as: machinery and workshops; layout, construction and administration of railways, emphasis was also on training engineers with skills and knowledge about organisations and resource management. The curriculum contained practical subjects, ethical and moral values, and elements of scientific administration, in addition to a sociological approach in the resolution of organisational problems.

The School of Mines played an important role in the development of the region where it operated. At the beginning of the 20th century, there was no institution in Colombia responsible for offering a curriculum focused on business administration. For this reason, the emerging industries had to solve management needs with people trained in an empirical manner and with professionals from different areas of knowledge such as lawyers and even doctors. The School of Mines provided students with a way of thinking rationally and technically to manage the structure of private and public organisations in the country. This School was the first institution in Colombia to educate students in the principles of the scientific management of Taylor and Fayol (Gonzalez 2014).

Similarly, the School introduced Auguste Comte's positivist philosophy and educational principles, different from those that Colombia had inherited from Spanish colonisation (Ochs 2001). The influence of positivism was reflected in the relevance given to science and rationalism in the educating of students, which raised the prestige of engineers and technical professionals for managing private and public organisations in Macondo (Murray 1997). The next section will show how the concept of efficiency, legitimised through the School of Mines, was expressed throughout the development of CUC.

5.2 The meaning of efficiency that underpins the development of CUC

Since CUC was constituted, there has been persistent management of the company's efficiency through the introduction of business-like practices. The conception of efficiency in the daily organisational practices of CUC is recurrently stated as doing more with less, which reflects the definition of efficiency taught by Alejandro López (López 2011) at the School of Mines, referred to in the former section. This conception of efficiency, of doing more with less, seems also to relate to the economic definition of efficiency as the maximization of outputs over inputs. The maximization of outputs over inputs has also been part of the criteria used by the WB in the granting of loans. This maximisation is expressed as higher quality at lower cost and is obtained through implementation of new accounting practices in public sector (Neu *et al.* 2006). The orientations of multilateral development banks over CUC forged a technical and financial discipline that sought a rigorous control of resources to guarantee the loan payments. The

following quote expresses the relevance of fulfilling loan payments within the financial planning of CUC:

“We have loans with international investors and multilateral banks and we agreed some indicators that we have to meet... Thus, we designed a 20 year financial plan and accounting helps to monitor the achievement of those financial targets” (Manager1)

The above quote provides evidence of the link that CUC has established between a long-term financial planning and accounting to meet the requirements from loan agreements. In order to achieve desirable outputs and control inputs in CUC, different management accounting practices were introduced in the company, which were not common practice in other public organisations in Colombia (Varela 2011). In the 1950s, the emphasis was on the financial autonomy of CUC, as enacted through the accrual accounting systems for each service. The accrual accounting systems enabled the company to evaluate the management of business and to determine the financial sustainability of each unit by separately identifying and reporting revenue associated with costs and operating expenses and administration. Accrual accounting enabled measurement of efficiency through the integration of real and nominal accounts that are the essence of double entry. The comparison between "inputs" vs "outputs" established the first efficiency ratio at CUC, reported as operating efficiency, in its reports that calculated from 1956 to 1961 (CUC 1960, CUC 1961). The efficiency indicator expressed the effort units divided by result units. This same relationship has been referenced in the literature of efficiency in utility companies as technical efficiency,

which measures the ratio between the input vs output (Gooding and Wagner III 1985, Grandy 2009).

From the 1970s and 1980s, CUC focused on the integration of accounting and budget systems based on accrual principles. Since 1979, the budget and accounting systems have been integrated item-by-item, which has facilitated budget preparation and control. This integration sought to guarantee consistency between the budget execution reports and the CUC's monthly accounting statements (Aristizábal *et al.* 1988). The budget has been very detailed and includes an item-by-item report of each CUC project and the accountability centres. This integration made possible the monitoring and evaluation of capital increases and the forecasting of profit opportunities. Income statements produced an image of the operating efficiency of CUC and made visible the benefit production that increased capital (Cuevas 2015). In this sense, CUC not only sought to control spending resources but also sought to maximise revenue generation independently for each service. To control the resources of each service, early accountability centres were created to hold managers of each divisional area responsible for achieving desirable outputs.

From the 1990s, a new organisational arrangement took place in CUC as part of the reforms of the household service sector in Colombia. This new organisational structure demarcated the Strategic Business Units, which were arranged according to each service offered by CUC: water supply, electricity and telecommunication service. These Strategic Business Units were reinforced through the introduction of ABC

techniques. Hence the engineers were asked to give detailed information to measure the activity costs in a more precise way. This new organisational arrangement sought to facilitate internal coordination between the engineers of operating areas and financial managers in order to achieve efficiency and to reinforce processes for negotiating financial targets between engineers and financial managers. Deliberations between engineers and financial managers about allocation of resources in CUC are evident in the following quote:

"When budgeting, we had fights where we discussed with the financial team: if we pay any attention to you, we would make money and lose the support from community; and they told us, that if we listen to you we would put utility services in slums and not make money" (Ex-manager1).

The above quote reflects that budget preparation was a social practice in CUC, where engineers and financial managers discussed how resources should be allocated. In the budgeting deliberations, the participants discussed how to satisfy the demands of the different interest groups in CUC (owner, customers, employees, regulators, etc.) and which projects should be prioritised to meet the goals set by CUC. The decisions about allocation of resources might reinforce different dimensions of efficiency. For instance, some social actors in CUC might highlight the need for taking care of the disadvantaged group needs by providing services to people who are deprived of them. In the literature this is named as distributive efficiency, which led to the allocation of public resources to support disadvantaged social groups (Andrews and Entwistle 2014). Other social actors in CUC might highlight the need for reducing waste in delivering services by minimising

inputs and maximizing outputs, which is known as the productive dimension of efficiency (Andrews and Entwistle 2014).

The productive dimension of efficiency was reinforced by the household public service regime in Colombia by explicitly incorporating law 142 of 1994, what economic efficiency meant for utility companies. The household public service regimen sought to guarantee financial sustainability and the accumulation of capital by the utility companies. The following section presents the inception of economic efficiency under Colombian regulation after the NPM reforms were introduced in the country.

5.3 Efficiency regarding the household public sector service regime in Colombia

In many countries across the world, governments have adopted business-like practices to improve the efficiency of public services by following NPM reforms (Hood 1995, Lapsley 1999, Andrews and Entwistle 2014, Brusca *et al.* 2016). The purpose of the reforms was to introduce values within the public sector that were identified with private business culture, based on the pursuit of efficiency and economy (Campero 2006). Similar to other emerging economies, Colombia also introduced efficiency-motivated changes in the field of household public sector services (Varela 2011). The aim of this section is to discuss efficiency in the context of contemporary public sector reforms in Colombia, for providing a framework for understanding how these reforms reinforced the business-like practices in CUC, and the pursuit of efficiency already legitimised in the company.

The definition of efficiency is explicitly stated in the household public service regime, in the laws 142 and 143 of 1994. These laws created a framework to regulate utility services in Colombia and introduced the NPM reforms into the household service sector in the country. For instance, these laws opened a market for selling and buying public utility companies and introduced regulated competition (Varela 2008a). Also, these laws eliminated the direct subsidies for low-income citizens (Varela 2011). In these laws, there is also a definition of financial sustainability because the regulation establishes that this concept is related to efficiency from the operational and financial perspectives of public utility companies. Both concepts of efficiency and financial sustainability are clearly defined in the household public service regime, and are considered fundamental in the establishment of the tariff structure of public services in Colombia.

5.3.1 The concept of economic efficiency in law 142 of 1994

The household public service regime in Colombia, through law 142 of 1994, made specific requirements for utility companies to offer an efficient service provision for citizens. These requirements, in turn, led to operators of public services establishing organisational arrangements to constantly pursue efficiency. The aim of this reform made utility companies self-financing organisations to be competitive. In this legal framework:

“By economic efficiency, it is understood that the tariff regime will try to establish which prices are competitive within the market and how tariff formulas must take into account not only the costs but the expected productivity increases. These [productivity increases] should be distributed between the company and the users, as it will happen in a competitive market; and that tariff formula cannot transfer the costs of inefficient management to users” (Colombia 1994, p.87).

The above quote provides an understanding of efficiency focused on an input/output relationship between production costs and productivity of services. Also, economic efficiency is attached to the establishment of regulated tariffs. It seems that the regulation attempts to protect user interests against the arbitrary establishment of tariffs and to set up the ideal conditions for developing a competitive market where part of the efficiency gains should be transferred to users through lower tariffs (Boehm 2005). This new order tried to establish that the organisational arrangements of utility companies would guarantee that citizens would not assume the costs derived from inefficient services, lack of financial sustainability and interruptions of utility services. These problems characterised the household public sector service in Colombia before the new regime was established. Before the new regime, the electricity sector generated a relevant amount of the public debt of Colombia as can be evidenced in the following quote:

“By 1990, 30% of the country's public debt originated in the electricity sector, in 2000 it fell to 15% with an absolute fall of more than US \$ 1,600 million” (Alzate, 2006, cited in Cabra, 2011, p.387).

To achieve the 15% reduction of the Colombian public debt because of electricity sector debts, some municipalities were pressured to sell their public utility companies as part of the reforms of the sector. The emergence of the household public sector

regulation in 1994 led to some organisations being dedicated to the provision of these services, but this had serious limitations in ensuring an adequate and efficient service for users. Some operators lacked a good infrastructure and conditions to compete in the market. This situation led in turn to some public utilities being merged or absorbed by companies capable of being self-financing, according to the requirements of the new regime. CUC took advantage of this regulation that created a market where public household companies in Colombia were sold. The financial sustainability of CUC enabled the company to hold 25% of the national electricity market by 2009, which is the maximum limit in the market for a single company to avoid monopolisation (CUC, 2009). This limit of participation in the electricity market was set up by the Electricity and Gas Regulation Commission in Colombia in 1999. The next section discusses the financial sustainability of the utility companies, which was relevant to the establishment of the pricing structure of utility services in Colombia.

5.3.2 *Financial sustainability from law 142 of 1994*

The fundamental aim of the household public sector service regime in Colombia was to obtain a universal supply in utility services, and to improve the quality of life of the users who did not have access to those services prior to 1994. The household public sector regime sought to guarantee the operational and technical efficiency of service providers by creating conditions for the emergence of a competitive market for utilities in Colombia. It was believed that a competitive market would result in quality improvements and efficient services as different providers competed for businesses, as in

the case of telecommunication services in Colombia. The competitive market was supposed to establish the tariffs that would guarantee the financial sustainability of operators. In this framework:

“By financial sustainability is understood that tariff formulas will guarantee the recovery of costs and expenses of operation, including expansion, replacement and maintenance” (Colombia 1994, p.87).

It can be noted in this quote how implementation of the concept of financial sustainability forced the defining of service tariffs in relation to the costs and expenses of operation. Before the regulation, service providers had serious deficiencies in operational and economic efficiency, and they did not have detailed management accounting information to accurately measure service costs (Cabra 2011). To change these circumstances, the regulation required utility companies to adopt the ABC technique and to submit accounting reports based on accrual principles to the Superintendence of Public Services and the General Accounting National Office.

It is pertinent to emphasise that these requirements for all operators of utility services had been incorporated into CUC since its foundation. Cost accounting and budget management were strategies to keep a rigorous control of resources in the organisation. Thus, the NPM reforms reinforced features that already existed in CUC before they were disseminated to other sectors and countries (Lawrence *et al.* 1997, Conrad 2005, De Araújo and Cullen 2012). Varela (2011) argues that there are 5 aspects where it is possible to trace how CUC has adapted the discourse of NPM reforms. First, CUC has established a business leadership, which is reflected in the way as its managers

behave as entrepreneurs that constantly seek new business opportunities. These managers move up within the organisational structure of CUC through meritocracy. Second, the company has implemented outsourcing strategies to reduce direct employment. Third, CUC has reinforced its business-like practices, which promote private logics within the company. Four, CUC constantly offers professional training to its employees. Five, CUC has become a public conglomerate that expands its service inside and outside Colombia. The next section analyses the transformation of CUC in 2013, and illustrates how some of these organisational changes occurred to achieve efficiency.

5.4 An efficiency-orientated transformation of CUC

The recent transformation of CUC in 2013 has been an efficiency-orientated change (CUC 2012b). This transformation process emphasised efficiency in the company because its managers believed that CUC became too large during the decade of 2000s and that the duplication of administrative tasks had decreased its efficiency. PwC specialists led the organisational transformation and reviewed the efficiency of CUC by judging the prior achievements of the company in delivering services, and then comparing these achievements with other utility company indicators. The aim of the organisational change of CUC was to enable faster growth, as is stated by a director of PwC, who led this transformation process of the company in 2013:

The reason why CUC managers hired us is because they wanted to gain efficiency...we support them not only to cut cost but also to prepare the company to grow faster because CUC established very aggressive growth objectives. (PwC consultant)

The above quote reflects that CUC hired PwC consultants to achieve the growth objectives that the company established. The specialists identified three main economic activities where CUC could gain efficiency by cutting costs and save money. The first economic activity was related to the reduction of direct employment. The PwC consultant stated that it was considered a sensitive issue in CUC because of its public nature that led the company to protect its workers. Thus, to reduce direct employment, CUC managers implemented a long-term strategy not to hire new employees when long time employees retired. Retired employees were replaced by outsourcing staff in areas such as: cleaning, security and operative services. The subcontracting of these activities is a strategy of contemporary organisations to reduce costs (Boltanski and Chiapello 2002).

The second economic activity where CUC could gain efficiency was cutting back on the labour needed to provide services. The consultants of PwC devoted time to get information about the work routines of CUC employees, and especially to measure the amount of time needed to produce the company services. These measurements were compared with standard input-output ratios of other utilities across the world. By comparing CUC efficiency with the performance of employees in other utilities, a justification was provided about what could be expected from employees and how many work positions could be suppressed.

The third economic activity where the PwC consultants identified ways to gain efficiency in CUC was through the rearrangement of its supply process. After the transformation process in 2013, CUC decided to integrate its supply process by unifying purchases in a single department for the entire company. This change sought to lead the company to efficient resource usage by the discontinuation of each strategic business unit in CUC buying its provisions separately. Efficiency was also sought from the lower input costs by exercising the concentrated purchasing power of CUC as a conglomerate, and seeking better price negotiations with suppliers.

CUC sought more efficiency in these three economic activities by following two approaches in the transformation process carried out during 2013 and 2014. The first approach focused on the revision of the organisational structure of the company to identify in which areas there was a possibility of a gain in efficiency. The second approach focused on introducing new management accounting practices such as zero-based budgeting methodology. One of the reasons why the zero-based budgeting methodology was introduced in CUC was to achieve employees' budget-maximising behaviour toward efficiency savings by revising and reducing unnecessary costs.

This organisational transformation of CUC in 2013 applied scale, scope and flow economies similar to those introduced in other public organisations across the world after NPM reforms (Andrews and Entwistle 2014). Economies of scale occur when there is a decrease in the average cost of each unit of input to produce a unit of output (Andrews and Entwistle 2014). CUC has attempted to achieve economies of scale by producing

outputs jointly, such as hiring operative workers who are able to fix water supply, sewerage and electricity systems. The economies of scope are achieved by expanding the production of outputs, whilst keeping the existing delivery system (Andrews and Entwistle 2014). The efficiency savings through economies of scope were sought in CUC by cutting costs related to the duplication of administrative tasks between the different businesses of CUC.

To achieve economies of scope, in 2013, CUC integrated areas with similar activities within each strategic business unit of CUC, such as support services of finance, IT and human resources. By merging these services into centralised departments, CUC attempted to produce multiple outputs in delivering water supply, electricity, sewerage and waste collection services by using shared support services. The economies of flow are associated with demand-side efficiencies by offering services that are more closely related to the actual requirements of customers (Andrews and Entwistle 2014). The economies of flow, sought in CUC, are by reducing the number of times that repair visits are delivered to the same customer.

These strategies implemented by CUC to gain efficiency have impacted the working conditions of operators in the company especially those workers who are hired through outsourcing. PwC consultants employed by CUC identified possibilities for saving in labour costs by outsourcing some of their activities. Subsequently, the company adopted this as a specific strategy in order to reduce costs. The following quote explains

some differences in ways of working between direct employees of CUC and sub-contracted employees:

"(...) My basic monthly income is \$1600.000, with my salary, two subcontracted people get paid, and the conditions are not the same. I do not work if I do not get a compressor to drill the street while the subcontracted worker receives a sledgehammer to drill the street. In many occasions we need the backhoe to make the hole. If I ask it, I get a backhoe; the subcontracted worker gets two more workers to make the hole. We finish the workday at 5:30 p.m. while subcontracted workers have to stay until 10 p.m. and the contractors don't give them food. We receive food and transportation if we stay after 7:00 p.m. (Water supply worker)

The above quote reflects how some working conditions of subcontracted workers differ from the working conditions of direct workers of CUC. Even though CUC may be more efficient by saving costs, there is a marked deterioration of the working conditions of subcontracted workers in terms of wage conditions, the increase of physical effort in working hours, and the loss of food and transportation subsidies when working in hours outside the working day. CUC costs can be kept down by subcontracting labour, but this strategy seems to adversely affect the working conditions of workers hired under this scheme. The next section expresses how efficiency is conceived in the daily practices of CUC, from the point of view of interviewees.

5.5 Efficiency regarding interviewees' perspectives

The qualitative approach of this research is focused on identifying how CUC has sought to be efficient, and on the management accounting practices adopted to achieve

efficiency in this public utility conglomerate. For this reason, this section looks at how efficiency is seen in CUC according to interviewees' perspectives. The main findings show that the efficiency perceptions of interviewees are not all attached to the economic dimension of efficiency, but that their views are integrated to different spheres of CUC. The efficiency perceptions of interviewees were grouped into 2 categories. The first category groups different social actor perceptions about the role of management accounting practices in ensuring efficiency in CUC. The second category groups perceptions of efficiency related to the technostructure in CUC.

5.5.1 Efficiency related to management accounting practices

This category exposes the perceptions of efficiency of the interviewees, which are directly related to management accounting practices. The connection between management accounting practices and efficiency is expressed through the adoption of practices that seek to control resources in CUC. Management accounting practices are embedded in the values of CUC employees deployed in their daily work and make possible a rigorous control of resources. This category presents 6 themes, which emerged during the data analysis process.

Firstly, a definition of efficiency was recurrently stated in the interviewees' responses as: “doing more with less”, which is associated to an everyday understanding of tasks that employees carry out in CUC. There is, implicit in this understanding, a focus on inputs and outputs for each process in the production of CUC services. This

definition describes efficiency in terms of the elements that form it, as is shown in the following quotes:

“Doing more with less or at least do the same with less resources every time...efficiency brings implicit the idea of getting the most out of any type of resources that we need to manage... I think that CUC does do that very well.” (Vice-president6)

“Budget is an administrative and legal tool that coordinated with financial planning enables CUC to make a fair allocation of resources in the sense that CUC takes care all the time of doing more and much better things with less money.” (Manager3)

"We also have efficiency indicators and lately we have incorporated some productivity indicators in the sense of doing more with less." (Director2)

The idea of getting the most out of any type of resources in CUC reflects an understanding of efficiency as a form of control, which enables the optimisation of resources that are managed by CUC employees. Thus, management accounting practices of control seek to do more with the available resources that employees have, in order to obtain an efficient management of resources. This perception of efficiency is focused on how CUC employees use resources to directly improve the company outcomes.

Secondly, efficiency has been related to accountability practices. Practices of accountability have been present in CUC since its inception from the influence of the School of Mines through its slogan of “work and rectitude”, which promoted a constant discipline in the rigorous control of resources. This made CUC become one of the first companies, in the region and in the country, with accountability practices that attempted

to guarantee transparency and efficiency (Ospina 1966). State-owned organisations are subjected to accountability practices as a control mechanism to ensure their efficiency (Andrews and Entwistle 2014). Interviewees shared this conception as can be seen in the following quotes:

“IFC always asks for audited financial statement, mostly IFRS. This introduces transparency and accountability. Quarterly reporting encourages efficiency”. (Investment officer at IFC)

“CUC is an organisation very oriented towards control of resources maybe because of its public nature many organisms of control monitor us. ” (Manager1)

The continuous monitoring by external control organisms and multilateral development banks over CUC seems to strengthen the practices of rigorous control of the resources of the company, since its constitution. Management accounting tools are mechanisms that constantly seek out efficiency by means of control of resources. Control of resources is complemented by means of auditing practices that seek to enhance accountability, transparency and efficiency in managing the resources of CUC. To improve accountability practices the CUC quarterly reports on the financial performance of the company, were socialised through a teleconference in which different stakeholders took part.

Thirdly, efficiency in CUC is specifically attached to financial responsibility. When interviewees were asked about how they dealt with financial targets that might conflict with social goals, they recurrently stated there was no conflict between those

goals because they strongly believed that CUC, by being financially responsible, was being socially responsible as well. The following quotes illustrate that CUC employees have internalised the idea of being responsible for being financially efficient, and reveal how they draw on the resources available to them, to achieve profits in line with social and organisational objectives.

"We, in our strategic postulate, seek balance between economic or financial and social environment aspects. What we have learned at this time, is that the first requirement to be sustainable is to be profitable." (Vice-president3)

"We do start from the principle that all investment must be profitable, but we do not neglect the balance between social, environmental and financial aspects." (Vice-president5)

Among interviewees there were different perspectives about relation established between social and financial responsibility stated in the above quotes. For instance, there were other interviewees who criticised the fact that profit has become a primary goal of the organisation. There was a claim that the focus of enhancing efficiency in terms of profitability might leave aside other important values.

"The objective of a public company is not to make money, but to build quality of life and to build social sustainability, and clearly it has to earn money for those things. Profits are a result of running a socially responsible business, not a goal." (Ex-manager1)

"I feel that the trend is that legitimacy of the organisation is decreasing because administrators were devoted to maximise efficiency measured only in terms of money." (Ex-manager1)

"If CUC is a high profitable business, why they do not invest those resources in guaranteeing universal access of services for all the community." (Communitarian leader)

The two sets of quotes seem to reflect a paradox in CUC. On the one hand, efficiency in CUC has been present, since its constitution, as a corporate value that promotes the sustainability of the organisation through the pursuit of profitability. On the other hand, CUC, as a public organisation, should meet citizen needs of accessing the services that the company provides. This paradox was exacerbated after the new regime of household services was implemented in Colombia during the 1990s, with the provision that public services, as businesses, had to be profitable and enable the reproduction and accumulation of capital (Varela 2008). This situation appears to set the privilege of the profitability and sustainability of the utility companies above their social function.

Fourthly, efficiency related to rigorous control of resources. Many interviewees commented on the relevance of the rigorous control of resources for the efficient management of CUC. There is a belief that rigorous control of resources was needed in CUC to achieve efficiency. This emphasis on the rigorous control of resources was pursued by introducing business-like practices throughout the development of CUC, which will be explained in more detail in the following chapter. Interviewees believe that the stress on rigorous control of resources through management accounting practices has led the company to efficiency gains and optimal use of resources. Efficient management of resources was also demanded by multilateral development banks to ensure loan payments.

"The very early relationship with multilateral banks created a culture in CUC from the technical, legal and financial aspect that we called, throughout the history of the company, the technical-financial and legal rigour." (Vice-president3)

"The first generations of employees in CUC instilled in us a culture of absolute rigour in everything that is done... directors of the accounting area used to scold and crucify us during budgeting discussions, which were very rigorous." (Ex-manager1)

The comments of interviewees show that in CUC there are constant deliberations about how service should be cost efficiently delivered. Budget constraints are imposed on vice-presidents to minimise inputs. Vice-presidents must justify in detail the decisions about the needed inputs to achieve outputs. Management accounting practices embed efficiency as a corporate value, which is expressed in the culture of rigorous control of resources. Rigorous control of resources became an everyday practice of employees.

Fifthly, efficiency is related to budget compliance, which implies the full application of budgets that have been allocated to each unit of the company. From the perspective of interviewees, the budgeting practices are a means to enhance efficiency, and this conception has led to the transformation of these practices in CUC. For instance, to show efficiency in budget compliance, different units are used to execute all expenses at the end of a fiscal period to avoid expense cuts for the upcoming period. Thus, these budgeting practices sometimes led to expending more than was really needed and to negatively impact efficiency in CUC. To change these practices, the zero-based budgeting methodology was implemented in 2014, seeking budget-maximizing practices and more efficiency. After the implementation of the zero-based budgeting practices, the

resources allocated were based on the detailed revision of what each project needed, to avoid arbitrary expenses cuts, based on historical budgeting execution.

"Efficiency means that you spend what was assigned to you" (Ex sub-accountant of Colombia)

"Now, all expenses are analysed one by one through methods of efficiency. The budget information is captured through decision packages where it is assessed based on the contribution of each expense to the strategic objectives of CUC." (Employee4)

The above quote shows that resources are currently allocated in CUC based on the detailed revision of what each project needs, and how the projects contribute to the strategic objectives of the company. The preparation of the budget has been linked to strategic planning based on the principles of value creation. CUC has strengthened a culture of strategic objectives that orient budget compliance connected to a unified strategic planning model. The strategic integration of the budget enables the guaranteeing of resources for the implementation of long-term plans. It also enables in turn, the unification of strategic objectives, which orient the allocation of resources.

Sixthly, efficiency related to income searching. The notion of efficiency in CUC has gone beyond the responsibility of spending tariff income collection with frugality. CUC has also been focused on extending profit and growth. Management accounting practices in CUC are not focused purely on expenditure. CUC elaborates long-term plans to expand its services overseas. Long-term plans include the building of hydroelectric plants to supply electricity services in Central and South American countries. The

expansion of CUC was possible after the liberalisation of utility service markets during the 1990s, not only in Colombia, but also in the rest of the Latin American countries (Varela 2011). The expansion of CUC has enabled the company to increase its income, which is mainly derived from the activities of its subsidiaries.

“Efficiency can be understood as the search for income.” (Ex sub-accountant of Colombia)

“CUC is searching to significantly increase its income and to duplicate its EBITDA by 2022. In this moment, 33% of the profit of CUC is coming from its national and international subsidiaries outside of the headquarters. Then, it is a path that we must keep travelling.” (Vice-president5)

“We continue analysing opportunities in some countries of Central America, as well as in Chile, Peru and Brazil. We are also interested in entering into the water sector especially in Mexico, a key market due to its size and geographical location.” (CEO)

These quotes reflect the relationship between efficiency and the strategic objective of CUC, which aims to ensure the profitability and sustainability of the company. These strategic objective of pursuing profitability and sustainability coincides with principles of NPM that promoted public service companies as self-funding organisations (Du Gay 2004). Even though the pursuit of profit has been present in the company since its constitution, the possibility of its expansion opened after the NPM reforms introduced in Colombia reinforced the profit seeking approach of the company.

The efficiency of CUC, perceived as searching for income can also be traced in the work of the company to convince citizens about the need for paying their utility bills

to ensure the financial sustainability of the company as a public body. This situation has not been the same for other utility companies in Colombia where there has been a predominant culture of not paying of utility bills by citizens which impacts the financial sustainability of the companies (Varela 2011). In the case of CUC, local newspapers in Macondo used to explain to citizens how to interpret their bills (Colprensa 5 May 1990). Similarly, local government used to fund educational programmes to train citizens about practices of efficient use of utility services (Mejía Abril 23 1990, p.3). The care of public resources of CUC was not only reinforced among citizens but also employees of CUC who were indoctrinated about the need for taking care of resources of the company. The following section presents the perception of efficiency related to the technostructure.

5.5.2 Efficiency related to technostructure

This category includes perceptions of efficiency directly related to procedures adopted through the technostructure in CUC in order to ensure a proper usage of resources. The technostructure is formed by technical and specialised professionals, who exercise organisational control (Galbraith 1970; Aristizábal, Arias and Tobón; 1988). With respect to the subject of this research, in the technostructure of CUC there is technical, specialised and analytical knowledge, related to management accounting practices, that seeks to ensure the day-to-day control of operations in search of organisational efficiency. This category also groups how the efficiency management model of CUC is perceived outside the organisation. This category groups 6 themes.

Firstly, efficiency has been attributed to the group of employees that form the technostructure, rather than particular individuals. The interviewees state that communication of values, from generation to generation, has been involved in achieving efficiency in CUC. The interviewees recurrently stated that goals of cost savings and efficiency gains are intensively communicated throughout the technostructure, and employees always feel pressure to take care of public resources. CUC culture demands that employees manage resources properly and employees should embed this culture to stay in the organisation. The interviewees state that this culture is a distinctive feature of CUC

"When I came here to the base of the professional line, I was told: listen, here you have to take care of every penny, each penny is sacred, each penny is public. Today it is my task to inculcate the next generations in that" (Vice-president3).

"Employees in CUC start as technicians, assistants, then they take professional positions and incorporate all that learning about the culture of financial rigour and caring of public resources." (Vice-president3)

"I believe that efficiency in CUC in managing resources has been a constant... public resources are sacred and should be used efficiently...we do not have corruption cases as other public organisations inside and outside Colombia". (Vice-president5)

These statements are directly related to efficiency, perceived as getting the most out of any type of resources, and with the rigorous control of resources. However, this theme highlights the role of technostructure in making employees accountable for ensuring the best outcome from the public money that they manage, and by perceiving these resources as something sacred. The perception of efficiency attached to the

rigorous control of resources permeates different areas and organisational levels throughout the technostructure, representing the group of employees that share this perception of efficiency and work, for transmitting from generation to generation.

Secondly, cultural background leads to working with efficiency. Efficiency in CUC is related to the discipline of employees derived from their cultural background. The idiosyncrasy of the inhabitants of the region where CUC is located, is characterised by the principle of the rational calculation of daily behaviour (Mayor 1989). When interviewees were asked what efficiency meant in their daily work activities, they stated that this meant assuming a self-commitment to the responsibilities of their work.

“Because of my family values, I cannot go home on Friday if I know that I have not finished my work. I plan my work every Monday and I commit myself to achieve my weekly goals.” (Employee4)

Even though this statement is very particular and specific to the interviewee’s experience, the statement reflects the way the interviewee has integrated efficiency as a corporate value into their daily practices. It can also be inferred that some mechanisms of the company employees enable the pursuit of efficiency in their work, as is the case of the weekly planning mechanism stated in the interview. The interviewee’s statement reveals a significant commitment by the individual to be responsible.

Thirdly, efficiency attributed to long-term financial planning. Long-term financial planning in CUC developed with the view that efficiency presupposed proper long-term planning to guarantee that each project had financial viability. Financial viability of huge

infrastructure projects was necessary because CUC managers had to make budget decisions in their management that produced benefits long after they had left the administration. The long-term investment decisions were made even though managers had to assume more costs than benefits, in the short-term, during their management.

“We must gain efficiency in some areas to invest in other areas as long-term projects. We execute projects where the investment return can be in 15 or 20 years in order to provide our services in new territories.”
(CEO)

This quote reflects that CUC managers forecast for the future and ensure resources to develop long-term projects, as part of the strategies of CUC to expand its services. The planning has been essential to achieve efficiency in its processes through the rational use of resources and a constant search for income generation. Long-term financial planning put an emphasis on efficiency by linking management practices to the operating plan of the company and the money required to ensure the maintenance of the plan. Long-term planning has been a factor in efficiency because of the relevance given by staff members of CUC to such practices, to carry out the huge investments of infrastructure projects in the long-term.

Fourthly, efficiency in public investments reflected on finished projects. Efficiency focused on the results, therefore building a construction or finishing a project with good results is synonymous with efficiency in CUC. It is believed among interviewees that the efficient use of resources has led CUC to achieve effectiveness. Interviewees stated that efficiency was not only related to minimising inputs but also to

the quality, timeliness and relevance of the projects that CUC undertakes. Thus, efficiency in CUC has been related to its ability to complete all the projects and works it has undertaken, with quality and timeliness.

“Efficiency in public administration is doing things with relevance, opportunity and quality. We do not have white elephants fortunately ... everything we do in CUC is working and working well.” (Vice-president 5)

“To be efficient, three concepts are needed, achieving what you want to do in terms of time, cost and scope.” (Vice-president 1)

These statements show other perceptions of efficiency that go beyond the rigorous control of resources. It seems that efficiency is associated with the capability of CUC for demonstrating results in the use of public resources. The use of public resources is associated with the public nature of CUC and its responsibility of spending resources efficiently. It is also evident in the statements about the presence of the profitability and sustainability criteria in the phrases stated by the interviewees, such as "doing things with relevance, opportunity and quality" or "time, cost and scope".

Fifthly, CUC is acknowledged as an efficient organization. The multilateral development bank requirements are expressed in criteria to ensure the pursuit of efficiency throughout the development of CUC. During fieldwork, some members of IFC and IDB were interviewed to identify their perceptions about CUC efficiency. Similarly, in the annual reports of CUC, there is evidence that due to its degree of efficiency, the CUC experience has been socialised through the counsel of national and international public organisations (CUC 1987).

"CUC is one of the most efficient public utilities in Latin America, even compared with private utilities. Efficiency indicators are comparable to other privately-owned utilities." (Investment officer at IFC)

"CUC is a crown jewel in Colombia, CUC results are related to administration and governance of an entity ... CUC is a model on a national and international level." (IDB member)

"I refer to CUC as an example when other organisations in Latin America ask me for help on how to achieve good performance in the management of a public organisation. I always suggest that other organisations visit CUC in order to learn its processes." (Senior director of IDB)

These statements indicate that efficiency has not only been permanently strengthened inside CUC, but also the perception of efficiency in CUC has been positioned outside the company in the national and international environment. CUC is perceived as a public organisation that is profitable, sustainable and self-funding. The perception of the efficiency of CUC has been also acknowledged by its customers. CUC achieved in 2015 the best score of customer satisfaction in electricity services among 63 Latin American electricity companies. This survey was carried out by the Regional Energy Integration Commission.

Sixthly, efficiency related to allocation of resources to the municipality to fund social programmes. Efficiency goes beyond the good performance of CUC. It is believed that greater efficiency enables CUC to transfer resources to the municipality to be spent on social programmes. By being efficient, employees perceive that they are contributing

to the well-being of the whole community, because the profits of CUC are transferred to the municipality to fund social programmes.

“CUC is a good company with practices that are highly replicable internationally. CUC gives dividends, which fund 32% of the social investment plan of the municipality of Macondo.” (Vice-president5)

“The city of Macondo is being developed and it is in part possible because of CUC. It is good to be efficient because it is possible to give more capital to the municipality to do more social management.” (Vice-president6)

“I believe that the city mayors have been interested in maintaining tariffs of CUC that allow the municipality to have a surplus required to fund their social programmes.” (Manager2)

During the analysis of the data, it became clear that the positive perception of CUC has been attached to its ability to make profit. In this sense, the company does not demand financial support from local government but instead the company transfers 30% of the annual profit to the municipality to support social programmes. The role of CUC as contributor to the local government may generate a paradox in CUC as a sustainable, profitable and self-funding organisation, and its social function as a public company. However, it can be also deduced that if the managers of CUC prioritise the consolidation of the company as a profitable and sustainable company, a greater contribution to society and its immediate environment may be guaranteed in the second instance. CUC support the economic development of Macondo and the monies transferred to the municipality by CUC help develop infrastructure from which all citizens benefit.

The role of management accounting practices in shaping efficiency in CUC will be the subject of the next chapter. However, to understand how these views of efficiency have been reproduced through management accounting practices in CUC it is necessary to explain the role of the technostructure in legitimising efficiency in CUC. It is to this task that the next section now turns.

5.6 Technostructure

The technostructure has been defined as the group of employees who have been working in CUC for a long time, and who have been promoted in management positions throughout the organisational structure of the company. The professional formation is considered key in CUC when managers make decisions on employee promotion. Employees receive technical training and paid education to obtain undergraduate and postgraduate degrees. These incentives have also strengthened a technostructure that has protected the company from being captured by political interests as expressed in the following quote:

"In CUC remains a strong inclination to train people, which generates a high sense of belonging, of employees to defend the company interests as their own. The technostructure establishes a technical rationality, which forms the company culture, based on technical knowledge. Moreover, the middle management defends the company and the technical development of people to ensure technical rigour in the decision-making of the company, which is not subject to political decisions" (Manager2).

The education incentives that CUC employees receive seem to enable the company to increase the sense of belonging of employees, and to defend the company from political intervention. Values of employees in CUC were shaped, through the technostructure, upon the idea that a rigorous control of resources was needed in each process of the organisation. Interviewees expressed their views that efficiency in CUC is related to ethical issues, because if resources are wasted or spent unnecessarily because of inefficient services, they will have fewer resources to satisfy citizen needs of getting better services or paying lower tariffs. This section shows that CUC employees learn values transmitted through the technostructure that encourage them to take care of public resources and to seek efficiency.

The hiring process of employees that form the technostructure in CUC is a key factor in the company because efficiency as a corporate value is exercised through the rigorous control of resources, has relied on the good will of employees who work for the company. Interviewees recurrently stated that the hiring process attempts to ensure that the values of people who are hired can match the values of CUC to ensure that employees will be as cost effectively active as they can. Interviewees' comments on the hiring process of CUC can be seen in the following quotes:

"The shield of CUC is made by its personnel selection. These are open processes, with very strict conditions...within the hiring process; we apply psychological tests to know about honesty and good habits of aspirants. Once they are hired, their values are reinforced through the culture that public money should be managed and invested rationally with efficiency criteria." (Director2)

“A new CEO cannot hire people that do not meet the requirements. We have standards and the managers know how strict we are with the standards. Managers send us the resumes to know whether aspirants fulfil the requirements or not.” (Employee1)

The above quotes express that CUC has established a recruitment process of employees that has been respected by the managers of the company. The hiring process of CUC seeks that employees embrace values about caring for the efficient management of public resources. The hiring process of CUC, and the values of the company strengthened through its technostructure, has sought that the interests of political groups do not overrun the company. The long-established tradition in CUC of hiring new staff members through formal processes seeks to prevent individuals being hired based on being connected with the right person or with the right political parties. In this way, CUC attempts to prevent politicians from appointing individuals to occupy positions in the administrative structure of the company and extracting public resources to increase their personal wealth. All these processes are set up with a view to reinforcing efficiency in CUC. The role of management accounting practices in contributing to these processes will be the subject of the next chapter.

The protection of resources has been a main objective of the engineers who make up the technostructure rationality that has permeated the organisational process of CUC. This technological structure reinforces the control mechanisms through management accounting practices, to maintain the organisational control and to improve the organisational efficiency. Even though CUC has not developed a performance system that financially rewards the cost-efficient behaviour of employees based on management

accounting measurements, employees are motivated to protect the company from practices of misuse of resources. In this respect an interviewee, who has worked for CUC for more than 39 years, explicitly stated that even a CEO may authorise expenditure but if its legality is not proved, CUC employees may impede the payment, as can be seen in the following quote:

"... sometimes a new manager gets here imposing things that we disagree with and we do not let them, the manager can say: we need to pay this money for such thing and we say everything here is strictly business, and it [the payment] must have legal supporting documents..." (Employee1)

The above statement reflects the capacities of the middle managers of the CUC technostructure to exercise rigorous control of resources. Although general managers have power regarding the allocation of resources, middle managers have the power to verify whether such expenditures are legal, having the power to retain a disbursement if the situation warrants it. The request for legal supporting documents is part of control mechanisms to protect the resources of the organisation. The expenditure's legality is proved through technical procedures incorporated in the technostructure that include the requirement for supporting documents. For instance, the controls of the management accounting practices were complemented through exhaustive periodical statements of income and expenses, corroborated with documents, to assess if expenditures are strictly related to the CUC business activities. These practices seek to prevent manipulation of accounting information and falsification of data.

Management accounting practices such as cash control are the first actions to be implemented in the company's new subsidiaries as these practices are considered carriers of CUC's organisational culture by creating, maintaining, and storing the shared values of the company. These shared values have been transmitted as a set of moral norms expressed as: public money is sacred and it should be spent effectively. Thus, the values communicated and legitimated through the technostructure attempt to shape self-motivated employees to act to improve CUC output/input efficiency.

It can be said that the technostructure replicates the control mechanisms to pursue efficiency in the company, which is possible through the power exercised by senior employees over new employees. New employees are aligned with the company's values and turn the technostructure into a strategic element for the structure of domination. Practices that are institutionalised from the technostructure are part of the process of administrative control that legitimises what should be done within the organization (Burns and Scapens 2000). This analysis is expanded in the following section that introduces the theoretical discussion of this chapter.

5.7 Theoretical discussion and analysis

In terms of structuration theory, it is possible to consider that management accounting practices are carriers of structures of signification, domination and legitimation (Macintosh and Scapens 1990, Busco *et al.* 2000, Englund and Gerdin 2014). Thus, management accounting practices are involved in the creation, production

and reproduction of knowledge, which is stored, communicated and shared by organisational members. This involves knowing how to act, what the relevant values are and what the appropriate way is of expressing what is thought, with regard to all aspects contained in the organisational culture (Busco *et al.* 2000). The value of rigorous control of the resources has generated in CUC a culture of excellence in engineering that is maintained through the management accounting routines.

In the reproduction of social structures, Giddens (1984) contends that routines are basic elements of the institutionalisation of daily social practices, because routines have structural properties of social life that are continually reproduced through the rules and resources that constitute them. This reproduction, according to Giddens (1984) considers the capability of agents to re-signify social structures in their interactions, because even though there are structures that condition the agent practices, agents do not strictly follow them.

By following these insights, it is possible to understand how the technostructure has shaped efficiency in CUC as a corporate value transmitted from generation to generation, supported by the day-to-day application of a rigorous control of resources through management accounting practices. Thus, routines established through the technostructure played a fundamental role in the institutionalisation of efficiency in CUC. These routines, as argued by Giddens, help to shape meanings like efficiency, which is a core corporate value in CUC. Efficiency as corporate value is instrumented through control mechanisms, exercised by the employees who form its technostructure,

and who at the same time legitimise shared values in the company. This, additionally, gives rise to the duality of structure that expresses the construction of agency and structure within CUC.

Through the detailed and rigorous control of resources in CUC, the technostructure exercises power by institutionalising management accounting practices (for instance, cost control) that transmit the value of taking care of public resources. Giddens' theory supports this analysis in its explanation of how agents produce and reproduce structures on a daily basis by applying rules and resources in each action. Giddens (1984) argues that in order to understand how structures are produced and reproduced through social practices, it is important to understand the modes in which social systems are grounded "in the knowledgeable activities of situated actors who draw upon rules and resources in the diversity of action contexts" (p.25).

CUC's efficiency was also reinforced by the commitment of employees that form the technostructure. Most senior CUC managers were engineers and their priority has been the application of technical rationality to run the company. During the interviews, it was observed that CUC gives relevance to the qualification of its managers, by paying for their studies at masters in finance, whose result was that most of the decisions combined engineering and financial knowledge. This combination of engineering and financial knowledge has also been observed in other utility companies where engineers had to learn accounting and financial terminology after new public reforms were introduced in the electricity sector of Brazil (De Araújo and Cullen 2012).

In terms of structuration theory, it is also possible to argue in the case of CUC that the stock of knowledge appropriated by members of the technostructure enables them to exercise control over the performance and actions of the new members of CUC to legitimise the values of the company. The technostructure ensures that junior and new employees exercise the management accounting practices of control of resources that constantly seek to increase efficiency in CUC. In this way, the technostructure has contributed to the reproduction of social structures in CUC by informing, for example, the new organisational members about the shared value of taking care of public money as something that is sacred. Similarly, the technostructure exercises control mechanisms in the hiring process of CUC to ensure that employees get their jobs because of their skills and qualifications, and not because of their connections with political parties.

Within the framework of structuration theory, in terms of the structure of legitimation, management accounting practices of control were exercised by the technostructure as a means of monitoring the uses of CUC resources. Similarly, employees that form the technostructure, within the structure of domination, ensured that financial indicators imposed by financial authorities through loan agreements were achieved. The need of meeting financial indicators shaped the daily practices of employees when they routinely reviewed the achievement of those indicators. In terms of the structure of signification, management accounting functioned as an interpretative scheme to communicate whether CUC was a profitable business or not. Management accounting practices materialised the idea of CUC as a profitable business. However, it

cannot be said that the introduction of the concept of CUC as a profitable business came entirely from the reforms, but rather it is possible to argue that CUC was transformed through the reinforcement of its pursuit of efficiency as it will be explained in the next chapter.

The control mechanisms through the technostructure in CUC, reported by the interviewees and document analysis, contrasts with what has been found in the literature review about public sector management accounting in emerging economies (Van Helden and Uddin 2016, Hopper *et al.* 2017). The literature review shows that the practices of misappropriation of resources through intervention of political parties into management of public organisations has been considered a major obstacle to introduce NPM reforms (Van Helden and Uddin 2016). For example, De Renzio (2006) observed that donor interventions in developing countries reinforce the well-established networks of politicians that appropriate public resources to favour friends of their political parties instead of contributing to establish more developed democratic states. In the same line, Ni Putu *et al.* (2007) state in their literature review about public sector performance measurement in developing countries that informality in the hiring process in emerging economies may led to situations where civil servants are hired more for their political connections, than their being the actual winners in the hiring process.

In other emerging economies, Roberts' (2004) work demonstrates similar problems of informality, clientelism and fiscal indiscipline, which make the results-focus and performance management impossible. The author concludes that informality and

clientelism leave financial and results-oriented management reforms to the whims of representative coalitions of different regions, ethnic groups and socio-economic interests. Additionally, Wickramasinghe and Hopper (2005) found that political ideologies, trade unions, and ethnic, kinship or religious groups perpetuated patronage practices and captured management accounting control systems in a Sinhalese village. The authors explained how traditional political parties distorted the democratic political system by describing how the State had to compromise politically to obtain votes, and how voters asked for employment opportunities from the public sector to support the parties and perpetuate their power.

Similarly, Iyoha and Oyerinde (2010) explain that corrupt practices are evident in public management in Nigeria in different forms. For instance, there are weak management control systems in governmental entities such as ministries and departments and, there exist inflation of costs which results in over-invoicing, payments of salaries to “ghost” workers and payments for fictitious supplies and contracts. The authors consider that the development of accounting infrastructure and accountability practices is key to preventing these corrupt practices, because accounting information enables verification of the accuracy of data.

In understanding the changing role of public sector performance measurement in less developed countries, Tillema *et al.* (2010) state that there are diverse obstacles in the public sector of these countries because of low institutional capacity, administrative inefficiency, excess of bureaucracy and high levels of informality and corruption. The

authors state that these obstacles have made it difficult to satisfy the growing demand of performance information of statutory boards and purchasers. Statutory boards and purchasers are gained more importance as stakeholders after reforms were introduced in public sector in less developed countries.

In studying public sector accounting in Tanzania, Goddard *et al.* (2016) contend that accounting practices enable social legitimation of organisations because these practices help in the struggle against corruption. The authors argue that public sector reforms in a post-colonial setting puts emphasis on legal-rational rules that can be contradictory with cultural values of the social participants. The authors draw on the concept of isomorphism derived from institutional theory that refers to the tendency of organisations within similar fields to adopt similar practices to obtain external legitimacy. Goddard *et al.* (2016) relate three concepts of institutional theory: legitimacy, loose coupling and isomorphism to develop their analysis. The authors argue that the WB as a dominant actor establishes what is legitimate in terms of efficiency and what are the ways to achieve it even though there is a lack of coupling between rules and real practices in the public sector within emerging economies.

In the context of Colombia, similar findings were drawn in another study at (Varela 2008b) EMCALI (a public utility company). Varela (2008b) found that there are two powerful mechanisms related to the discretionary contract allocation and the appointment of top management positions that are used by the national government to negotiate political support. The author states that after the intervention of the

Superintendence of Public Utilities in EMCALI, the clientelism practices have not disappeared. From the point of view of the author, the efficiency discourse of NPM reforms coexists with administrative corruption derived from rooted clientelism practices in EMCALI. There is another work that diagnosed the situation of EMCALI, which is presented in the following quote:

“The problem of EMCALI is especially the interference of external politicking coming from political groups related to the Mayor, who make up the Municipal Council or conform the Board of Directors of EMCALI. The political groups are reproduced in small groups within the company, generating dynamics of different interests that contradict its mission and objectives” (Díaz 2010).

The above quote expresses that EMCALI appears to be captured by the intervention of political groups in its management. Regarding this issue, Varela (2008b) argues that there are political groups that dispute the control of resources within EMCALI by means of the allocation of contracts to suppliers, and in this way capture part of the public resources that EMCALI collects through service tariffs. Similarly, Sáenz (2010) argues that the chief executive officer of EMCALI has been one of the most disputed civil service positions by political groups, because EMCALI produces massive financial resources that are used to favour the clientele of those political groups. Varela (2011) also explains that in addition to corruption and patronage practices, other public utilities in Colombia have been negatively impacted by citizens “not payment their bills”, which has worsened the financial sustainability of these companies.

Even though interviewees and social actors related to CUC were not aware of the theoretical framework of Giddens, the notion of structures of signification, domination and legitimation gave an understanding of developments that occurred at CUC that shaped its construction of efficiency. In the case of CUC, the indoctrination by the company has convinced citizens and employees about the need for taking care of public resources which can be seen as a structure of legitimation in terms of structuration theory. The analysis suggested that CUC has legitimised a perception of efficiency that became a corporate value that guides the practices of rigorous control of resources.

For instance, the work of CUC to convince the citizens about the need for paying their utility bills and employees of taking care of these public resource, has installed efficiency as a corporate value in CUC. This corporate value is legitimised as a truth that morally compel citizens to take care of the public resources of CUC as a public heritage that belongs to them and employees to take care of these public resources as something that is sacred. Similarly, an important purpose of management accounting practices in CUC is the protection of public money as something that is sacred through a culture of rigorous control of resources that will be explained in detail in the following chapter. The next section gives some concluding words about this chapter.

5.8 Conclusions

This thesis suggests that the influence of the School of Mines in CUC shaped a rigorous control of resources in the company, which became prominent through the

reproduction of shared values expressed in the moral norm that each public penny is sacred and should be spent efficiently. The early introduction of this value in CUC was complemented by the influence of multilateral development banks that reinforced the financial discipline in the company and its pursuit of efficiency.

The revision of the views of efficiency in CUC shows that the perception of this term was bound up with the economic language of production that perceives efficiency in terms of inputs and outputs relationships. Efficiency may appear as a technical definition in terms of the elements that form it, which is how efficiency has been studied in previous studies in utilities (Lannier and Porcher 2014, Molinos-Senante *et al.* 2016). In practice, however, efficiency in CUC is perceived as a corporate value that guides the everyday social practices of employees.

The orientation of the transformations of CUC after the 1990s was led by economic efficiency in the context of NPM reforms in the Colombian public sector. The understanding of efficiency, continues from the tradition of it being defined from an economic perspective that seeks to maximise outputs and to minimise inputs, reinforced through the introduction of management accounting practices. The CUC experience analysed in this thesis reflects a paradigmatic case of the application of NPM reforms (Varela 2011), which can be explained by the early conditions that set up a rigorous control of resources. A culture of control of resources was deployed in the company because of its managerial autonomy, long-term financial planning and technostructure (López 2005, Varela 2011). The CUC case shows that structural conditions appear to be

needed in order to embrace NPM reforms, as supported by the view held in some of the literature (Van Helden and Uddin 2016).

The analysis of the case shows the potential of management accounting practices to reinforce a rigorous control of resources, when structure and agency are embedded in such practices. Management accounting practices reinforced the pursuit of efficiency through the detailed reporting of organisational activities, the control exercised by the technostructure, and the monitoring through performance indicators initially imposed by multilateral development banks, which is the subject of the next chapter.

Chapter 6: Features of management accounting practices in CUC

The previous chapters discussed the development of CUC and connected the constitution of the company as a public conglomerate with changes in domination, legitimation and signification structures in the household service sector in Colombia. The analysis of interviewee responses and historical literature about CUC revealed three elements as relevant in the development of the company: the managerial autonomy of the company, its long-term financial planning approach and its technostructure. The identification of these three elements are a pre-requisite for a broader understanding of how and why management accounting practices have shaped efficiency in CUC which is the focus of this thesis.

To understand how these three elements are interwoven to reproduce efficiency through management accounting practices in this case study, an analysis of the development of management accounting practices in CUC will form the main content of this chapter, which seeks to answer the third auxiliary research question about which elements of management accounting practices are most significant in CUC from the perspective of structuration theory. In order to do this the chapter will refer to the notion of “reversible time” in structuration theory to explain how social practices are connected in different time dimensions through events and routines, where past experiences configure and condition the present and the future because of stored information about the past (Giddens 1990).

The first section of this chapter includes discussion of the context that shows the influence of multilateral development banks on the practices of CUC. Then, the chapter will discuss the main features of management accounting practices in CUC. Finally, the chapter will include the theoretical discussion and analysis of the development of these practices in CUC by discussing these findings with previous work in the field of public sector management accounting in emerging economies. The chapter will argue that multilateral development banks influenced the development of management accounting practices that ensured CUC would be able to meet its obligations to the banks.

6.1 Financial pressure and institutional influence of multilateral development banks in CUC

The influence of multilateral development banks on CUC has been continuous since the formation of CUC until the present time. The analysis of the interviews and the archival data showed three aspects where the influence of the multilateral development banks on CUC has been evident. Firstly, influence on establishing tariffs on services that sought to ensure the payment capability of the company in its earlier stages, when there was no regulation to set tariffs on public utilities in Colombia. Secondly, the influence on consolidating a culture of “rigorous control of resources” in the company that enabled multilateral development banks to monitor, in detail, the execution of infrastructure projects and the financial capability of CUC to pay the debt. Thirdly, the recommendation from multilateral development banks of hiring consultancy firms to lead

organisational transformations in CUC. The aim of this section is to discuss how these three aspects, deriving from the multilateral development banks, were influential in CUC.

Firstly, regarding the influence of establishing tariffs on services, the multilateral development banks were able to influence CUC because the funds they provided allowed them to impose certain requirements. The requirements sought to ensure the financial sustainability of the company by setting tariffs for services provided by CUC. An example of this occurred in the decade 1970-1980, when the multilateral development banks pressured CUC to restore tariffs on services that had been decreased by the pressure exerted on CUC by the political party ANAPO. One of the arguments by the bank was that CUC would not be able to comply with the established financial indicators, as a condition of the loan agreements, if tariffs were reduced. CUC's financial dependence on credits with multilateral development banks led the company to follow their suggestions (Aristizábal *et al.* 1988). This has also been highlighted as an important feature in the extant public sector management accounting literature in emerging economies (Van Helden and Uddin 2016).

The outcome of the interplay between the multilateral development banks and CUC was supported by executives in the company because it enabled them to set higher service tariffs. In an interview with a CUC manager it was stated that executives of the company asked for the inclusion of some requirements in loan agreements, to legitimatise the high prices for utilities and ensure profitability. Such legitimatization of high prices, by arguing that these were requirements imposed by the WB, has also been

evident in other countries where utilities legitimised prices of services through historical agreements between the companies and bank staff members (Annisette 2004, Rahaman *et al.* 2007, Van Helden and Uddin 2016). A senior manager of CUC during one of the interviews conducted expressed his opinion on this issue as follows:

"at a time, [CUC] officials asked those officials sent by multilateral banks to set requirements that normally weren't required... let's say that the banks were the allied partner to maintain tariffs that would enable CUC to ensure its financial viability and make its projects" (Manager2).

This quote shows that CUC executives were complicit with the banks in pursuing profitability. The pursuit of profitability was due largely to the conditions imposed at the outset by the banks but implicitly supported by CUC executives. It also shows how CUC sought this relationship with the banks, for the legitimisation of the service tariffs. This legitimisation of tariff increases, through the constraints of the banks, enabled CUC to evade the political cost of public debate on the social impact of such increases.

Secondly, in reference to the influence of multilateral development banks on consolidating a culture of “rigorous control of resources” in CUC, the interviewees recurrently stated that the financial discipline of the company is the result of interactions between the company and multilateral agencies. Respondents insisted that the role of multilateral development banks has been crucial in the formation of financial discipline in CUC, and on resource management within the company, as reflected in the following responses:

"Having worked closely for a lifetime with the multilateral banks, has a lot to do with what CUC is now" (Vice-president3).

"We did most hydroelectric projects with the funding from multilateral banks, we are talking about the World Bank, the Inter-American Development Bank, etc. ... then they have some important requirements: the management of the resources they provided, compliance in payments and commitments. (Vice-president 5).

The above quotes emphasise the discipline CUC learned from the impositions set by the multilateral development banks. It was recurrently stated that working with the multilateral development banks enabled the consolidation of a culture of technical, legal and financial rigour. Regarding the loans from multilateral development banks, there were requirements that went beyond financial indicators, with constraints on management, labour relations, dealing with citizens, billing and so on. Similarly, there were requirements focused on specific institutional aspects of CUC, as can be seen in the following quote:

"When multilateral banks make loans, they have a component called institutional strengthening. That component has varied over time; for example, at one time the banks asked us to improve the systemisation of the company. Recently they asked us to develop our corporate governance and to value our assets by using IFRS" (Vice-president 3).

The interviewee's comments express how the requirements for loan approvals changes results in several institutional practices at CUC. To promote these changes, development-finance institutions complemented the provision of loans with technical assistance during the various stages of project implementation. During the projects' implementation and execution, management accounting strategies such as budgeting and

financial projections were prioritised, and training for these strategies was provided through technical assistance by multilateral development banks, as can be seen in the following quote:

“The banks made loans and technicians from the World Bank came, teaching us how to apply methodologies, to make financial projections. We did financial projections. I used to speak with people of very important private companies and they only had budgets but they didn't have financial projections” (Ex-manager3).

This quote states that the WB promoted management accounting techniques in CUC because they included certain requirements when they provided loans. The loan agreements introduced financial objectives, including setting values for the ratio of debt to equity, a minimum required by EBITDA. The loan conditions set out the financial expectations that CUC should achieve. These expectations were incorporated through financial projections and the use of a budget, as in a private company. Some of interviewees stated that the introduction of these management accounting practices has been the most important outcome from the interplay between the multilateral development banks and CUC, and which in turn enabled the company to permanently control its resource management.

Thirdly, another influence of the multilateral development banks has been the appointment of consultancy firms to lead the organisational transformations of CUC. This influence has also been found in other state-owned organisations where the intervention of consulting firms led to the introduction of NPM reforms in emerging

economies (Ashraf and Uddin 2013). In the case of Colombia, PwC consultancy was hired in an effort by the government to set up the transformation of the household service sector in 1991, inspired by NPM reforms. During fieldwork, a British professor of energy policy expressed his views about WB intervention in Colombia:

“Colombia was one of the countries that received consultants paid by the WB... The consultant was a company called Coopers & Lybrand, which is now part of PwC... What they did recommend for these countries was exactly the commodity model for the electricity market from Britain. Colombia probably had less opportunity to say no to the WB because the loans were conditional on them accepting privatisation like the British model”. (British professor of energy policy)

The interviewee’s response indicates that the intervention of Coopers & Lybrand within the transformation of the electricity sector in Colombia may be attributed to the dependence of the country on WB funding. Coopers & Lybrand also took part in the market-led reforms of the electricity sector in Brazil (De Araújo and Cullen 2012). The intervention of Coopers & Lybrand was extended to CUC when PwC was hired in 1997, to design its new organisational structure that transformed it into a commercial and industrial enterprise of the State. This organisational structure of CUC served to introduce the NPM reforms in the company, which can be inferred from the following quote:

“The biggest organisational transformation in CUC happened in 1997 preparing the company to face a competitive electricity market, which was opened after the regulation of 1994. This regulation demanded that household operators should be managed with private logics regardless if they were public or private companies.” (Vice-president1)

Together with the direction of CUC towards private logics expressed in the above quote, the new organisational form of the company reflected features of the NPM doctrines. These features of NPM doctrines adopted by CUC were: the unbundling of the company into corporatised units organised by product, and moving towards cost centre accounting (Hood 1995). These features were reinforced by creating Strategic Business Units for each service offered by CUC and by using management accounting techniques such as ABC. These features were introduced through in-house company training programmes led by PwC and Mckinsey in the 1997-1998 period.

Through documentary analysis, this research found that it has been a tradition of CUC to hire external audit firms, responsible for providing an opinion on the financial statements of projects financed by the IDB, IBRD and JBIC, as an explicit request from multilateral development banks. However, since January 16, 2006, the board of directors of CUC established the obligation of hiring an external auditor, and made the CEO of the company accountable for managing the financial information of the company. This policy was part of a CUC corporate governance plan implemented through the financial support of the IDB (CUC 2007b). This corporate governance plan was consolidated with the realization of an international event sponsored by the WB, where best practices on corporate governance were shared (CUC 2008b). The implementation of “good governance” practices through financial assistance conditions from multilateral development banks is common in other emerging economies (Hopper *et al.* 2017) and reflects the New Public Governance reforms (Almquist *et al.* 2013).

These facts reveal that the impact of measures, recommendations and policies of the multilateral development banks have gone beyond the amounts of the loans granted. In the case of CUC, there is a shared view among respondents that the intervention of these banks has forged and strengthened the mentality of private enterprise within CUC, where the procurement of resources that guarantee the payment of its debts became a priority. This research found the multilateral development banks influenced the values, principles and concepts that CUC members applied in their day-to-day duties. The banks influenced the setting of goals by CUC, through strengthening values such as financial rigour in the management of resources, and strict compliance with debt payments, which have guided the allocation of resources in the company.

The interactions between multilateral development banks and CUC resulted in the introduction of management accounting practices that served as control devices, which led to the rigorous control of resources of the company. The following section explains the development of accrual accounting practices, the accounting-budgeting-planning triad and other management accounting practices, which interviewees and archival data highlight as key features of the business model of CUC.

6.2 Management accounting practices

By management accounting practices, this research means actions towards controlling material and non-material organisational resources (Wickramasinghe and Alawattage 2007). Management accounting practices are conceived as analytical

constructs that integrate not only situated recurrent (inter-) actions but also the structural principles that underline those social practices (Englund and Gerdin 2008). In the 1950s, the emphasis was on accrual systems that enabled the company to separate the financial performance and reporting practices of each service. From the 1970s and 1980s, management accounting techniques like budgeting and financial planning contributed to developing a long-term financial planning approach in CUC by integrating accounting-budgeting-planning practices. From the 1990s, new management accounting techniques like ABC were introduced as part of the reforms in the household service sector in Colombia. From the 2000s, the balance scorecard and other management accounting practices were introduced, which involve the use of not only financial, but also non-financial information. The next sub-sections will analyse the development of management accounting practices in CUC.

6.2.1 Accrual accounting practices in CUC

Lande and Rocher (2011, p.220) discuss different forms of public sector accounting. They state that existing cash based accounting recognises only expenditure and revenue based on the collection or the disbursement. While in the modified cash based accounting, the recognition of assets is limited to certain monetary assets and liabilities based on the collection or the disbursement. In the modified accrual based accounting, most tangible assets are recognised but only some intangible assets and certain provisions are recognised in the period based on the operative event. Accrual based accounting recognises all assets and liabilities in the period base at the time of the

operative event (Lande and Rocher 2011, p.220). Currently, the form of accounting adopted by CUC is accrual based accounting.

The analysis of accrual accounting in this case study reveals the constitutive role of these practices in the business model of CUC, establishing it as one of its most important features. This section discusses three aspects of the accrual accounting practices in the company: firstly, its early application in CUC, secondly, the symbolic separation of each Strategic Business Unit through autonomous accounting systems, and thirdly, the financial autonomy of the company reinforced through accrual accounting practices. In discussing each aspect, the section will go back and forth through historical data to support the arguments.

Firstly, application of accrual accounting has been a distinctive feature of CUC since 1955, when it was created as a public organisation in Colombia. The revision of the annual reports of CUC shows that liabilities and assets were recorded in order to more accurately reflect the financial position of the company, regardless of whether economic transactions involved cash payments or not (CUC 1959). In 1984, CUC released a budget regulation that explicitly stated that accrual principles were going to apply to record the income and expenses of each business of CUC (Aristizábal *et al.* 1988). In this way, accrual accounting practices were consolidated in all areas of the company, long before these practices were regulated as mandatory for public organisations in Colombia during the 1990s.

During fieldwork, an interviewee, who worked at the office of national planning for Colombia in the mid-1980s, described how the accrual accounting system of CUC

was uncommon among state-owned companies in Colombia until 1996. The interviewee took part in a programme called "actual cash operations", that the Colombian government created in 1993,²⁶ to determine the financial situation of public organisations. When carrying out the "actual cash operations" program, they found that the only public organisation in Colombia, at that time, with accrual accounting systems was CUC. The following quote states different versions of accrual accounting systems in public sector organisations in Colombia:

“CUC was one of the first public companies in the country to very well organise its accounting based on full accrual accounting systems. In Colombia, the entire public sector had the obligation to carry accrual accounting since 1996. In the case of government entities, they had and have a problem to do so, especially for the recognition of taxes and other income without compensation. For government entities, it was applied and still applies, modified cash or modified accrual, depending on the items”. (Ex-Colombian sub accountant)

The interviewee expresses the difference between the accrual accounting system in CUC and government entities in Colombia. While other public organisations managed government budgets and control accounts, they did not use accrual accounting. Indeed, many public organisations had registered income, only if they were fully recoverable, or cash was received. Similarly, there was no precise data about the debtors who owed public organisations. When accrual principles became mandatory for all public organisations in Colombia after the NPM reforms during the 1970s, the accounting system of CUC was used as a model for other public organisations (Garcés 2004).

²⁶ “The actual cash operation” programme was designed by the Colombian government to avoid IMF intervention. This body wanted to review the financial statements of the public sector in Colombia after Argentina and Mexico defaulted on their debts to banks.

Secondly, during the historical development of the accrual accounting practices in CUC, accrual accounting systems were established for each service of energy, water, sewerage and telecommunications. These practices symbolically separated each public service into independent strategic business units of CUC. The independency of each business achieved through individual accrual accounting practices enabled the separation of the recording of assets, liabilities and equity of each service, and of their reporting process.

The creation of autonomous accrual accounting systems for each public service offered by CUC was the result of managers' agency to overcome requirements from the WB during the constitution process of CUC. As discussed in chapter 4, managers of CUC considered that development in electricity services drove developments in water supply and sewerage systems, and for this reason the company needed to be able to offer all these services integrated in a single enterprise. In contrast, WB officials demanded in 1954 that four legally independent companies were created for each service offered by CUC, because the loans granted had only been for the electric company. Officials of the emerging public company managed to negotiate the creation of CUC as a single entity that would integrate the four services, differentiating each other in terms of equity through its independent systems of accrual accounting.

Thirdly, accrual accounting practices also strengthened CUC's financial autonomy. These practices enabled the company to have expectations, not only in terms of obtaining economic resources from the municipality, but also that CUC could set tariffs that made the company economically viable. It can be said that accrual accounting

practices strengthened the mentality of private enterprise that was later reinforced in CUC by the reforms of the public service sector. In this regard, CUC has been earning income through the collection of fees for public services within the country, and has increased its income by expanding its services overseas. The idea of CUC as a self-funding public organisation coincides with organisational strategies to restructure public services, which is in line with the doctrines of the NPM (Du Gay, 2004)²⁷.

The idea of utility companies as self-funding organisations also had an impact on their accrual accounting systems. An ex- general sub accountant of the Colombian government, who was interviewed, explained how commercial and industrial enterprises of the state (as CUC) had to apply mostly full accrual accounting from 1996 because of its competition regime in the market. Before 1996, income was recorded in an accounting system based on a bi-monthly estimate of the consumption of public services, before the payment by the users. It was a modified accrual system because it was based on an estimate and not a fact. In the last 20 years, meters have been installed in residences and monthly income is recorded in the accounting systems of utility companies. Therefore, revenue is recognised when the invoice is issued, based on the measurement of the

²⁷ As a self-funding company, CUC not only stopped receiving capital from the municipality as its owner but, from the budget regulation of 1995, CUC commenced transferring 30% of its annual profits to the municipality (Aristizábal, L. F., Arias, J. and Tobón, C. (1988) *Un modelo racionalizador*, unpublished thesis (Master of Business Administration), EAFIT University. These transfers were legitimised through the municipal agreement 69 of 1997, which established that CUC were required to transfer financial profits to the municipality of Macondo that cannot exceed 30% of CUC annual profits. This agreement also stipulated that the municipality of Macondo must exclusively invest those resources transferred by CUC in social programmes. These contributions have resulted in the revenue from CUC playing an important role in the industrialisation of the region where it operates not only through the provision of public services necessary for the development of the industry but as a major funder of local government. Indeed, the perception of CUC managers is that the company has been crucial for the progress of the city of Macondo by promoting the social integration of its inhabitants through the provision of public services that are essential for both its inhabitants and for society.

quantities consumed by the customers, and therefore it was possible to apply full accrual in the commercial and industrial enterprises of the state in Colombia. In the case of CUC, the company decided, since 1998, to account for the hourly income from sales on the electricity exchange market, to reflect more accurately, the system of sales transactions and the purchasing of electricity (CUC 1998).

The early introduction of accrual accounting practices in CUC, the capability of the company to have financial autonomy for each Strategic Business Unit and to become a self-funding public organisation, was also reinforced through the usage of the triad of accounting-budgeting-planning. This triad enabled the company to develop a long-term planning approach, which ensured that the resources necessary to build infrastructure projects were available. For CUC, its financial development depended on its ability to anticipate future events, and quantify past and present social-economic facts, through its accounting-budgeting-planning triad. This triad forged a long-term planning approach to support the management and control on CUC, which has not been a general characteristic of public organisations in emerging economies, as will be explained in the following sections.

6.2.2 Accounting-budgeting-planning triad

This section shows how the accounting-budgeting-planning triad consolidated a long-term financial approach in CUC, becoming part of the apparatus for ensuring debt repayment of the long-term infrastructure projects funded by multilateral development banks. Since infrastructure projects, such as construction of hydroelectric plants, require

large investment capital, CUC has had to project the financial viability of their projects for 15 or 20 years as a prerequisite for funding. Once the infrastructure projects were built, the recovery of the cost of capital had to be guaranteed through bill collection to ensure the payment of the debt.

The fulfilment of commitments with banks demanded long-term projection of future earnings of the company obtained from financial planning. Several interviewees stated that these commitments promoted the centralised and long-term planning practices in CUC, and strengthened the company. This financial planning is carried out yearly through the budget, combined with accrual accounting as an apparatus that records the accumulated capital, while enabling its control. Since 1979, the budget in CUC has the same level of detail as in place in the accounting system has, enabled detailed control (Aristizábal *et al.* 1988). The auditing report of CUC in 1979 explained that the method used by the company to prepare the budgeting was a projected accounting statement of sources and uses of funds (CUC 1979). This feature of accounting and budgeting systems in CUC was a distinctive characteristic of the company, as can be seen in the following quote:

"In CUC, the budget is based on accruals and with the same level of detail of accounting... accrual accounting in the public sector became mandatory in 1994 when the General Accounting Office was created. But we already managed accrual accounting; while public sector was based on cash flow. Additionally, we were very strong in the budget since we handled the same accounts between accounting and budget" (Director 3).

"The budget in CUC is a model that is difficult to find in a public company because it is integrated to accounting system. We budget in detail for each activity centre and every account where resources are

consumed. Then, the ERP validates budget availability before hiring and buying resources. The budget also validates all stages: allocation, execution, settlement and payment. Every economic fact runs parallel as in two layers: recognising the impact on the budget and the impact on accounting" (Manager1).

The above quotes indicate that the usage of accruals for both accounting and budgeting systems in CUC is a strength of the company. Similarly, the interviewee added, that the fact that accounting becomes the backbone of the budget, and that the budget at the same time is the grounding for financial planning, has enabled a tight control of resources in CUC. During fieldwork, it was observed that the construction of the budget is very detailed because of its integration with the accounting system. The general accounting manager at CUC headquarters explained that the detailed budget is very useful in explaining why a strategic business did not meet its financial goals.

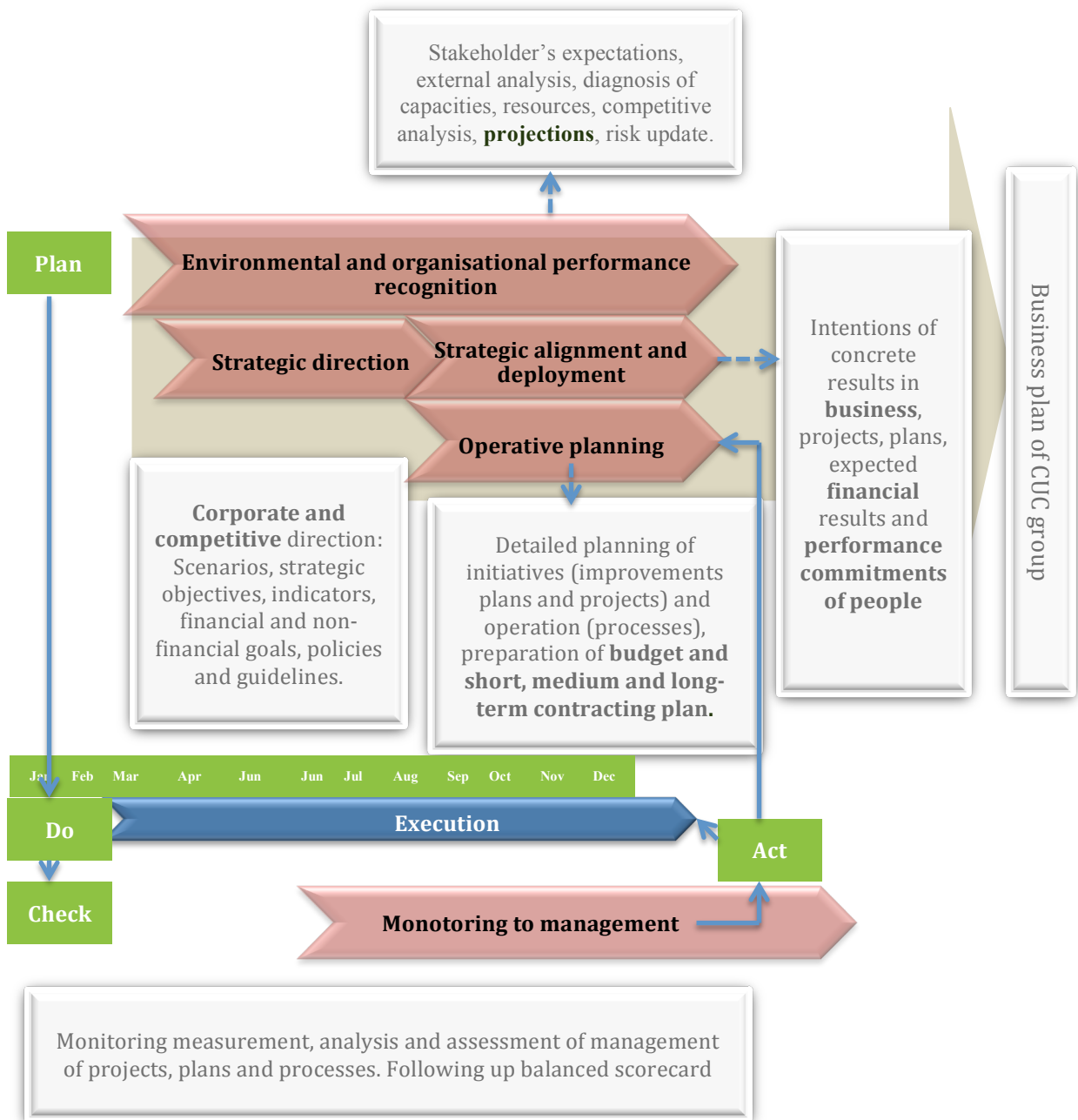
However, budget construction is very demanding because any modification needs to be done item by item because the execution of the budget is also recorded in detail item by item in the accounting system. Similarly, interviewees stated that any project of CUC must define a pre-structure of cost and assets before being approved. Thus, project managers in CUC work with the finance team to ensure that the project plans meet finance and accounting requirements. A director, who manages a unit that it is ascribed to the Vice-presidency of projects and engineering and who has worked for the CUC for 28 years, stated thus:

"My current role is carrying out specialised technical studies related to the CUC businesses...the technical structuring of infrastructure projects, elaboration of detailed designs for the construction of works

related to each business. CUC has always been extremely careful with its accounting practices, so that daily activities are permeated by these practices. In my particular case, I strictly follow what the finance and accounting areas require” (Director5).

This above quote illustrates that accounting practices in CUC relates to the design of infrastructure projects of the company. Indeed, each project in CUC is created with an accounting pre-structure by accountability centres that make possible to follow-up resources applied in each project. Additionally, CUC projects are brought into alignment with the strategic goals of CUC. In CUC, the priority of each project is assessed, indicating to which extent it contributes to the strategic objectives of the organisation, the expected benefit and the impact or risk implied by not carrying out the project, according to a prioritisation table (see Appendix 9). The following graph shows that link between planning and budgeting practices in CUC.

Figure 4: Integrated planning cycle in CUC group



Source: Internal document of CUC

The graph shows integration between the long-term planning and the budgeting practices in CUC. Budgeting and accounting practices are connected because the budget

considers economic facts that are going to be executed in each project of CUC including sources of funds and investments. The budget in CUC has the form of a projected accrual accounting statement. For example, the statement of sources and uses of cash of CUC in 2014 reflects the original budget, the modified budget and the executed budget. In this accounting statement it is possible to observe that the company not only reflects changes of cash flow resulting from operating activities but also changes of cash flow resulting from changes in liabilities and assets of the balance sheet. The interviewees state that CUC has kept statistical information about its operation for more than 50 years, which enables the company to project its income and profit. The following quote expresses this issue:

“The accounting systems connect almost all operations of CUC. You can predict sales by multiplying how many kilowatts you expect to sell at such a price, and then you identify the profit. The budget is linked to accounting because accounting gives historical records and then CUC projects them” (Ex-member of board of directors).

The interviewee states that the integration between accounting and budgeting systems enables CUC to project its income and profit based on its historical data. Interviewees recurrently stated that the integration of budgeting and accounting systems in CUC was not a typical feature within governmental entities in Colombia. For instance, the municipality of Macondo made an attempt in 1996 of integrating the accrual and cash basis to enable planning control through accounts that unified accounting and budgeting systems (Ocampo-Salazar 2017). The accounts that unified budgeting and accounting systems attempted to match revenues with the expenses associated with generating those revenues. This attempt did not work and the accounts that unified budgeting and

accounting systems were eliminated in 1999. The reports between the budget and accounting systems based on accrual basis of the municipality of Macondo are not consistent with each other because the budget continues to be carried out using cash basis while accounting is recorded based on the modified cash or modified accrual depending on the item.

In the case of CUC, the general accounting manager at the headquarters of the company and the former accounting director state that both budgeting and accounting are based on the accrual basis in CUC. The integration between budgeting and accounting systems was reinforced in CUC through the implementation of an ERP called OneWorld in 2000. This ERP was implemented after the organisational restructuring of CUC led by PwC in 1997-1998. The implementation the integrated accounting and financial information systems occurred also in other utility companies after the introduction of NPM reforms (Tsamenyi *et al.* 2006). This integration enables not only the matching of costs and expenses with income generation but also making visible the changes in capital, which are a feature of capitalist enterprises (Giddens 1984).

The analysis of the accounting-budgeting-planning triad in CUC highlights that this is a key feature of CUC and is part of a general apparatus, which is consistent with the pursuit of profit. The constant pursuit of profit by CUC legitimised its configuration as a profitable business, which was later reinforced through NPM reforms introduced in the Colombian household service sector in 1991. The following sub-section will show the development of other management accounting practices in CUC by stating how these practices were introduced in CUC.

6.2.3 Other Management Accounting Practices in CUC

Although the accounting-budgeting-planning triad belongs to the set of management accounting practices of CUC, these practices were particularly mentioned in the previous section because of their decisive role in the creation of CUC, as can be seen from the interviews, annual reports and literature about the company (Aristizábal *et al.* 1988, Varela 2011). While the previous sub-section attempted to understand how the accounting-budgeting-planning triad contributed to the configuration of a long-term financial planning approach in CUC, this sub-section will concentrate on other management accounting practices that were introduced in CUC after the reforms of the public sector in Colombia during the 1990's.

6.2.3.1 Activity-based costing technique

The costing system based on the ABC technique, a specific management accounting device, emerged in CUC because of law 142 issued in 1994 made it mandatory for public utility companies in Colombia. This technique was imposed compulsorily on utility companies in other countries such as the UK, following the introduction of the reforms of New Public Management (Conrad 2005). In the case of Colombia, the Superintendence of Public Utilities was the organisation that led to the

requirement for the ABC technique to be used by all public service operators. The introduction of this technique was the solution to ensuring that all companies adopted an integrated and standardised monitoring system of costs and expenses, especially for organisations operating in the public services sector.

The measures established by the Superintendence of Public Utilities required that once all costs and expenses were recorded in the accounting system of CUC, these items should be allocated based on the ABC technique. Its mandatory application obliged managers to begin the process of the identification of cost objects and the procedures for the allocation of costs. The introduction of the ABC technique was part of a CUC project called Abaco, which was underpinned on the already existing metrics in CUC through responsibility centres. The early development of responsibility centres attempted to allocate costs and expenses among the autonomous business units of CUC, prior to the enactment of the law in 1994 as noted by an interviewee:

"Maybe around 1955 or 1960 we had activity centres as one way to identify and analyse costs, expenses or investments of each centre of activity. I started in 87 and the responsibility centres already existed " (Director3).

As noted in the quote, the allocation of costs by responsibility centres existed at CUC even before the 1994 regulation was issued. More specifically, these responsibility centres were presented as a kind of organisation concept to identify and analyse the costs, expenses and investments that occurred in each centre. The responsibility centre technique differed from activity-based costing in the calculation of cost allocation. The Accountant-General of CUC headquarters, who took part in the project of

implementation of the ABC technique, considered that the most challenging task was identifying the drivers that enabled the cost allocation.

The implementation of activity-based cost centres required a quantification, codification and evaluation of employee performance in each activity associated with services provided by CUC. By using the ABC technique, accounting systems could capture more detailed information about specific activities, resource control procedures and cost allocation for each project while intensifying the responsibility of the directors of each business for the performance of its units. The introduction of the ABC technique reinforced the commercialisation of each service to determine its operating margin as autonomous units, as indicated in the following quote:

“For example, in accounting, [electricity] generation is a service, you see the balance sheet, income statement, how much goes to the cost system, and you find the cost per plant with the possibility of finding an operating margin”. (Manager1)

The interviewee stresses the usefulness of accounting information that enables the manager and vice-presidents of CUC to monitor the costs of their strategic business units. Detailed cost information produced from implementation of ABC has increased the power of accounting information as an authoritative resource to control and monitor employee activities, through performance indicators imposed on strategic business units. The signification structure of CUC as a business that should be profitable, was embedded in management accounting practices in the company, making managers and directors concerned about performance and efficiency. To hold managers accountable for CUC

strategic business unit performance, managers have had to rely on accounting information to organise their work. This enabled the strengthening of the logic of "rigorous control of resources" in CUC, through the implementation of the ABC technique that provides greater awareness of the rationalization of costs in public services.

The decision-making process about allocation and rationalisation of the costs is perceived as a process where there is space for subjectivity about the allocation of costs. A vice-president, who manages one of the strategic business units of CUC, stated:

"... there are cases in which one cannot agree with the explanation of how certain costs are allocated but at the end, there is an organisational discipline and the vice-presidency of finance is the owner of the accounting issues and finally they have the last say ..."
(Vice-president1)

This above quote illustrates that different points of view exist between organisational members in CUC, regarding how costs should be allocated. The quote also confirms the recognised authority of the finance vice-presidency on accounting matters in the organisation. The influence of the decisions of the vice presidency of finance comes not only from its strategic position, but also by the control that the role of the finance vice-presidency has over accounting information as an authoritative resource. The power over non-material resources such as accounting information has an impact on how the performance of business units in CUC will be reported and evaluated.

From the point of view of the general manager, to make employees aware about

the cost allocation and hold them accountable for the performance of their units, required a cultural change impacting on employee daily activities. In order to reinforce that culture, other management accounting practices were introduced in order to ensure that employees, in the different organisational levels, have a commitment to controlling their performance (Garcés 2004). Thus, a tool called “cronos” was incorporated in the company, to ensure employees allocated their daily work time to the activities of the company. The analysis of the usage of the “cronos” tool in CUC will be developed in the next section.

6.2.3.2 The “cronos” as a management accounting tool

This section will show how “cronos” was used in CUC as a management accounting tool that sought to spatio-temporally report in detail the activities of employees, enabling control over the space and the activities of individuals. The section also shows that among interviewees there were different views about actual use of the tool “cronos”.

The "cronos" tool was introduced in CUC to calculate unit costs more precisely by allocating the wage cost of each activity of the company. The connection of the ABC technique with the cronos tool sought to control the activities of each employee, by quantifying the detailed time expended in each activity centre. To achieve this, each employee had to record daily in the “cronos” tool, the time spent and the activities of value they contributed during the workday. The allocation of wages cost and how other

associated resources are allocated, are based on the results of the “cronos” tool.

The “cronos” tool shows different cost centres such as: growth of electricity, water or gas services, commercial vice-presidency, customer assistance and so on. Employees must tick the box to state in which cost centres they worked during the day. The system should show the percentage of work for each cost centre. The idea of self-reporting and self-monitoring their daily activities through the “cronos” management accounting tool generated certain difficulties among CUC employees. For example, one employee interviewed, stated:

“I struggle a lot with the “cronos” because this tool has a small set of activities and my work is difficult to classify within the existing categories” (employee3).

The above quote suggests that the definition of activities in the “cronos” are not clearly segmented in time and space. This makes it difficult to identify how employee activities contribute precisely to the performance of the company. In addition to the difficulty described in the quote, the usage of the “cronos” observed during the fieldwork, illustrated the possibilities of employees escaping the detailed control of their practices. For example, during a visit to CUC offices, it was observed that employees resisted the daily and hourly supervision of their work through this tool. One way they resist the use of the "cronos" is to mark random cost centres rather than marking actual cost centres worked in the day. The following quote is the response of an employee about this issue:

“It would have been a very time-consuming task to calculate to which cost centres I had actually provided services during the day and so I preferred to tick all of them”. (Employee5)

The above quote provides an example of how extensive control leads to organisational resistance through inaccurate reporting of the spatial-temporal location of their tasks in terms of activity centres. This reflects the agents’ possibility of exercising power, since they create the information with which they will be evaluated, and therefore have the possibility to cover or make up the information (Roberts and Scapens 1985). The following sub-section will discuss the use of the balanced scorecard in CUC.

6.2.3.3 Balanced scorecard

The balanced scorecard was introduced in 2007 with the aim of enabling a more detailed monitoring of strategic performance measurement. It is important to note that the effective use of balanced scorecard throughout the organisation started in 2012, because the company’s CEO at that time, according to some interviewees, was a professional sensitive to financial issues who valued the use of this tool. The use of the balanced scorecard was proposed to reinforce the prior existence of a culture of monitoring of financial indicators and indicators of the operation of services in CUC.

The balanced scorecard has been used to support the long-term planning approach and to control the performance of the different areas of CUC at a general level by establishing an EBITDA target for the organisation. Tracking the EBITDA target,

through the balanced scorecard indicators, sought to reinforce the responsibility assigned to each director for the results of each strategic business unit. The indicators chosen were those that were thought to align with the strategic objectives of the organisation. The aim of reaching an EBITDA target has been expressed as a strategic target for the company that seeks to obtain an EBITDA of at least US \$ 5,500 million by 2022 (CUC 2012c).

During fieldwork, it was observed that employees from different levels of the organisational structure were aware of the EBITDA target and there was a shared view about the relevance of working towards achieving it. However, there was also some evidence of a questioning attitude about the direct relation between the strategic goal of the company, the performance indicators and the daily activities of employees. One interviewee, who works in the risk management area, stated:

The elements of the current strategy of CUC are too simple. So, the balanced scorecard indicators connected to that strategy are also too simple making them useless to guide my daily work (employee3).

An analysis of the interviewee response shows that the abstract financial indicators, set up in the strategic goal of CUC, does not appear to guide the everyday practices of some organisational members. Among organisational members, a change was perceived in the communication of the performance indicators after the balanced scorecard was introduced in CUC, which is alluded to in the following quote:

Nowadays we receive massive messages about EBITDA targets since the balanced scorecard started to be used. Before this management tool,

we did not know the high-level targets of CUC, however, employees from the lower organisational level had very clear indicators of their work (employee3).

The above quote reflects the CUC effort of communicating the EBITDA target to organisational members. During fieldwork, it was observed that employees know about the target but they were not always aware of how their work contributes to achieving the EBITDA target of the company. This can be seen by the following interviewee response:

10% of my performance relies on if CUC achieves its EBITDA target but they do not understand that my work is not related to income generation and costs, and expenses generated by my unit are not controllable at all (employee3).

The above comment suggests that in the daily activities it seems to be difficult for employees to incorporate the achievement of the current EBITDA target in their work, especially when it is not possible to establish a direct relation between the employee's work and the measurable elements of the financial target. Among CUC directors, there is also a shared view that further work is necessary to educate CUC employees to connect their operational tasks and specific contribution to the EBITDA of the company. To achieve this, the balanced scorecard is currently complemented with a tool called "profit tree framework". The purpose of this tool is to show each employee how they can contribute to achieving the EBITDA objective. This "profit tree framework" makes the financial implications of their task more visible. The idea is to increase the awareness of each employee by clarifying how his or her work is related to CUC group targets. The following section, will discuss recent management accounting tools introduced in CUC.

6.2.3.4 Recent management accounting tools in CUC

The function of management accounting practices has become key to integrating the new companies into the CUC business model, after the reconfiguration of the company as a conglomerate. During fieldwork, it was possible to observe the importance that was given to the introduction of new management accounting tools at the annual accounting meeting in 2014. It is a meeting of all group accountants within the CUC group. During the annual accounting meeting it was stated that the management accounting practices in CUC were going to be deployed through IT tools oriented to management control of performance.

To monitor and to achieve the EBITDA target, new financial management platforms were introduced and adopted for the whole CUC group. Examples of these financial management platforms introduced in CUC were commercially known as “Hyperion” and “QlikView”. Both platforms were used to connect the information in CUC to monitor in detail how the subsidiaries contribute to the EBITDA target of the group. “Hyperion” seeks to ensure data integrity and improve reporting efficiency. Once the financial data is registered in the “Hyperion” platform, files are generated to feed “QlickView” system to consolidate, search and visually analyse the financial data. “Hyperion” and “QlikView” were useful to consolidate accounting information of the

whole CUC group and to prepare the first financial statements under full International Financial Reporting Standards (IFRS)²⁸ in 2014.

The aim of introducing these tools was to give information to users to identify whether the financial goals of each strategic business unit are achieved or not. The following quote shows how the goals can be monitored through the automatic report once the accountants of each subsidiary feed the information into the Hyperion system:

This software [QlikView] is very powerful in presenting reports to a board of directors to show them an executive report and to show information in detail if it is required. For example, if they want a breakdown of income to know why they are 6% over budget, I can tell them if it is related to [service] tariffs, if it is an issue of more customers or if it is a matter of a higher demand [of services]; it can all be done with the tool " (Manager1).

This quote exemplifies how accountants of CUC give detailed information about the monitoring of financial targets during the board of directors' meetings. These practices reflect how managers can exercise power through accounting information as a non-material resource that enables assessment of the performance of organisational members (Roberts and Scapens 1985, Conrad 2005). The performance of directors is assessed through accounting information, which has an impact in their strategic business

²⁸ The General Accounting Office of Colombia created a model of "convergence by adaptation" in order to apply international standards of financial information in public entities. In doing so, the public entities were classified into three groups. The first group is made up of the state public enterprises that are internationalised which apply full International Financial Reporting Standards (IFRS), which is the case of CUC. Government entities (Nation, Departments and Municipalities) should apply modified IPSAS (International Public Sector Accounting Standards). Decentralised entities, which do not collect resources from the public, nor issue negotiable securities on stock exchanges, should apply adapted IPSAS.

units, because new projects may not be approved if the directors do not meet the goals committed to in previous projects.

The detailed monitoring of resource management of projects was intensified in CUC in 2014 through the introduction of the zero-based budgeting methodology. This methodology changed budgeting practices that had been developing in CUC since its foundation. This change sought to eliminate the practice that employees increased their spending at the end of the year, regardless of whether the expenses were necessary or not, as a mechanism to ensure that its budget was not cut the following year. Some of the circumstances that led to this change in CUC are reflected in the response of one of the interviewees, who works in the risk management area:

“We had periods of financial boom and people used to overestimate the budget to have a “financial cushion”. The zero-based budgeting was introduced to change that practice” (employee3).

The quote reflects that the budgeting practices in CUC still had the space to introduce employees’ budget-maximizing practices to prevent overestimation of figures. Instead of budgeting, using as a starting point the historical expenses, the company began to analyse the company's expenses one by one, while identifying and deciding whether they contributed to the strategic objectives of the company or not.

The analysis of the management accounting practices in CUC reveals that these have been developed in CUC to support management, in ensuring that they have the information and techniques necessary to ensure the strict control of the resources, and

that revenue targets are achieved that cover expenses and costs of services. Management accounting practices as control actions become a mode through which the distribution of resources is exercised, thus supporting CUC to act as a profitable business. The following section will outline the theoretical issues and analysis of the management accounting practices based on structuration theory. The findings of this research will also be related to previous studies in the field of management accounting in emerging economies by highlighting what has been found that is different or similar to the analysis in the CUC case.

6.3 Theoretical discussion and analysis

This section considers theoretical issues and analyses the findings of this case study. The section discusses key insights from the theoretical approach of this research based on structuration theory. The key insights are: management accounting practices as analytical constructs that integrate not only situated recurrent (inter-) actions but also the structural principles that underline those social practices (Englund and Gerdin 2008), accounting information as a non-material resource, the notion of reversible time and signification, domination and legitimation dimensions of the structure. These insights are useful to understand how imposing certain accounting techniques and accounting-related strategies reinforced control and efficiency in CUC. Later, the section discusses the findings of this research and compares it with some previous studies in public sector management accounting practices in emerging economies. Based on this analysis, this section will argue that management accounting practices enabled CUC to meet the

normative expectations from multilateral development banks established in the loan requirements that were imposed on the company, which led to the development of a culture of “rigorous control of resources” throughout its organisational practices.

Management accounting practices in this research are considered from a structuration theory lens as actions towards controlling material and non-material organisational resources. Management accounting practices are conceived as situated social practices of agents that are influenced by broader social structures. The analysis of the management accounting practices in CUC is based on the premise that these are tied to the context because social structures are embedded in the practices of agents. The information that management accounting practices produces is defined from structuration theory, as a non-material resource that allows control over the practices of agents (Roberts and Scapens 1985, Macintosh and Scapens 1990, Englund *et al.* 2011).

The concept of accounting information as a non-material resource for controlling the practices of agents provides insights about how structures of signification, domination and legitimation were embedded in CUC to reinforce a "rigorous control of resources". The development of this practice of control was continually attributed in the interviewee responses to the early interaction of CUC with multilateral development banks. Thus, it can be said that the requirements from multilateral development banks were institutionalised in CUC through its management accounting practices, especially by means of the accounting-budgeting-planning triad.

The triad of accounting (entity-accumulation of capital), budget (resource allocation) and planning (control-order) practices were integrated to ensure the fulfilment of the financial indicators imposed in the loan requirements from multilateral development banks (León Paine 2005). This triad acts as a modality that mediates between the structures and action on the proposed financial objectives. Macintosh and Scapens (1990) argue that in the structure of signification, accounting modalities are useful to interpret past, present and future actions of organisational members, regarding accounting categories such as: profit, cost, income and so on. In the structure of legitimation, accounting modalities establish what is correct or incorrect with relation to financial expectations, and in the structure of domination, the accounting modalities involve techniques and strategies to enable a control over activities of organisational members (Macintosh and Scapens 1990).

The accounting-budgeting-planning triad re-creates versions of the past that enable the CUC agency to plan for the future and connect with the present (where past and future alternatives meet). Put differently, accounting practices look back on past experiences to plan the present through the budgetary practices and future actions of the organisation. This feature of CUC can be related to the reversible time of social institutions outlined by Giddens (1984). Giddens (1990) draws on Lévis-Strauss to define reversible time as the temporality of repetition where the past is a means to organise the future. This reversibility enables the connecting of the different paths of space-time to reconstruct the past, present and future experiences through the institutionalisation of

routines. This connection between planning, budget and accounting and its reversible time is expressed in the following graph:

Figure 5: Reversible time of the accounting, budgeting and planning triad

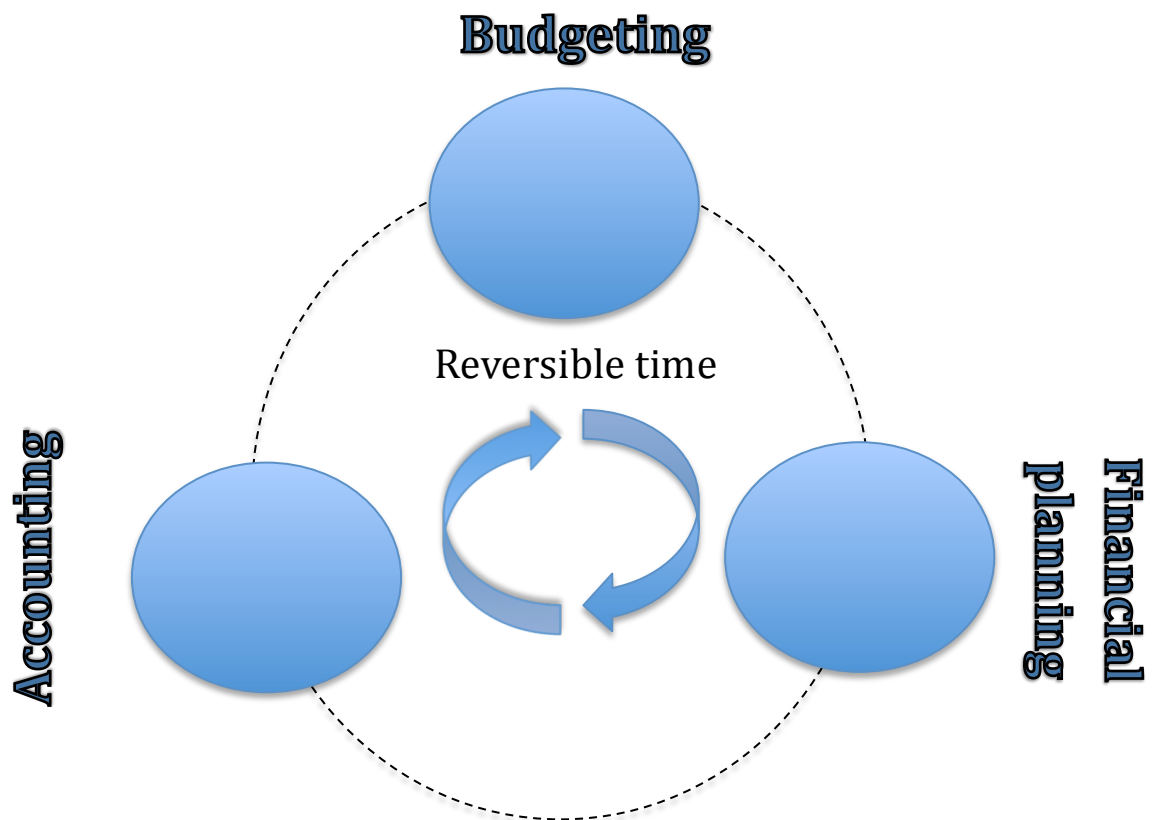


Figure 5, above, expresses how accounting recreates a past by means of representations of economic facts and connects them to the future through planning, which is then enacted annually by means of the budget. The accounting-budgeting, planning triad generates time rhythms that are predictable by means of cycles. The triad has helped to embed a dimension of time in CUC through establishment of financial year, monthly budget, weekly financial reporting, and daily cash statements. Both the

past and the future can be brought into the present by accounting (Seal *et al.* 2004). Thus, the flow of daily organisational interactions in CUC, and reflective records, makes the organisational members assume a representation of their past experiences, through the accounting-budgeting-planning triad, planning its present and future with this information. In this regard, Giddens (1984) emphasises that "double-entry book-keeping is a device which 'stacks' past events as well as anticipating future ones" (p.152).

Indeed, Giddens (1984) terms double-entry bookkeeping as a kind of time machine that enables continuous and long-term evaluation of capital changes, comparing the value of assets at the beginning and end of a period, which is essential for the establishment of capitalist enterprises. Double-entry bookkeeping enables the control and self-regulation of the practices within organisations. In capitalism, accounting reflects the increase in the stock of wealth through capital flows (Gómez 2004). Double-entry bookkeeping promotes an instrumental rationality of capital, from which costs and expenses are articulated for such purposes as income to generate profits (Villegas 2009).

It can be said that management accounting practices connected in the accounting-budgeting-planning triad have participated in the modernisation of CUC to realise its profit objective expressed in constant pursuit of profitability and delivering technical rationality for management (Villegas 2009). Therefore, instrumental rationality of capital is essentially the efficiency of the process through which accounting benefits the organisation in the maximum utilisation of its capital. The idea of efficiency requires accounting as a technical ensemble that validates and enables its measurement and verification. The verification of capital changes has required the assignment of

responsibilities to the employees of CUC, on the performance of the business units and the evaluation of results, according to the agreed objectives. Results are expected in a specific time and this discipline is possible through the accounting-budgeting-planning triad.

The development of management accounting practices in CUC may be analysed from the dimensions of signification, domination and legitimation of structuration theory. From a structuration theory perspective, the management accounting tools can be conceptualised as modalities, which do not produce social structures by themselves but are the means that enable the articulating of agency and structure in the reproduction of social structures (Roberts and Scapens 1985, Macintosh and Scapens 1990, Englund *et al.* 2011). Social structures contain rules and resources from which CUC is conceived as a business that must be profitable. The management accounting tools, as modalities, mediate between the meaning of CUC as a profitable business and the social actions that reproduce those meanings. In this way, the meaning of CUC as a profitable business is reproduced through management accounting practices, which enable establishing routines and regularised practices that standardise some behaviour modes within the organisation.

According to Giddens (1990), agents are embedded through their memory, which enable them to recapitulate past experiences and connect them with the continuity of the present and future actions. Thus, agents are permeated by structures through the recursive character of social life, where past and future are connected to a continuous

present of individual lives. This connection, as argued by Giddens (1984), is possible through the ‘psychological mechanisms of recall’, which enable reflexive monitoring of action (p.49). This reflexive monitoring of action refers to the ways in which agents register the flow of their activities and those of other agents, including social and physical aspects immersed in the context in which those agents partake.

This research found that accounting information produced by the accounting-budgeting-planning triad represents part of the organisational memory of CUC, acting as a recall mechanism. This recall mechanism enabled the remembering of the actions of past times, the reinforcement of efficiency meanings, and the explanation and justification of why financial targets are met or not. Accounting information creates a link between budgeting and planning information through the updated and continuous maintenance of archives that constitute the organisational memory of CUC reinforcing its long-term approach. The long-term approach at CUC was strengthened in turn through the influence of broader social structures (for example loan requirements from multilateral development banks to CUC).

The ways in which financial indicators are monitored through management accounting practices in CUC makes more evident the articulation of signification, domination and legitimation structures embedded in the company's practices. Examples of the orientation of CUC as a profitable business can be seen through the current strategic objective of the company that contain rules of signification where the achievement of an EBITDA target becomes a legitimated organisational goal. The

signification, legitimation and domination structures are embodied through the management accounting practices that communicate, monitor and legitimise which activities are meaningful or not, to achieve the EBITDA goal.

CUC has forged a culture of rigorous control of resources that enabled the company to adopt new management accounting techniques derived from the NPM reforms in the Colombian public sector during the 1990s. For example, the introduction of the ABC technique in CUC was related to external pressure coming from the new regulation in 1994 that made mandatory its application for public utilities in Colombia. The application of the ABC technique was coupled with the organisational learning process of CUC that established responsibility centres decades before regulation was introduced.

Similarly, the introduction of other techniques, such as, “cronos” in CUC reflects an attempt to quantify the performance and the contribution of each employee to the activities of the company. The functionality of the management accounting tool called “cronos” is commensurate with the definition of management accounting practices given by Puxty (1993):

“... a set of social practices that delineate the space within which the activity of the workforce might be made visible and susceptible to rational calculations” (cited in Wickramasinghe & Alawattage, 2007, p.12).

This quote explains that management accounting practices can redefine space to allow greater control over employee activities. Similarly, the notion of space-time

distance granted by Giddens (1990) enables an analysis of how accounting participates in the design of spaces, without necessarily having a face-to-face vigilance between subordinates and subordinators. Accounting calculations contribute to setting goals that measure the performance of individuals without the need for direct control over their activities (Carmona *et al.* 2002). The “cronos” tool introduced in CUC has the potential to function as a time-space ordering apparatus, because it requires employees in CUC, to quantify their performance in relation to a specific time. Such control enables disciplinary action at work without direct oversight.

This analysis of the management accounting practices in CUC highlights the constitution of the public conglomerate as a paradigmatic case of the application of management ideas in the field of public utilities in Colombia. The paradigmatic character lies in the ability of CUC to connect the financial planning with budgeting and accounting systems for each project of the company. Accounting has been the basis of financial planning and budgeting in CUC to establish a long-term financial planning approach and a detailed control of resources.

The way the accounting-budgeting-planning triad operates in CUC may contrast with what has been found in other studies of public organisations in emerging economies. It has often been suggested that public sector management accounting systems, in emerging economies, are more ceremonial rituals to obtain external legitimacy than formal rational systems to articulate long-term planning and control (Chandana *et al.* 2007). Similarly, De Araújo and Cullen (2012) found that before the privatisation of a

public electricity company in Brazil, management accounting practices were used more as ceremonial tools than mechanisms to support decision-making processes.

Along the same lines, Jones and Sefiane (1992) observed a modest use of accounting information to support decision-making process and control in four state-owned companies in Algeria. The authors stated that accounting was more a legal requirement to meet external authority controls than a key tool to achieve profit targets. Similar observations were made by Alam (1997) when the author compared budgetary processes in two state-owned organisations in Bangladesh. The findings of Alam (1997) study suggest that there were uncoupling functions in a high uncertainty budgeting process. The budget was used more to handle management external relationships between the company and institutional actors than to support organisational management tasks.

In studying Indonesian local governments, Ni Putu *et al.* (2013) emphasises that the performance measurement systems in the public sector are merely financial tools that are obstacles in obtaining a broader view about a comprehensive institutional situation. Ni Putu *et al.* (2013) argue that information produced through performance measurement systems are used more symbolically than functionally because of the lack of institutional control in less developed countries, which enables the occurrence of corrupt practices and inefficiencies in public organisations. Similarly, Iyoha and Oyerinde (2010) argue that there is a lack of accounting infrastructure and accountability practices in the management of public expenditure in Nigeria. For instance, the authors found that budget

planning in Nigeria and its effective implementation has become more of an annual ritual than a relevant tool to ensure integrity in the public expenditure.

In contrast to previous studies where management accounting tools have been shown to be only ceremonial rituals to obtain external legitimacy, the findings of the CUC case suggest that the accounting-budgeting-planning triad in the company has become more a management accounting tool than a legal requirement. The analysis of the CUC case found that the company has developed a long-term financial planning approach through management accounting practices. This long-term financial planning approach has been underpinned by structural conditions such as: managerial autonomy of CUC, its early application of accrual accounting principles and the accounting-budgeting-planning triad. These structural conditions have enabled the company to meet the requirements from multilateral development banks and embrace the reforms led by these institutions that ensures CUC functions in the intended manner.

6.4 Conclusions

To summarise, the historical development of CUC described in the previous chapters gave a framework for connecting how and why management accounting practices were implicated in the transformation of CUC, and how new management accounting practices were introduced in the company. Observing the development of these management accounting practices in the framework of CUC transformations, enabled a broader understanding of these practices in the company by showing how and

why social structures were shaped and embedded in those practices. This research found that the management accounting practices in CUC were made up of interrelated aspects such as: the influence of multilateral development banks, the development of a long-term planning approach and the technostructure in CUC.

These interrelated aspects facilitated the introduction of features of NPM reforms in the company during the 1990s such as: unbundling CUC into corporatised units organised by product and moving towards cost-centred accounting. These features were reinforced through the organisational form of strategic business units and new techniques such as ABC. These new practices were legitimised by existing shared values in CUC, such as: the rigorous control of resources and the existing practices in CUC such as: the accounting-budgeting-planning triad and the responsibility centres.

Finding that management accounting practices can lead to efficiency through optimal resource use (Ahrens and Chapman 2004), may not appear to be a new finding. However, the analysed case gives insights about how and why structural conditions promoted the articulation of management accounting practices in reproducing efficiency in CUC. The early influence of the School of Mines, the multilateral development banks, the introduction of business-like practices and the support of a technostructure in CUC facilitated the reproduction of efficiency through management accounting practices.

Chapter 7: Summary and conclusions

This thesis seeks to understand how and why management accounting practices shape efficiency at CUC, a public organisation located in Colombia (South America). To achieve this, the thesis draws on the structuration theory of Giddens to analyse the interplay between agency and structure, which have influenced, and constrained management accounting practices and efficiency perceptions at CUC. The question that this thesis seeks to answer is related to the following objectives:

- (i) To characterise CUC transformations by identifying the extent to which its management accounting practices and efficiency were connected to the introduction of development models in Colombia.
- (ii) To explore the construction of efficiency as a corporate value in CUC.
- (iii) To explore connections of management accounting practices in shaping efficiency in CUC.

This final chapter delineates the contributions of the study. Section 7.1 provides a summary of the empirical insights of the thesis. Section 7.2 identifies the contributions of this work. Section 7.3 discusses the limitations of this study and considers areas where further research is needed, and section 7.4 provides conclusions of the thesis.

7.1 Empirical insights

There is little data about how the reforms of the household service sector in an emerging economy, such as Colombia, have shaped efficiency through management accounting practices. Contrary to the widespread perception that public service companies are inefficient (Boehm 2005, Andrews and Entwistle 2014), the studied case provides new insights into the particular way this conglomerate underwent the reforms of the household service sector in Colombia and the role that management accounting practices played in shaping a perception of efficiency.

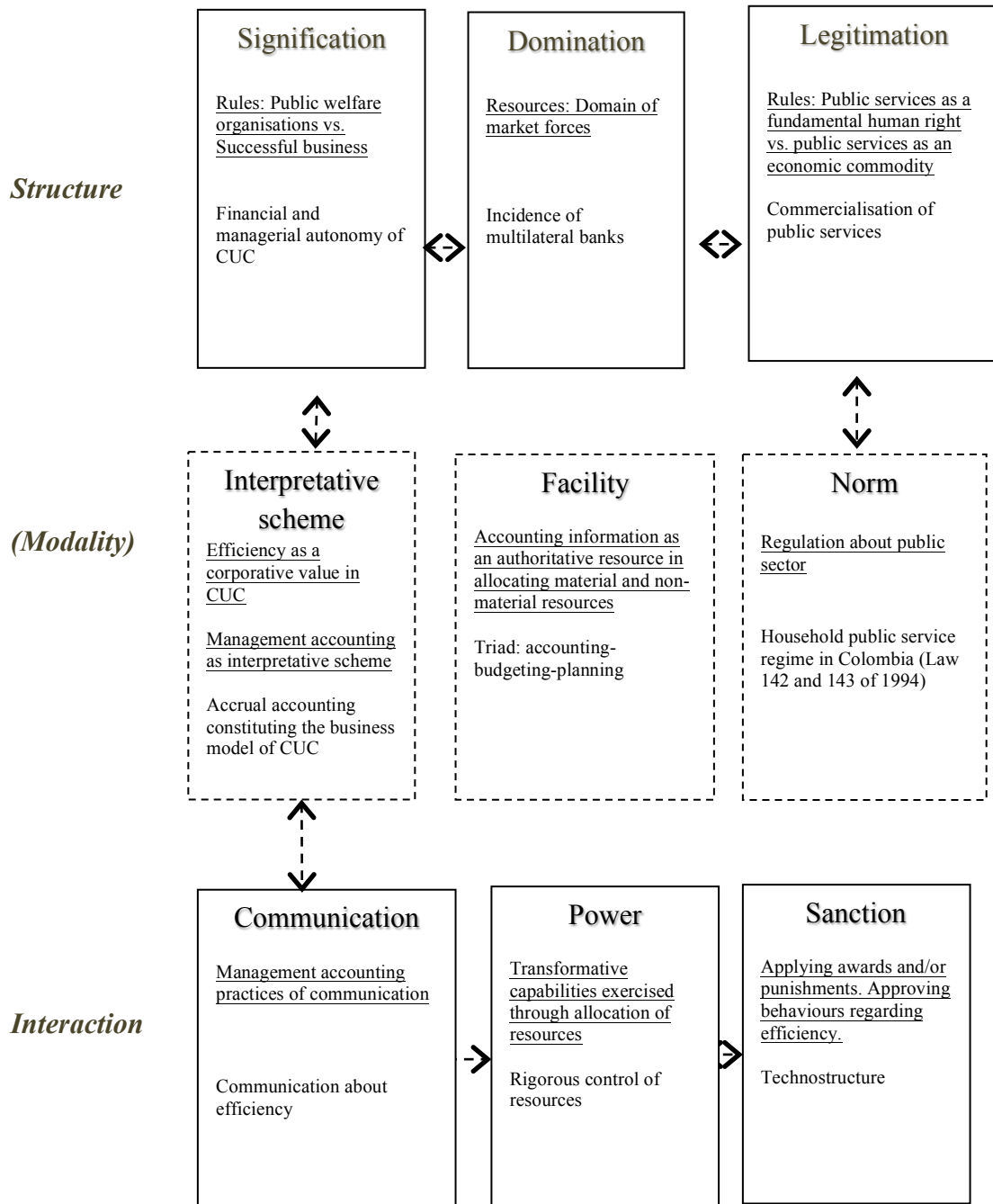
It is argued that an understanding of the nature and extent of how management accounting practices have shaped efficiency at CUC demands a consideration of social structures and agency, which interplay in these practices. When considering the significant influence of multilateral development banks at CUC, structuration theory helped in understanding how management accounting practices shaped efficiency in the company through the agency of the employees who form its technostucture.

As is the case of prior work, the application of structuration theory has made it possible to consider social actors, whose agency was considered key in the constitution of CUC and the role of management accounting practices in shaping an autonomous public organisation. For instance, Lawrence *et al.* (1997) draw on the structuration theory to generate an understanding of how the role of accounting systems in public service

reforms can be understood (see chapter 3). In this framework, Lawrence *et al.* (1997) studied the forms of structuration to analyse the signification, domination and legitimation structures implicated in the reform processes of the healthcare system in New Zealand before and after its commencement in July 1993. Conrad (2005) made a similar analysis by studying the structures of signification, domination and legitimation before and after the privatisation of British Gas to explain how management accounting practices helped to introduce profitability criteria within the culture of the company.

Throughout the empirical chapters, this thesis developed an understanding of how and why management accounting practices have shaped efficiency at CUC over time. The historical framework showed how and why the School of Mines, multilateral development banks and the technostructure influenced the construction of efficiency through management accounting practices at CUC (Aristizábal *et al.* 1988, López 2005). From the structuration theory approach, the thesis argues that the efficiency-orientated reforms in the household service sector in Colombia during the 1990s reinforced three characteristics of the business model of CUC that already existed and promoted the configuration of the company as a profitable conglomerate. These characteristics are managerial autonomy, long-term financial planning approach and technostructure, which are articulated through management accounting practices generating a culture of rigorous control of resources. The following figure presents the empirical insights drawn from the analysis of management accounting practices and efficiency in CUC. This is linked to the Lawrence' *et al.* (1997) framework adopted in developing this thesis:

Figure 6: The applied theoretical approach for understanding management accounting practices and efficiency in CUC



Adapted from Lawrence *et al.* (1997)

This thesis argues that the technostructure of CUC shaped the values of employees towards the rigorous control of public resources and imbued its technical rationality, which protected the administrative autonomy of the organisation (Aristizábal *et al.* 1988, Varela 2011). In defending the administrative autonomy of CUC, management accounting practices were fundamental in exercising control over the company resources to prevent misappropriation of resources by networks of politicians. Prior work shows that the capture of management accounting control mechanisms by networks of politicians, who appropriate public resources to favour supporters of their political parties, has been a major obstacle to efficient management of resources in public organisations in emerging economies (Boehm 2005, De Renzio 2006, Ni Putu *et al.* 2007, Varela 2008b, Iyoha and Oyerinde 2010, Otusanya 2011, Ni Putu *et al.* 2013, Goddard *et al.* 2016, Van Helden and Uddin 2016).

In conclusion, this thesis has offered evidence of how management accounting practices shaped the perception of efficiency defined as doing more with less, which became a predominant daily organisational practice at CUC. The findings suggest that the perception of efficiency in practice has been attached to different spheres of the company. This perception of efficiency shaped by management accounting practices is based on the characteristics of the business model developed by CUC. These organisational characteristics formed by the interaction between agency and structure have enabled CUC to make a difference in its operation with respect to other organisations in the field of the household service sector. The business model of CUC

not only leads to the company being perceived as an efficient organisation, but also enables it to keep its status as a public entity.

7.2 Contribution to knowledge

This thesis has a number of empirical, theoretical and policy-making contributions. Firstly, there is an empirical contribution through the provision of a detailed qualitative study that explores the role of management accounting practices in shaping efficiency in the specific setting of CUC. As was stated in the literature review, previous work studying efficiency in public utilities assumes efficiency as an objective and measurable indicator. In contrast, this thesis presents empirical evidence based on interviewees' perceptions on efficiency and how these have been shaped through management accounting practices. This research responds to the call made by Wickramasinghe and Hopper (2005) about how culture, politics, ethnicity, religion and historical factors are embedded in management accounting practices. In doing so, this research found that the permanent pursuit of efficiency at CUC has been based on cultural values led by the principle of rational calculation of daily behaviour (Mayor 1989). This rational calculation of daily behaviour is characteristic of the idiosyncrasy of people who live in the region where CUC operates (Parsons 1949).

Secondly, in terms of theoretical contributions, the thesis has attempted to extend the framework, as presented by Lawrence *et al.* (1997), which is based on structuration theory. Lawrence *et al.* (1997) analyse the institutionalised modes of interaction in

accounting systems and systems of accountability before and after the health sector reform in New Zealand initiated in 1993. In theorising the empirical evidence in the fieldwork, this thesis extended the scope and application of structuration theory. For instance, the thesis turned back and forth to examine the value of Lawrence *et al.* (1997) framework for studying a public organisation within the Latin-American emerging economy of Colombia. This thesis contributes by providing an understanding of how structure and agency were embedded in shaping efficiency through management accounting practices at CUC. The findings suggest that management accounting practices had an active role in reinforcing a perception of efficiency in CUC through the detailed reporting of activities carried out by the organisation, the rigorous control of resources exercised by the technostructure and the detailed monitoring through performance indicators reinforced with the demands of multilateral development banks.

This research also contributes to the extension of structuration theory. While the relevance of structuration theory is well-established in the academic field of management accounting research in many sectors (Roberts and Scapens 1985, Scapens 1990, Englund *et al.* 2011), there is little research in the field of public sector utility services, studied through the lens of structuration theory with few exceptions such as Conrad's (2005) and De Araújo and Cullen (2012) works. As structuration theory does not offer any pre-established causal relationship among variables that explain the studied phenomenon, the theorisation of empirical evidences about how social structures are embedded in particular settings helps to enrich the theory. In addition to using structuration theory in a specific context, this study provides cross-references between the theory and empirical

research, which has been a criticism of structuration theory (see Clark, 1990, cited in Lawrence et al. (1997). The richness of theorising about the empirical evidence contributes to bridging the gap between the abstract analytical categories of structuration theory such as: signification, domination and legitimation structures and how rules of meanings and resources are particularly embedded in each setting.

A major contribution of this thesis to the current knowledge of efficiency and management accounting practices is obtained by an in-depth qualitative study, which has provided additional insights in understanding efficiency in public utilities. This is specially by exploring the role of management accounting practices in shaping efficiency in a public utility conglomerate from a structuration theory perspective. From this perspective, the role of structure and agency is central to understanding how the very notion of efficiency has been shaped at CUC. The thesis reveals how and why the influence of the School of Mines, multilateral development banks and the technostructure shaped efficiency as a corporate value in CUC. In the form of corporate value, thereby guiding the rigorous control of resources through management accounting practices. The thesis emphasises how CUC has constructed and maintained efficiency by using management accounting practices. An issue which is yet to be a general feature of public organisations in emerging economies (Chandana *et al.* 2007, Iyoha and Oyerinde 2010, De Araújo and Cullen 2012, Ni Putu *et al.* 2013).

Thirdly, there is a policymaking contribution adding to the state policy debates about efficiency in public services. This thesis provides evidence about the recent

efficiency-orientated change at CUC and the implication of management accounting practices in this change. This change was supported by structural conditions such as: a previous culture of rigorous control of resources, earlier introduction of business-like practices and the development of a technostructure that seeks to protect the company from political intervention and contributing to intensifying its pursuit of efficiency. This thesis suggests that the pursuit of efficiency in the context of NPM reforms requires structural conditions to enable companies to be efficient in managing public resources as has been argued in extant public sector management accounting in emerging economies (Tillema *et al.* 2010, Van Helden and Uddin 2016).

The thesis has contributed to state policy debates on efficiency by providing evidence about how management accounting practices shape efficiency in the household service sector. It can therefore be argued that there is a scope for potential policy implications by supporting the debates for the future regulation framework of the utility service sector. The main lessons that can be drawn from the analysis of CUC concern with: the introduction of management accounting practices in the company which required institutional arrangements to promote efficiency in managing resources. These institutional arrangements are, among others, the managerial autonomy of CUC to minimise intervention by political parties, the establishment of rigorous hiring processes to prevent clientelism and patronage practices and the introduction of values and control practices that stimulate an appropriate allocation of resources.

The analysis of the CUC case questions the significance of privatisation as propagated by international organisations (Uddin and Hopper 2003), when it is claimed that privatisation of utility companies is needed because public organisations are perceived as inefficient in delivering and managing public services (Andrews and Entwistle 2014). The intervention of the State is still relevant in the provision of public utilities because the revenue captured by public utilities can support the development of cities. During the analysis of the data it became clear that the positive perception of efficiency at CUC has been attached to its ability to make profit. In this sense, the company has been not only self-financing but also CUC transfers 30% of its annual profit to the municipality to support social programmes.

7.3 Limitations of the study and areas for future research

This thesis is not without limitations. For instance, it would have been valuable to attend social interactions taking place among key actors at CUC involved in management accounting practices, such as: budgeting debates and performance assessment meetings. During fieldwork, it was not possible to obtain any approval from the CEO, vice-presidents and managers to gain access to these meetings. The lack of access to those social interaction systems have it challenging to draw on some analytical categories as stated in structuration theory, for instance: encounters, presence, co-presence, routines, routinisation, regionalisation, time-space distancing and social integration.

Next, there were some scope and scale limits in defining the studied phenomenon, which were necessary to meet the commitments of using structuration theory approach. For instance, Stones (2005) states that researchers who use structuration theory commit to identifying social structures embedded into situated social practices. Stones (2005) also argues that structuration theory-based researchers are tended to identify how social actors produce and re-produce social structures in their social practices. The acknowledgment of the commitments that researchers should make when using structuration theory as stated by Stones (2005) helped to give both agency and structure the same level of relevance during the research process. The balance between the agency and structure focus has been one of the limitations of the extant structuration theory-based works given that extant work is biased focusing either on agency or structure (Adhikari and Jayasinghe 2017).

The study of efficiency and management accounting practices at CUC could have given rise to a range of structures. However, this study is mainly focused on three issues developed before and after NPM reforms: the movement from state-led to market-led development, changes in the meanings of public utilities from welfare organisations to successful businesses and changes in the perception of public services as a fundamental human right to an economic commodity. Also, the views of social actors were limited to the interviews carried out during fieldwork to deal with the identification of situated social practices and wider social structures. Additionally, analysis of archives about CUC and the Colombian household service sector gave additional insights to understanding how and why management accounting practices changed over time. In this way during

the analysis it was possible to reveal that some connections were made between the long-term processes where social structures are produced and the situated social practices in the development of CUC. This approach enabled an understanding about how the set of agencies that converged in the company reproduced those wider social structures.

Regarding the areas for future research, there are several possibilities for the extension of this area. These include a comparative case study with other public utilities in Colombia, as well as in other countries, for example, EMCALI. It is claimed that EMCALI had a similar financial, operational and management performance to CUC at the end of the 1980s (Vélez Álvarez 2013). The comparison is relevant because even though the companies were constituted as autonomous public organisations, CUC is currently perceived as a more efficient company in the Colombian context (Varela 2011, Villegas and Julve 2012). CUC was able to successfully apply business-like practices that constructed a perception of efficiency while management control mechanisms in other utilities companies including EMCALI were literally captured by political parties, which might have adverse consequences in ensuring efficiency (Varela 2008b, Varón Rojas 2017). Thus, it would be relevant to carry out further research that compares how the perceptions of efficiency dominated CUC and EMCALI and the way different management accounting practices were applied to ensure efficiency. Similarly, it is important to consider a comparison of the perceptions of efficiency that different agents at CUC and EMCALI have internalised and its implications for management accounting practices.

Further research could be focused on the role of management accounting practices in ensuring managerial autonomy in public utilities. As this research revealed that managerial autonomy was a key element of the business model of CUC, and it would be interesting to develop deeper studies into how public utility companies ensure autonomy in managing public resources through management accounting practices. Another worthwhile case study could be constituted by a deeper exploration into views of efficiency taking into account the perspectives of operational workers at CUC. An ethnographic study can reveal what efficiency means in the everyday work activities of operational workers, what motivates them to work in an efficient way, how they internalise the idea of efficiency if they do and their understanding of the role of management accounting practices in ensuring efficiency.

A comparative study of public sector reforms about how efficiency is understood in other Latin-American public utility companies can provide another avenue to continue and extend this research. Similarly, it would be also interesting to study about how accountability is understood in different settings because even in the academic field, accountability has had different meanings (Almquist *et al.* 2013). For instance, in further research about CUC, it is worthy to study the type of accountability practices of the company and the contribution of management accounting to shaping these practices. The research can reveal how the accountability practices of utility companies can go beyond managing resources efficiently and the impact that such practices have on the society.

It would be also interesting to trace the development of efficiency at CUC drawing on other theoretical perspectives. For instance, it would be interesting to draw on Strong Structuration theory to trace efficiency as Stones (2005) has given more emphasis on external structure in particular power-position (Adhikari and Jayasinghe 2017). This may enable a delineation of how different social positions that different actors at CUC have occupied and contributed to the reinforcing of efficiency and applying management accounting practices.

Strong structuration theory was not particularly relevant for this study for two reasons. First, the use of strong structuration theory requires a research design that enables a deeper exploration of character traits, dispositions and the discursive orientations of agents. All these issues were not the main focus of this study and therefore were not fully captured in the collected data during fieldwork. Second, proposing a quadripartite nature of structuration, Stones (2005) has conceptually constructed a division between the external and internal structures. It is argued that this attempt undermined the core concept of duality of structure of Giddens' theory (Ashraf and Uddin 2015). A more in-depth analysis of Stones's (2005) strong structuration theory is therefore needed to assess its consistence with the ontological and epistemological assumptions of structuration theory adopted in the analysing of this study.

During the PhD process, the discourse theory of Laclau and Mouffe (2001) was also reviewed. Further research in the area of public sector management accounting can be informed from discourse theory for knowing how the political focus of the power can

be studied by using the category of hegemony. The study of public sector management accounting from these theoretical insights would enable an understanding of how political entities are shaped through the study of dislocated social structures (Laclau and Mouffe 2001). These theoretical perspectives may help in understanding how management accounting practices are adapted to the changes as demanded by an expanded reproduction of capital, which was considered in the analysis of this research.

7.4 Conclusions

This research provides empirical evidence about how and why management accounting practices have shaped efficiency in CUC. The study demonstrates that efficiency in the utility sector has been mainly studied by focusing on the measurement of technical efficiency as a ratio between inputs against outputs. This study seeks to explore perceptions of efficiency from the perspectives of interviewees and retrieving the company's historical data about the company. The research finds that even though efficiency is perceived from its everyday understanding of doing more with less, the perceptions of efficiency in CUC go beyond the relationship between input/output and become a corporate value. Efficiency as a corporate value guides the rigorous control of resources through management accounting practices, which have contributed to embedded social structures influenced from the School of Mines, multilateral development banks and the technostructure that have impacted on CUC.

The shaping of the perception of efficiency at CUC through management accounting practices relies on its rigorous control of resources; its long-term financial

planning approach and its technostructure. These structural conditions shaped by the interplay between agency and structures have constrained and have enabled CUC to make a difference in the provision of public services. For instance, the early adoption of accrual accounting practices enabled CUC to embrace public sector accounting reforms during the 1990s. Even though CUC could not resist reforms, the set of agencies that converged in CUC were able to make a difference and to retain the public status of the company even though the wider social structures as promoted by multilateral development banks suggested the privatisation of public service companies across the world (Andrews and Entwistle 2014).

The household service sector reforms in Colombia promoted the creation of the Superintendence of public services and the regulation commissions for water supply, electricity and communication services (Cabra 2011). CUC managers had the capability not only to adapt to new social practices derived from public sector reforms but also to envisage future practices and influence the regulation processes in the country that shaped household service sector reforms in Colombia.

These findings enrich our knowledge about how a Latin America public company in particular CUC has been influenced by wider and changing social structures from state-led industrialisation to market-led reforms. Promoters of market-led reforms have advocated that privatisation was an option for managing public services, since public organisations were not perceived as efficient in the management and provision of these services (Andrews and Entwistle 2014). This research shows that CUC has been perceived as an efficient and paradigmatic public organisation and the role that management accounting practices have played in shaping this perception.

Lastly, the thesis suggests that the construction of efficiency through management accounting practices in CUC occurred via the influence the School of Mines, multilateral development banks and the technostructure that shaped conditions to establish efficiency as a corporate value in CUC. Efficiency as a corporate value guided rigorous control of resources through a long-term financial approach and business-like practices that pre-existed at CUC before Colombia embarked on towards NPM reforms. The analysis provides evidence how NPM reforms reinforced management accounting practices carried out in CUC and how agents creatively made the changes and adjustments that enable a public utility conglomerate to function with the profitability criteria of private businesses. In this way, social structures of utility companies, as profitable businesses and public services as economic commodities, were reproduced in an organisation of public nature within a Latin American emerging economy.

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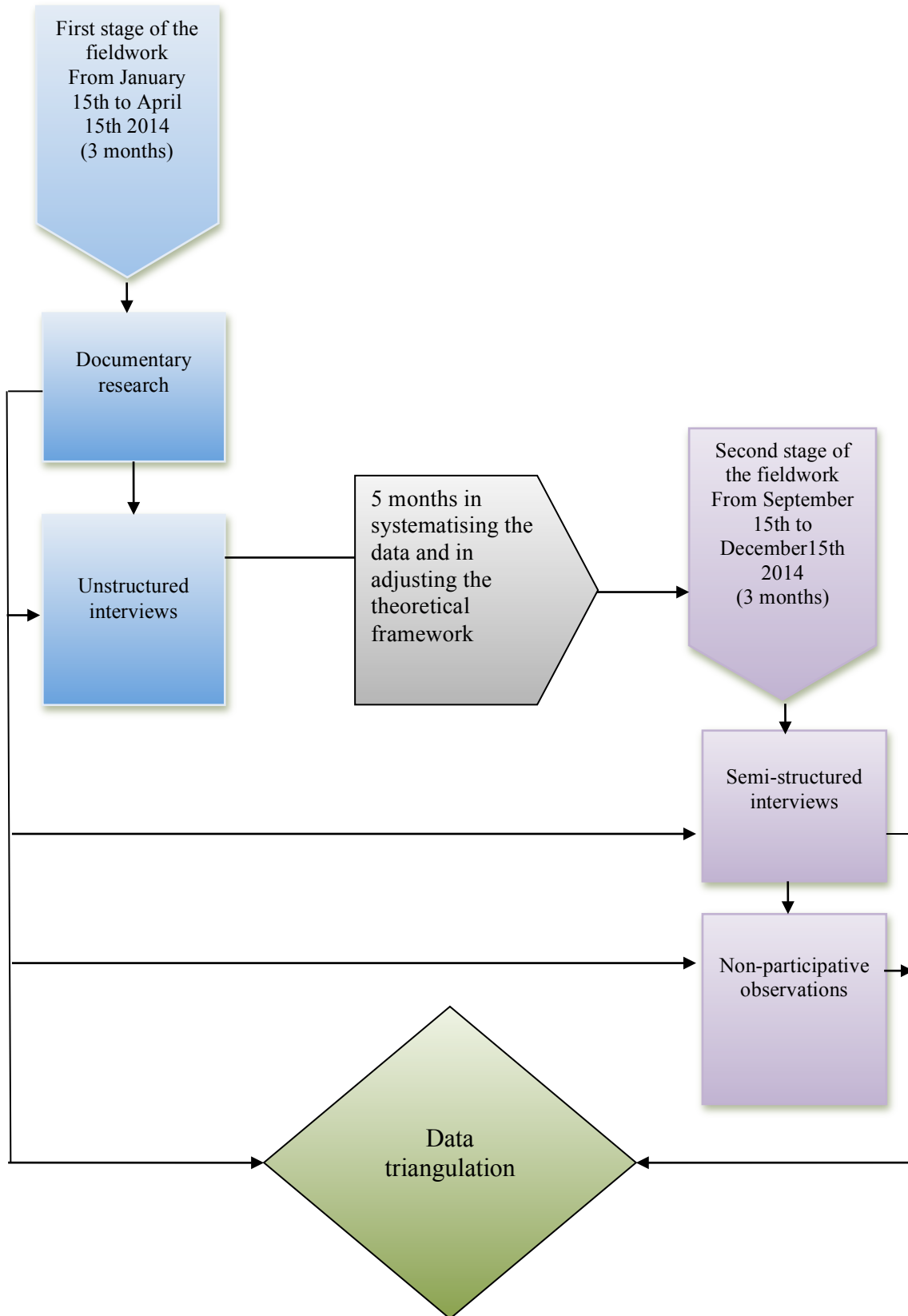
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Appendix 1: Fieldwork design



Appendix 2: Interview questions

1. For how long have you worked in CUC and in what positions?
2. What do you understand by the word efficiency in the context of public administration?
3. What must be the purpose of public services in public sector?
4. What do you consider to be the most important issues related to efficiency in CUC?
5. How do public policies meet public needs and demands?
6. How does public sector deal with conflicting goals? For example, how financial targets and social needs at the same time.
7. What do you consider the main factors for (in) -efficiency in allocating resources in CUC?
8. Have you compared CUC's efficiency with other public or private organisations? If so, what are the main similarities and differences?
9. Are there rewards (these can be symbolic) to motivate CUC employees to efficiently manage CUC resources? If so, what kind of rewards looks for budget-maximising behaviour toward efficiency savings in CUC?
10. Who defines efficiency criteria and resource allocation policies in CUC?
11. When do you have to make a decision that involves allocation of resources which is the value that you want to enhance? What are the criteria?
12. What are the most relevant criteria in managing CUC resources?
13. What are the criteria and elements used to allocate resources? For example, tariffs.
14. Is efficiency evaluated in CUC? If so, how?
15. Are there indicators of efficiency of each service (electricity, water supply)? What are those indicators?
16. Does CUC have indicators to measure the (in) efficiency of services produced? Examples of such indicators are: profitability, customer satisfaction, and market share.

17. Do people have access to efficiency assessment in CUC? How often do they review those efficiency indicators?
18. How does CUC measure the full range of inputs and processes involved in the provision of the services?
19. How do they get information to make decisions about the quantity of each input required to attain desired levels of output?
20. How is efficiency in time management defined in CUC?
21. Are there their policies cost saving and where are those savings concentrated?
22. What are the ways in which public services can be made more cost-effective in CUC?. For example:
 - Salary costs for professional.
 - Administrative, technical and ancillary staff.
 - Temporary staffing costs.
 - Human resource management systems.
 - Travel and subsistence expenses and so on.
23. What are the channels for communicating efficiency ideas in CUC?
24. How are management accounting practices implied in the calculation of efficiency?
25. What financial and economic controls in CUC relate to efficiency?



Appendix 3: Information sheet

Project: “The role of Management accounting practices in reproducing efficiency. Using CUC as a case study”.

Dear participant

I, CLAUDIA BARRIOS ÁLVAREZ, am currently carrying out research into: “The role of Management accounting practices in reproducing efficiency in CUC”. This research consists of:

- Analysing relevant documents,
- Talking to and interviewing managers and staff members from different areas in CUC.
- Observing management accounting practices in CUC.
- Carrying out focus groups.

The information will be recorded by means of taking notes, tape recording and pictures taken where possible and copies of relevant documents.

All information collected will be kept securely and will only be accessible by my supervisors and myself. If you are mentioned individually in any publications or reports then a participant number or pseudonym will be used and any identifying details will be removed. A list may be kept linking participant numbers or pseudonyms to names, but this will be kept securely and will only be accessible by myself and my supervisor.

Naturally, there is no obligation to take part in the study. It’s entirely up to you. If you decide to participate in the study and then change your mind in the future, you can withdraw at any point, even after the data has been collected. If publications or reports have already been disseminated, these cannot be withdrawn, however, these will only contain anonymised comments.

We would be very grateful for your participation in this study. If you need to contact us in future, please email me to cbarri@essex.ac.uk. You can also contact us in writing at: EBS, University of Essex, Colchester CO4 3SQ.

If you would like to ask further questions about this research project, please do not hesitate to let me know.

Claudia Barrios Álvarez.

Appendix 4: Consent form

Consent Form for case study of “The role of Management accounting practices in reproducing efficiency. Using CUC as a case study”

<i>Please tick the appropriate boxes</i>	Yes	No
Taking Part		
I have read and understood the project information sheet dated DD/MM/YYYY.	<input type="checkbox"/>	<input type="checkbox"/>
I have been given the opportunity to ask questions about the project.	<input type="checkbox"/>	<input type="checkbox"/>
I agree to take part in the project. Taking part in the project will include being interviewed, recorded (audio or video) and taken part of focus groups.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that my taking part is voluntary; I can withdraw from the study at any time and I do not have to give any reasons for why I no longer want to take part.	<input type="checkbox"/>	<input type="checkbox"/>
Use of the information I provide for this project only		
I understand my personal details such as phone number and address will not be revealed to people outside the project.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that my words may be quoted in publications, reports, web pages, and other research outputs.	<input type="checkbox"/>	<input type="checkbox"/>
<i>Please choose one of the following two options:</i>		
I would like my real name used in the above	<input type="checkbox"/>	
I would not like my real name to be used in the above.	<input type="checkbox"/>	
Use of the information I provide beyond this project		
I agree for the data I provide to be archived at the UK Data Archive.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that other genuine researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that other genuine researchers may use my words in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.	<input type="checkbox"/>	<input type="checkbox"/>
So we can use the information you provide legally		
I agree to assign the copyright I hold in any materials related to this project to Claudia Barrios Alvarez	<input type="checkbox"/>	<input type="checkbox"/>

Name of participant [printed]

Signature

Date

Appendix 5: Electricity tariffs of CUC from 1998 to 2015 for social stratum 4.

Year	Tariff (Colombian pesos)	Percentual change
1998	103.47	
1999	103.87	0.39%
2000	127.94	23.17%
2001	135.23	5.70%
2002	158.73	17.38%
2003	191.19	20.45%
2004	212.12	10.95%
2005	203.63	-4.00%
2006	210.19	3.22%
2007	223	6.09%
2008	271.41	21.71%
2009	298.65	10.04%
2010	329.83	10.44%
2011	360.25	9.22%
2012	367	1.87%
2013	364	-0.82%
2014	384.96	5.76%
2015	435.94	13.24%

Source: CUC

Appendix 6: Profit transferred from CUC to the municipality of Macondo 1996-2014. Figures in millions of US dollars

Year	CUC profit	Contributions	%
1996	492	52	11%
1997	385	87	23%
1998	163	78	48%
1999	178	43	24%
2000	209	45	21%
2001	252	135	54%
2002	92	60	66%
2003	193	50	26%
2004	310	136	44%
2005	371	224	60%
2006	440	143	33%
2007	551	268	49%
2008	594	232	39%
2009	770	287	37%
2010	740	443	60%
2011	786	411	52%
2012	992	475	48%
2013	843	614	73%
2014	745	423	57%

Source: (CUC 2007a, CUC 2008a, CUC 2009a, CUC 2009b, CUC 2010a, CUC 2010b, CUC 2011a, CUC 2011b, CUC 2012b, CUC 2012a, CUC 2013b, CUC 2013a, CUC 2014b, CUC 2014a)

Appendix 7: Internal report of CUC

This report has been communicated to CUC employees through an internal information technology called “the logbook”. The document content has been literally translated as follow:

1. Municipality transferences

Public ownership of CUC, one hundred percent of the municipality of Macondo, marks the main social impact of the company. By statutes, 30% of the net profits are transferred in an ordinary way to the budget of income and expenses of the Municipality of Macondo; and, through agreements with municipalities, extraordinary transfers can be made up to a limit that does not jeopardize the business viability and the financial health of the company. In recent years, these are equal to half of the company's profits annually and 25% of the development plans of the city.

2. High schools with quality

In order to celebrate the 50th year of CUC, the company delivered to the city in 2005, 160 billions of Colombian pesos to build and equip 10 schools and improve 132 educational institutions located in vulnerable and low quality of life areas. This project called “High schools of quality for Macondo” benefited 18,905 new students from strata 1, 2 and 3 and 139,121 students from 16 areas of the Macondo city and 5 villages. The community also obtained 189,000 new square meters of public space for encounters, research and recreation.

3. Sport and cultural sponsorships

CUC Group develops and supports open events that strategically aim to generate, sustain and strengthen relations with stakeholders, in order to develop the regions where it operates and increase the reputation of the business group. Each year, CUC contributes to about 300 city events, and it is a stakeholder in the preparation, and participation in competition, of several emblematic athletes of the country.

4. The “ARVI” park

The Arví Park is an environmental, cultural and recreational heritage for today and for future generations, and is located on land ceded by loan from CUC, for the enjoyment of the community. In addition, since 2015, CUC, the CUC Foundation and the ARVI Park Corporation execute joint projects in order to protect and restore the watersheds of the “Piedras Blancas” and “La Honda” creeks that supply the plants of purification of “Villa Hermosa” and “La Montaña”. They also participate in the building of a tourist

network in “Santa Elena”, the peasant market ARVI, guided ecotourism tours, archaeological heritage conservation and the strengthening of the ecotourism infrastructure.

5. Energy Research and Innovation Centre

In alliance with the “University of Antioquia”, the “Universidad Pontificia Bolivariana”, “the National University of Macondo” and the “Metropolitan Technological Institute”, CUC formed this collaborative project to develop new products and services for efficient use of energy, eco-efficient production and electricity markets. In 2017, this project will be liquidated after fulfilling its objectives, and leaving great contributions to the city with the training of many professionals, the strengthening of several research groups, and the capacity installed in the universities to continue working for the sake of innovation.

6. Social Management in Ituango

The social and environmental investment budget for the Ituango hydroelectric project is estimated at around 2.4 trillion (Colombian pesos), of which, 1.9 billion have already been executed. In social terms, this investment is reflected in productive projects, institutional framework, and the development of social welfare, health, education, housing, public services, roads and sports scenarios. In environmental matters there is the reforestation of 17,500 new hectares of dry forest and tropical rainforest. The Ituango project is developed with a deep respect for the people, the communities, customs and traditions. We are writing a history of personal and collective human transformation, contributing to improve the quality of life and a better future for inhabitants of the region and their sustainability.

7. Higher Education Fund of Antioquia

Through condonable credits, access is granted to the higher education of low-income students in the territories where the Group CUC operates. Through this fund, the CUC Foundation has invested 118 billion pesos in 123 municipalities of Antioquia. From 2013 to 2016, these resources have benefited 10,322 students.

8. CUC Library

It was inaugurated in 2005 and specializes in science, industry, environment and technology. CUC Library offers courses, workshops, conferences and free training activities that invite people to create, enjoy, learn and discover in a didactic way. It carries out more than 800 cultural and educational activities every year. More than 500 thousand people visit and use it every year.

9. Interactive Museum of Water

In 2000 the CUC Interactive Museum was inaugurated, and the CUC Foundation was created with the aim of managing it. After receiving more than one million visitors, in

2010, it underwent a process of transformation and redefinition of its theme and in 2012 it was inaugurated with the name of the Water Museum of CUC, as a city space dedicated to knowledge of water in its different states. More than 106 thousand people visit the museum that also carries out more than 400 environmental education activities per year.

10. Park of Wishes and House of Music

Since 2003, the “Park of wishes” has been a public space offering a wide variety of cultural and artistic activities. Since 2005, the House of Music promotes art and music in Macondo and metropolitan areas. During 2016, 2,342,565 people benefited from the 952 cultural activities, 153 film projections, 37 activities academic activities, 65 environmental education activities and four art exhibitions, all held in the Park of Wishes and the House of Music.

Appendix 8: General managers of CUC from 1954 to 1970

Name	Date of position	Profession	University where he was graduated
General manager1	1955-1959	Mining and civil engineer	Mining School of Macondo
General manager2	1959-1963	Textile engineer	Lowell Technological Institute- Massachusetts
General manager3	1964-1967	Mining and civil engineer	Mining School of Macondo
General manager4	1967-1970	Mining and civil engineer	Mining School of Macondo

Source: Gonzalez (2014, p.45)

Appendix 9: Project prioritisation table

Strategic Objectives
Increase value for stakeholders (contributes to the generation or income assurance and cost optimization)
Growing in the number of customers and markets
Strengthen relationships and effective communication with stakeholders
Explore alternatives to diversify the business portfolio.
Fully meet the customers' requests by providing solutions adjusted to his needs
Achieve operational excellence in the provision of services
Develop organisational capabilities for the consolidation and growth as a group
Ensure availability, reliability and integrity of information for decision making
Develop the capacities of human talent with group vision

Expected Benefit
Relation Benefit / cost exceeding
Powers human talent
Optimizes processes or procedures
Contributes to the reputation and image
Hygiene, industrial safety and occupational health
Positioning
Landscaping

Impact / Risks of not doing it
Strategic Risk
Financial Risk
Operational Risk
Compliance Risk