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# THE ROLE OF PERFORMANCE MEASUREMENT SYSTEMS (PMSs) IN PUBLIC SERVICE NETWORKS

Doctoral Dissertation of

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The miracle is not that we do this work, but that we are happy to do it.

(Mother Theresa)

## **Abstract**

The implementation of public policy and service provision through public networks has become more the rule than the exception. These collaborative arrangements are characterised by a plurality of private and public actors that work together in order to achieve a common objective, that the single organisation cannot achieve alone. The widespread diffusion of public networks has been associated with the recognition of several managerial problems about decision making, motivational and measurement activities (McGuire and Agranoff, 2011). In the last 15 years, studies on managerial behaviours, skills, strategies and control mechanism in networks have proposed solutions to the above problems (e.g. Bryson et al., 2006; Kenis and Provan, 2006; Silva and McGuire, 2010). Yet the exploration of the role of Performance Management System (PMS) has remained scarcely investigated, albeit claimed as potentially beneficial (Provan and Milward, 2001; Kenis and Provan, 2009).

This research project is aimed at exploring how the PMS can support the management of network problems, by investigating PMS technical characteristics, its use by network actors and its related supported processes. The empirical investigation is carried out with an exploratory longitudinal case study on the network for the provision of the local transportation service in Italy. Results provide evidence of the role of PMS in public service networks, suggesting contributions for public sector and accounting literature and network practitioners.

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# CHAPTER 1: INTRODUCTION

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This thesis is aimed at investigating the role of Performance Measurement Systems (PMSs) in public service networks. This first chapter introduces the dissertation, briefly summarising the research context and the objective (§ 1.1), the approach adopted in the analysis (§1.2), followed by the main findings (§1.3) and the outline of the present work (§1.4).

## 1.1 RESEARCH CONTEXT AND OBJECTIVE

The context in which public services are delivered has dramatically changed in the last 20 years. Public administrations are increasingly moving towards collaborative arrangements (McGuire, 2002) for addressing valuable services for the entire community, such as health care programmes, transportation systems, urban development or mobility projects. In this context, public networks have emerged as a powerful collaborative solution. They involve more than two organisations working together to deliver a common outcome, whose achievement require the joint effort of all the organisations involved. Public networks are characterised by some distinctive characteristics (Provan et al., 2007):

- The existence of a common objective that cannot be achieved by the single organisation alone (Koppenjian and Klijn, 2004);
- The presence of multiple actors, ranging from private companies, public administrations and associations of citizens (Provan and Milward, 2001);
- The existence of inter-organisational activities that allow to achieve the common objective. These inter-organisational relationships can be either managerial relationships between service providers aimed at jointly working for delivering the service, or policy relationships, aimed at making decisions about how to plan, manage or control the service itself.

The wide diffusion of network structures in the public sector all around the world has been driven by three main phenomena.

First of all, the process of fragmentation and integration in service provision. The imperatives of efficiency and effectiveness diffused with the NPM wave in 90s have started a process of privatisation in the public sector giving rise to a service fragmentation among many providers. To manage this problem, a process of service integration is required (Keast et al., 2004). This service integration is associated with the diffusion of network configurations that facilitate the achievement of an integrated service outcome (Alter and Hage, 1993). For example, in UK, many initiatives

search for cooperation among the public and the private sector. The Academic Health and Social Care Network for example have been developed to provide an integrated service to citizens, reducing the service fragmentation of both social and health programme.

A second factor is related to the diffusion of wicked problems (Roberts, 2000; Weber and Khademian, 2008) that require a joint action to achieve a solution. It is widely recognised that problems in the public sector are becoming even more complex and that the action of multiple actors is required in order to address them. For example, focusing on environmental issues, Koppenjian and Klijn (2004) provided evidence of the difficulties in managing and regulating Zinc emissions. These wicked problems required the activation of network of actors to discuss together about the nature of the problem and solution to deal with them (Kickert et al., 1997).

The last factor derives from the opportunities provided by the IT systems which facilitate the collaboration through the information sharing among organizations, but also between citizens and the public administration. An example comes from the US, where the New York City Council has developed an eHealth Collaborative infrastructure characterized by a joint management of the patient among different health structures. The idea is to integrate the information regarding each patient, which can be widespread among different hospitals, clinics, specialists, rehabs, improving the quality of the service.

Networks are recognised, not only as an opportunity for improving public service delivery, but also as complex organisational arrangements (Chisholm, 2008) that pose several challenges for both managers and policy makers. Network challenges can be organised around three main aspects:

- Decision making problems. This issue is associated with the recognition of the network objective that generates problems in the identification of the objective itself and in the alignment between the network objective and the single organisational objective;
- Motivational problems. This aspect is related to the requirement of aligning actors' strategies and increasing the willingness of each single actor being part of the network. Accordingly, the main challenge is related to the alignment of network actions. Joint working is required in order to achieve the common objective.
- Measurement problems. This challenge is related to both the definition of how to measure networks of multiple actors and accountability problems about the identification of the actor who is responsible for both policy implementation and service delivery.

Public sector and accounting scholars have started investigating managerial approaches and control mechanisms to deal with these network challenges. Yet, the role of the Performance Measurement System (PMS) has been only partially explored despite its recognised importance (Provan and Milward, 2001; Kenis and Provan, 2009; Barretta and Busco, 2011; McGuire and Agranoff, 2011).

Given this background, this thesis has the objective to investigate how the PMS supports network managerial problems- decision making, motivational issues and measurement problems. Specifically, the research objective is organised around three main questions:

1. What are the technical characteristics of the PMS adopted by network actors, in terms of Key Performance Indicators (KPI), target and reporting?
2. How is the PMS used by network actors?
3. How do support processes, Information Technologies and Auditing, influence the PMS technical characteristics and uses?

## **1.2 RESEARCH APPROACH**

The three research questions are addressed through a single longitudinal case study aimed at investigating a specific network of service delivery. The local public transport system in an Italian Region, Lombardy Region.

The choice of a single exploratory case study was considered the most suitable approach given the complexity and the under-researched topic of the role of PMS in public networks (Marshall and Rossman, 1995). Furthermore, the richness of data behind the single case study (Yin, 1994) gives the possibility to analyse multiple network levels (organisational, relational and network) and to enter the micro-dynamics of network's actors and their use of the PMS.

The choice of the transport service as the reference network for the analysis is justified by two main reasons. First of all, the transportation service well exemplifies the public network structure: the network common objective is to integrate the transportation service in the Region, which goes beyond the goal of each organisation involved; the network structure includes both public administrations, such as local councils and provinces, as well as private companies in charge of operationally delivering the service. Inter-organisational activities, both managerial relationships and policy relationships between network actors are required in order to jointly work for achieving the service integration. Second, the public transportation system is recognised as a complex and relevant issue (UITP, 2009a; 2009b; 2011) for policy makers because it strongly influences the everyday life of citizens.

Within the Italian transport service, the focus has been on the Lombardy Region because it started a reorganisation process in 2008 with the specific purpose to integrate transportation services between Provinces and City Councils, and finally at the overall Regional level. This reorganisation process activated a complex network of managerial and policy relationships between service regulators, service operators and associations of users. This network has been investigated from the end of 2008 until November 2011.

The sources of data included: regulation at the European, National and Regional level; archival from the network as a whole and from each single network actors; media commentaries; participant observations; semi-structured interviews with key informants (see Table 1) involved in the Regional transportation network. They include politicians, public administrators, service providers as well as representatives of citizens.

<b>Network actor</b>	<b>Name</b>	<b>Role of the interviewee</b>
Service Administrator	Lombardy Region	Director of the Transport Unit Director of the Tariffs Unit
Service Regulators	Bergamo Province	Mobility Manager
	Brescia City Council	Mobility Manager
	Brescia Province	Mobility Manager Councillor
	Lecco City Council	Mobility Manager
	Lecco Province	Mobility Manager Councillor
	Milano Province	Mobility Manager
	Milano City Council	Mobility Manager Responsible of transport unit
Service Providers	ATM	CFO Operative director Strategic controller
	Brescia Trasporti	Operative director CFO
	SIA/SAIA	General director CFO Operative director
	Brianza Trasporti (AGI)	General director
	Linee Lecco	General director
	Locatelli	General director Operative director
	SAL	General director
Users	Assoutenti	Director Vice-director
	Commuters	Spokesperson

**Table 1: List of Key informants**

The empirical data were analysed adopting a qualitative approach which meant textual analysis, sorting data into themes and cross-referencing them with theory in order to increase the internal validity of the case study material (Denzin, 1978).

### **1.3 Main findings**

Results provided evidence about the roles of PMS in supporting both policy and managerial relationships in public networks (see Table 2).

	<i>Policy relationships</i>	<i>Managerial relationships</i>
<b>Technical PMS</b>	<ul style="list-style-type: none"> <li>• Adoption of KPIs from service providers + additional data from users and benchmark data from European cities</li> <li>• Definition of target by network coordinator for tariffs increasing and by regulators to improve service quality</li> <li>• Prevalence of informal data exchange and no additional network reports</li> </ul>	<ul style="list-style-type: none"> <li>• Introduction of new KPIs for measuring network relationships and network service. Level of detail: consortium</li> <li>• Introduction of target for service delivery at the network level by service regulators. No additional target set by the network itself</li> <li>• Prevalence of formal relationships and introduction of new reports for the network as a whole (e.g. mobility paper, annual report)</li> </ul>
<b>PMS use</b>	<ul style="list-style-type: none"> <li>• Administrator: to develop knowledge of the network, to identify problems, to propose solutions</li> <li>• Other network actors: to support their own strategies and to persuade other actors.</li> </ul>	<ul style="list-style-type: none"> <li>• Administrator: to make decisions</li> <li>• Regulator: to make decisions, to motivate, to support external accountability</li> <li>• Consortium: to support external accountability</li> <li>• Provider: to make decisions (organisational PMS only)</li> <li>• Users: formal use</li> </ul>
<b>Support processes</b>	<ul style="list-style-type: none"> <li>• Emergence of technical problems about network database</li> <li>• Audit on processes and data reliability made by users → initial conflicts, then formal role recognised</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of validation on KPIs collected by network actors</li> <li>• Audit on data made by users (informally)</li> <li>• Adoption of single provider IT tools (exception for call centres and websites → network level)</li> </ul>

**Table 2: Main findings**

Managerial relationships are supported by the introduction of new KPIs that measure network relationships; targets to ensure the achievement of certain quality levels on the service provided (defined by the service regulator); new reports to provide information about the network as a whole. The PMS is used by network actors in a different way, ranging from decision making support, formal compliance, external accountability or knowledge development support. The analysis of the PMS support processes provide evidence of the lack of a formal auditing procedure, which is informally exerted by users; lack of a network IT system to share real time data about the provided service.

Policy relationships are supported by the introduction of new KPIs about the network as a whole. Unlike managerial relationships, they are not enough to support decision making activities; rather, additional data from European cities are adopted. Targets, in this case, are set by the region only and no additional network reports support policy discussions. With respect to the PMS use in policy relationships, the empirical evidence differentiates between two uses. Service administrator (the Region) that uses the PMS to develop knowledge of the network, identify network problems and propose solutions. The other network actors that use the PMS to persuade other actors about the validity of their strategy. Finally, with respect to the PMS support processes, I found technical problems in the use of the regional network database and a lack of auditing procedures. The importance of having reliable data was pointed out by users, who finally have their auditing role formally recognized.

The finding contributes, at the academic level, to five open areas of research:

- accounting in public networks, by identifying technical problems for implementing a network PMS and how they are used and useful for different actors in the network
- theory on network managerial behaviours and leadership by adding further dimensions to the portfolio of network managerial competences.
- literature about coordination in integrating public service delivery. Specifically, it highlights how different types of PMSs influence the organisation motivation to be part of the network, finally having contrasting effects on action coordination.
- literature about the distribution of power in public networks recognising the relational and constitutive role of PMS in empowering receivers of the public service;
- literature on the relationship between trust and PMS, highlighting the duality between trust and PMS.

The strength and weakness of this research are related to the type of methodology used. The research was carried out with a longitudinal case study in the Lombardy transport system which implied an overall and documentary analysis of multiple data sources. This methodology was the most appropriate to move forward from previous contributions, which did not enter in the detail of the micro-dynamics of the network and PMS, endorsing different perspectives. On the other hand, using a qualitative methodology the results cannot be generalised elsewhere although the methodological rigour guarantee the trustworthiness required to qualitative works. However it is important to highlight that the best qualitative papers in top management journals (e.g. Academy of Management Journal) very often use single longitudinal case studies (preferred to multiple).

## **1.4 OUTLINE OF DISSERTATION**

This dissertation is organised as follows. Chapter 2 and 3 are related to the literature review. The former analyses the extant literature on the topic of public networks, while the latter investigates the existent studies on the concept of performance measurement systems in public network and inter-organisational relationships. Chapter 4 explains the conceptual framework that has been adopted in the investigation. Chapter 5 describes the methodology of the analysis explaining the reasons behind the selection of the single case study of the regional transport network, and the approach for data collection and analysis. Chapter 6 and 7 are related to results. They provide the empirical evidence emerged from the investigation, focusing on each single network actor (chapter 6) and then following the dimensions of the framework (chapter 7). Finally, chapter 8 clarifies the academic and managerial contributions of the present dissertation and ends with limitations and avenues for further research.

# CHAPTER 2: PUBLIC NETWORKS

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This chapter is aimed at reviewing the literature about public networks. The first part reviews the definition of networks, positioning the topic of my research within the public sector management field. Hereafter, the public management sector represents the reference context of the analysis. The second part of the chapter analyses the rise of the network in the public sector, starting from the Weberian model and arriving until the more recent framework of the New Public Governance (NPG), where the concept of network has become widely adopted. The objective of this second paragraph is to position the concept of the public network, not only within a specific field of analysis, but also within a specific timeframe. Finally, the last part of the chapter unpacks managerial problems and challenges for politicians and managers working in public networks.

## 2.1 PUBLIC NETWORK DEFINITION

The concept of the network is a recurring theme in a wide range of disciplines including sociology, computer science, public management, political science and organisational studies because it is based on the simple idea of a set of nodes connected by ties (Provan et al., 2007). This basic thought has been then customised and reshaped depending on the specific field of analysis giving rise to multiple connotations to the word “network”. For this reason it is imperative to specify what is meant by the term network. The definition of the network is driven by the research question and “it is the researcher –by choosing a set of nodes and a type of tie– that defines a network” (Borgatti and Algin, 2011: 1169). For the purpose of this study, nodes are represented by actors, public or private organisations in charge of providing a public service. Formal and informal relationships between them constitute the ties. Accordingly, the network represents an organisational form that has driven the decision to focus the literature review on organisational, public sector and managerial journals. Albeit the specific network definitions are different (e.g. Thorelli, 1986; Powell, 1990; Provan et al., 2007), academics in these fields agree in distinguish between network as a perspective of analysis and network as an organisational form (Podolny and Page, 1998; Sydow and Windeler, 1998; Mizruchi, 2005).

The network as an analytic perspective represents a methodological paradigm seminally represented by Social Network Analysis (for a review see Fredericks and Durland, 2005; Mizruchi, 2005). Social Network Analysis is a methodology (Borgatti and Algin, 2011) aimed at explaining human behaviours and their outcomes focusing on social structures. Its basic assumption is that the



structure of relations between actors determines the content of those relations; accordingly, the study of the position of each actor within the network (Simmel, 1950), the ties by which the actors are connected (Granovetter, 1973), and the process by which information are diffused within the network (Granovetter, 1973) represent the main objectives of analysis. Psychological and sociology journals, such as the American Journal of Sociology or Social networks, widely adopted the network paradigm to describe structural relationships and their effects on human behaviours (e.g. Granovetter, 1973; Freeman, 1979; White and Reitz, 1983)

The network as an organisational form instead is seen as a “mode of organising economic activities through inter-firm coordination and cooperation” (Grandori and Soda, 1995: 184). It is defined as “any collection of actors ( $N > 2$ ) that pursue repeated, enduring exchange relations with one another and, at the same time, lack a legitimate organisational authority to arbitrate and resolve disputes that may arise during the exchange” (Podolny and Page, 1998).

According to some authors (Williamson, 1981; Thorelli, 1986) networks represent a hybrid form of organisation between markets and hierarchies, while others (Powell, 1990) maintain that networks are a third type of organisational arrangement, with its own characteristics and properties. However, it has been acknowledged (Grandori and Soda, 1995) that this distinction is somehow metaphysical given that both these perspective stress the organisational nature of network based on inter-firm organisational coordination. In this study, I refer to networks as organisational forms. This choice is mainly empirical and driven by the context of analysis, the public sector, where the implementation of public programmes through networks has become more the rule than the exception (Turrini et al., 2010). Also the literature recognises that “western societies are moving towards a society of networks, i.e. a society in which the formal, vertically integrated organization that has dominated the 20<sup>th</sup> century is replaced or at least complemented by consciously created and goal directed networks of three or more organizations” (Raab and Kenis, 2009: 198)

Even limiting the network concept to an organisational structure, high variety of definitions of what a network is do exist.

First of all, depending on the nature of organisations composing the network, it is possible to distinguish between business and public networks.

Business networks (Hakansson and Ford, 2002; Bardy, 2006) are organisational arrangements composed by private companies that are horizontally and vertically interdependent in exploiting business activities (Kajuter and Kulmala, 2005). They represent a specific type of Inter-organisational Relationships (for a review see Caglio and Ditillo, 2008). “An inter-organisational

relationship (IOR) occurs when two or more organizations, transact resources (money, physical facilities and materials, customers or client, referrals, technical staff services) among each other” (Van de Ven, 1976: 25). It derives that IORs comprise a variety of collaborative relationships ranging from alliances, joint ventures, partnerships and also networks (Grandori and Soda, 1995; Podolny and Page, 1998).

Business networks can be further specified on the basis of the specific activity they perform. Supply networks (Harland et al., 2001) are the interconnected organisations engaged in the procurement, use and transformation of resources. Manufacturing networks (Shy and Gregory, 1998; Human and Provan, 1997) instead are interconnections of organisations generated around the sharing of common infrastructures and managerial technologies for production. Innovation networks are collaborations aimed at achieving research and development and innovation objectives (Baraldi and Stromsten, 2009; Moller and Svahn, 2009; Rampersad et al., 2010).

“Public networks as defined here are collaborative structures that bring together representatives from public agencies and nongovernmental organisations to address problems of common concern that accrue value to the manager/specialists, their participating organisations, and their networks” (Agranoff, 2007: 2). Unlike business networks, the nature of public network is different because both public organisations and private companies can be part of these organisational arrangements.

Table 3 synthesises the different network conceptualisations, specifying the network description and its related author.

<b>Variable</b>	<b>Network classification</b>	<b>Description</b>	<b>Author</b>
Perspective of analysis	Network as an analytic perspective	The network is a methodology of analysis	Granovetter, 1973; Freeman, 1979; White and Reitz, 1983; Mizruchi, 2005
	Network as an organisational form	The network is a collection of actors that pursue interrelated activities	Thorelli, 1986; Powell, 1990; Grandori and Soda, 1995; Podolny and Page, 1998.
Nature of organisations	Business networks	The network is composed by private actors	Human and Provan, 1997; Shy and Gregory, 1998; Harland, 2001; Hakansson and Ford, 2002; Kajuter and Kulmala, 2005; Bardy, 2006; Baraldi and Stromsen, 2009; Rampersad, 2009)
	Public networks	The network is composed by public and private actors	O’Toole, 1997; Agranoff, 2007; Provan et al., 2007; Isett et al., 2011; McGuire and Agranoff, 2011

**Table 3: Network conceptualisations**

My research enters this specific field of public administration. Yet, in a given body of literature substantial terminological differences exist. In fact, there are different types of public networks that can be classified depending on different variables.

On the basis of the inception stage (Keins and Provan, 2009), it is possible to distinguish between voluntary or mandated networks. Voluntary networks are created bottom up and they are the result of the willingness of multiple actors working together to achieve a common purpose. Mandate networks instead (O'Toole, 1988) result from impositions by a governmental agency (Selksy and Parker, 2005). This second type of networks is recognised as more complex to be managed (van Raaly, da Kenis e Provan, 2009).

When the discriminating variable is the level of formalisation, networks can be chartered or non chartered (Agranoff, 2007). Chartered networks, also defined formal networks (Isett et al, 2011), are formally established organisational entities by a mandate, an order or some sort of explicit recognition by network participants. Non chartered or informal networks (Isett et al, 2011) instead do not have a formal legal status and therefore it may be difficult to locate them in websites or in telephone books. Rather, they are emergent structures used for information sharing, capacity building, problem solving, and service delivery (Provan and Milward, 2001; Agranoff, 2007).

Depending on their purpose, public networks can be distinguished between Information Networks, when they only exchange information, and Action Networks, that instead formally adopt collaborative courses of actions (Agranoff, 2007). In between these two typologies, Agranoff (2007) distinguishes between Developmental Networks, that deal with information exchange together with education and member service, and Outreach Networks, that exchange information, sequence programming, exchange resources and pool clients contacts.

<b>Variable</b>	<b>Network classification</b>	<b>Description</b>	<b>Author</b>
Inception stage	Voluntary networks	The network is created on the basis of the willingness of actors to collaborate	Mandell, 1990; Kenis and Provan, 2009
	Mandated networks	The network is created because of an external imposition	Selsky and Parker, 2005; van Raaij, 2006 Kenis and Provan, 2009; Carlsson et al., 2011
Level of formalisation	Chartered networks	The network has a formal structure	Agranoff, 2007; Isett et al., 2011
	Non chartered networks	The network is an informal set of relationships that has occurred serendipitously	Provan and Milward, 2001; Agranoff, 2007; Isett et al., 2011
Purpose of the network	Action networks	The network exploits collaborative activities	Bardach, 1994; Provan and Milward, 1995; Agranoff and McGuire, 2001; 2003; Agranoff, 2007;
	Outreach networks	The network exchanges information, resources and pools clients	Krein and Klamerous, 2000; Agranoff, 2007
	Developmental networks	The network exchanges information and educates its members	Agranoff, 2007
	Information networks	The network exchanges information	Agranoff, 2007

**Table 4: Network classifications for the public sector**

The network studied here has the following characteristics:

- It is a network as an organisational form;
- It is a public network
- It is a mandated network
- It is a chartered network
- It is an action network.

This means that it represents a mandated, formally recognised organisational arrangements where both public and private organisations interact to accomplish something: the achievement of an objective that cannot be achieved by the single organisation alone. This type of networks have been called in different ways by public sector scholars, such as “providing networks” (Bardach, 1994) “managed networks” (Addicott et al., 2006), “service implementation networks” (Provan and Milward, 1995), or “local collaborative governance” (Agranoff, 2007; Agranoff and McGuire, 2001, 2003).

Albeit the different labels, action networks perform two main activities that are the policy making and the service provision. They have been frequently referred to as policy networks and collaborative networks, investigated by public sector scholars as two separate entities (Rethemeyer and Hatmaker, 2008).

Policy networks (Koppenjan and Klijn, 2004, ) are a set of public agencies, legislative offices and private sector organisations that take part to public decisions in a particular area of policy because they are interdependent and thus have a shared fate (Lauman and Knoke, 1987). Accordingly, they are mainly characterised by vertical relationships between public agencies (Agranoff and McGuire, 2003). Collaborative, also called service delivery, networks (Agranoff, 2006) instead comprise government agencies, non profit and for profit agencies that work together to provide a public good or service that the single organisation is not able to provide on its own. As a consequence, they are mainly characterised by horizontal relationships between public and private organisations to coordinately deliver the service (Agranoff and McGuire, 2003). Policy networks as well as collaborative networks are related to public service delivery. They tend to be analysed separately, with a focus either on policy making or on the operational service delivery.

Recent studies (Rethemeyer and Hatmaker, 2008) have criticised this approach calling for a joint analysis of both policy and collaborative service delivery networks. These authors investigated these two networks jointly, providing evidence that policy and collaborative networks are related with each other and therefore interactions occur between these two components.

Hereafter, I will refer to the word network for describing this specific organisational structure that is in charge of implementing a public policy and delivering a public service.

Having clarified the type of network that is object of this study, it is possible to further specify the distinctive characteristics of public networks.

The first distinctive characteristic is the existence of a common network objective that goes beyond the single organisational goal (Provan et al., 2007). This means that the single organisation does not have enough resources to achieve a certain objective and therefore it becomes dependent on resources of other actors in the network (Pfeffer and Salancick, 1978). For example, the integrated treatment of mental diseases cannot be achieved by a single hospital, but multiple actors need to take part to this process (Provan and Milward, 1995).

The second characteristics, which is common to all organisational networks, is the presence of multiple actors in the system. In the specific case of public networks both government, agencies, associations of citizens or private companies can be part of the network.

The third characteristic is the existence of inter-relations between network actors. Joint working is required in order to achieve the common network objective and therefore coordination or collaboration between network actor are required.

## 2.2 THE RISE OF PUBLIC NETWORKS

It is often claimed that we live in a network society (Castells, 2001) and that the implementation of public programmes through networks has become more the rule than the exception (O’Toole and Meyer, 2004). But, what are networks origins?

Public networks have been defined as a response to the insufficiencies of New Public Management (Isett et al., 2011: i159) and they represent a recurring approach for both policy implementation and service provision in the current New Public Governance era (Osborne, 2006; 2010a; 2010b).

Implementing public programs and delivering public services have passed through different stages over years, each of them posing emphasis on different aspects (see Table 5): the Weberian model, that lasted from late nineteenth century until late 80s; the New Public Management Model (NPM) that characterises ‘90s, and the emergent third model, defined as post-NPM (Conteh, 2010) or New Public Governance (Osborne, 2006; 2010a).

	<b>Weberian (until 80s)</b>	<b>NPM (from 80s and late 90s)</b>	<b>Post-NPM or NPG</b>
Organisational structure	Central bureaucracy	Decentralised structures	Networks and inter-organisational relationship
Service delivery	Centralised	Outsourced and privatised	Integrated
Control	Process	Output and outcomes	Output and outcomes + Relations and collaboration
Type of relationships	Respect of predefined laws	Decentralisation	Mutual adjustment, trust
<b>Leit motiv</b>	<b>administration</b>	<b>management</b>	<b>governance</b>

Table 5: Public Administration stages

The traditional public administration model, also called Weberian model (Dunleavy and Hood, 1994) is used to describe the way in which the public administration was organised until late ‘80s. The organisational structure was a bureaucracy with the dominance of the rule of law and the respect of value. Accordingly, a wide range of services were centralised and directly provided by

public administrations. In this context, the control was focused on processes with a great attention on ensuring the respect of predefined laws. Leitmotiv of this era was therefore the administration of both rules and guidelines.

Starting from the late 1980s, but later in some countries such as Italy, a new model for public administrations became predominant: the New Public Management (Hood, 1991; 1995). Its origins dated back to the Thatcher government in the UK. The NPM was based on the premise that private organisations are better than public administrations in managing and delivering services. Accordingly, the NPM approach was aimed at introducing private sector techniques to public organisations. The organisational structure changed dramatically and turned into a decentralised configuration for delivering public services. During this period, outsourcing and privatisation became common approaches among public administrations because they were claimed being more suitable, posing attention to citizens and their requirements. The control was focused on output and outcomes, and performance measurement systems were widely adopted by public entities in order to monitor efficiency and effectiveness. Leitmotiv of this era was management of public services through performance measures.

Both these paradigms have received criticisms over time (see Osborne, 2006): the former for being focused on administration and bureaucracy, while the latter for its strong focus on management. In the Weberian era, policy making and implementation were centralised and vertically integrated. The NPM introduced a separation between policy making and implementation where implementation is enacted through a collection of interdependent service units ideally in competition with one another. Public sector scholars (e.g. Osborne, 2006; Conteh, 2010) argue that we are now moving away from the NPM paradigm shifting to what has been called post-NPM or NPG (New Public Governance). NPG started from the recognition of this fragmentation in service provision and it claims the need of inter-organisational approaches to service provision and policy implementation. Deriving its clues from network theory (Powell, 1990), the NPG underlines the importance of relations and recognises the existence of a plurality of actors at policy level and at service implementation level. The dominant organisational structure is therefore the network, where interdependent actors are responsible for both implementing policy and delivering services. The control is based not only on output and outcomes, but also on relationships and collaboration. In this context, trust and mutual adjustments are recognised as core governance mechanisms. As the label suggests, the leitmotiv is represented by governance, that “posits both a plural state, where multiple interdependent actors contribute to the delivery of public services, and a pluralistic state, where multiple processes inform the policy making system” (Osborne, 2010b: 9).

## 2.3 NETWORK PROBLEMS

Networks have been widely claimed as powerful organisational arrangements to facilitate joint efforts for addressing wicked problems (Roberts, 2000; Weber and Khademian, 2008). Nonetheless, by their nature, they are associated with managerial difficulties (McGuire and Agranoff, 2011).

For the purpose of this study to investigate the role of the PMS in supporting network managerial problems, these network difficulties can be organised around three main aspects: decision making problems, motivational problems and measurement problems. These problems can be further specified depending on the network activity of policy implementation (exploited by policy networks) or operational service delivery (exploited by the collaborative or service delivery network). This threefold distinction is derived by Chapman et al. (2009), who asserted the simultaneous technical and social role of accounting. Technical aspects include the calculative practices and their associated supporting role in decision making activities, while social aspects consider behavioural issues and the impact of social relationships.

	<b>Policy implementation</b>	<b>Service delivery</b>
<i>Decision making problems</i>	Objective definition (Koppenjan and Klijn, 2004)	Objective alignment (Provan and Milward, 2001)
<i>Motivational problems</i>	Strategies alignment (Klijn and Koppenjan, 2000)	Actions alignment (Keast et al., 2004)
<i>Measurement problem</i>	Definition of measurement (Bardach, 1998; Provan and Milward, 2001)	Definition of responsibility for service delivery (Frederickson, 2007; McGuire and Agranoff, 2011)

**Table 6: Network problems**

The first problem concerns decision making, that is related to the first network characteristic of achieving a common objective. This implies difficulties in both defining the common network objective and aligning single organizational goals toward this objective. Specifically, during policy implementation the major challenge is related to the identification of the network objective (Koppenjan and Klijn, 2004). In fact, it is acknowledged that “the involved parties disagree not only about the solution, but even about the nature of the problem” (Koppenjan and Klijn, 2004: 1), and this aspect represents the first source of uncertainty during policy implementation.

In case of operational service delivery, actors already know their objective, that is the provision of the service. The difficulty is here represented by the alignment between the single organizational objective and the network goal. The inter-organisational literature (Van de Veen, 1976) widely



recognised that when a general consensus is generated, participants are more likely to be committed to the network activity. The problem of objectives alignment is further accentuated in public networks with respect to the case of business networks because of the multiplicity of different actors that compose the network itself (Provan and Milward, 2001; Sullivan and Skelcher, 2002). This is often known as the multiple principal and multiple tasks problem (Dixit, 2002). Public agencies, private organisations or associations of citizens do have different objectives, and aligning them can be extremely complex. Especially in mandated public networks where they are called by an external imposition to work together (Grafton et al., 2011).

The second problem is represented by motivational issues that is related to another distinctive aspect of the network: interdependencies (Tomkins, 2001; Dekker, 2004; Keast et al., 2004). Network members are not just interconnected. Rather, they are all pieces of a larger whole, but when they come together they do not necessarily see themselves as a whole (Keast et al., 2004). The managerial challenge is here represented by actions aimed at increasing the willingness of each actor being a part of this greater whole. Given that multiple network actors are interdependent with each other, single units need to behave as a whole in order to achieve the common objective. Therefore, this distinctive network characteristic poses several behavioural challenges that are associated with the need to motivate network actors to behave as a unique network. These motivational problems have been addressed with reference to both policy making and service delivery activities. The policy making literature defines interactions that occur around policy as “games” (Klijn and Koppenjan, 2000). Gaming represents the activity through which a network actor operates within a set of given resources and rules in the attempt to behave strategically and achieving its own objective (Klijn and Koppenjan, 2000). The managerial challenge is represented by the concertation of actions between network actors with different strategies. Network steering or network management (O’Toole, 1997; Klijn and Koppenjan, 2000) are therefore recognised as fundamental requirements in network setting since cooperation and coordination cannot happen on their own because of multiple actors with contrasting objectives. The problem of aligning actors’ strategies is strictly dependent on power distribution (Brans 1997; De Bruijn and Ringeling 1997; Klijn and Koppenjan, 2000) because powerful actors increase their capacity to shape and deliver policy in a complex world through the instrumental use of networks (Klijn and Schelcker, 2007). Differences in the distribution of resources, in the position of actors in the network or in the way in which interactions occur can influence power distribution within networks (Klijn and Koppenjan, 2000; Agranoff and McGuire, 2001; McGuire and Agranoff, 2011). Accordingly, managing strategic behaviours in networks also implies to consider where power is actually enacted (Huxham

and Vangen, 2005). Literature on policy networks is mainly interested in aligning actors' strategies to enhance the policy making process while literature on service delivery networks is mainly focused on aligning actors' actions for delivering the service. The alignment of actions is often referred to as coordination problem (Dekker, 2004), that represents a distinctive challenge for public networks. Several studies focus on approaches to foster coordination, ranging from contracts to managerial skills, behaviours or strategies (McGuire, 2002; 2006; Thomson, 2006; Silva and McGuire, 2010), but empirical research on the behavioural dimension at the network level continues to be limited (Agranoff and McGuire, 2001; Berry et al., 2004; Turrini et al., 2010; SazCarranza and Ospina, 2010).

The third problem concerns the measurement issue, that is associated with the evaluation of the network as a whole and its activity. Do networks really work? (Provan and Milward, 2001), or how good is the network performing? (Bardach, 1998) are recurring questions in public sector studies. In this respect, academics have recognised the need to understand whether networks work and under what circumstances (Provan and Milward, 2001; Klijn et al., 2010; Herranz, 2010; Turrini et al., 2010). Difficulties in measuring networks are associated with two specific problems. The definition of the assessment criteria for evaluating networks and the identification of the accountable entity for the performed activity.

The first challenge is related to the selection of the performance criteria for evaluating networks. This problem mainly affects policy makers when defining and implementing policies in a certain area of service (Klijn and Koppenjan, 2000). There is a duality between the evaluation of the network outcome and the evaluation of the network activity (Provan, 2009; McGuire and Agranoff, 2011). The former is related to the effectiveness of the network activity, that is the evaluation of the service provided by the network. The latter is instead related to the evaluation of interactions and activities among network actors. Results of these evaluations can be in contrast with each other given that there can be a good network (from process evaluation) but with a poor service provided (from outcome evaluation). Starting from these network features, the identification of network evaluation criteria still represent a challenging issue for public managers (Kenis and Provan, 2009; McGuire and Agranoff, 2011).

The second difficulty, that is closely related to the evaluation issue, is represented by the network accountability (Page, 2003; Martin, 2010). In this case, the attention is focused on the control of the network and mainly characterises service providers. Networks are denoted by the presence of multiple parties that operate with limited authority, and all these parties are partially responsible for the service delivered. This organisational structure implies a sharing of responsibility for the

network outcome among different network participants that makes it difficult to identify who is responsible for the service provided (O'Toole, 1997; Agranoff and McGuire, 2001; Frederickson, 2007). "Everyone is somewhat in charge, thus everyone is somewhat responsible; all network participants appear to be accountable, but none is absolutely accountable" (Agranoff and McGuire, 2001: 309-310). For both these issues- the definition of measurement criteria and of the responsibility entity- the conceptualisation and development of a measurement system has been recognised imperative (Agranoff and McGuire, 2001).

Managing these network problems has been recognised as far from being straightforward (Agranoff and McGuire, 2001; Kenis and Provan, 2006) and, after an initial focus on investigating network structural characteristics (e.g. Provan and Milward, 1995; Milward and Provan, 1998; Provan and Sebastian, 1998 ), in the last 10 years the attention of public sector scholars has been catalysed by the identification of approaches to deal with these problems. New managerial skills, strategies and tools have emerged to be necessary requirements for the network success (Agranoff, 2006; Crosby and Bryson, 2010; Silva and McGuire, 2010). Within this context, the role of the PMS has received less attention, albeit claimed as potentially beneficial (Barretta and Busco, 2011; McGuire and Agranoff, 2011). Public network scholars acknowledged the importance of measuring networks (Sydow and Milward, 2003; de Bruijn, 2007; Koppenjian, 2008; Cepiku et al., 2009; because it helps to make result visible, gives directions to efforts, creates a common frame of reference and creates the framework to monitor actions (de Bruijn, 2007; Koppenjian, 2008; )

Measuring networks is extremely precious also from a practitioner perspective. In this respect, Provan and Sydow (2008), stated:

"In an 'age of evaluation', or, more generally, in an 'auditing society', there is an increased pressure on practitioners to legitimate their actions, including the formation and maintenance of inter-organisational relationships" (Provan and Sydow, 2008: 4)

Other public sector scholars (Provan and Sydow, 2008; Koppenjian, 2008), focusing on network effectiveness, asserted that this evaluation is relevant for administrators who hold the network accountable, in order to grant or withdraw funding. Actors in the network in order to focus their efforts and to external stakeholders to evaluate the ability of the network meeting their expectation.

With reference to the more general issue of cross-sectional collaboration, Crosby and Bryson (2006) acknowledged that :

"Cross-sector collaborations are more likely to be successful when they have an accountability system that tracks inputs, processes, and outcomes; use a variety of methods for gathering, interpreting, and using data; and use a results management system that is built on strong relationships with key political and professional constituencies" (Crosby and Bryson, 2006: 52).

# CHAPTER 3: NETWORK PMS

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This chapter has the objective to review the extant literature on Performance Measurement Systems (PMSs) in public networks with the purpose of highlighting the current state of the art and specifying the research objective.

Given that this study enters the public management accounting field, two streams of the literature have been considered in the review: the literature on PMS in Inter-Organisational relationships (IOR) and the public sector literature that consider specifically network and PMS. Accordingly, this chapter is structured as follows. First of all, the review of the literature about PMS in IOR will be presented (§3.1). Then, the focus will be devoted to the specific field of PMS in public networks (§ 3.2). The next paragraph (§3.3) discusses these contributions with respect to the impact on PMS in supporting network managerial problems. Finally, the last paragraph clarifies the research objective.

## **3.1 PMS IN INTER-ORGANISATIONAL RELATIONSHIPS**

The first stream of the literature review focuses on studies that account for PMS in inter-organisational relationships. Contributions were found in the main accounting journals namely Accounting Organisations and Society and Management Accounting Research. This literature field devotes great attention to the issue of the PMS role. After the call by Hopwood (1996) to investigate the lateral processing of information, accounting scholars have started exploring how the PMS has changed and changes within inter-organisational relationships, pointing out several different roles.

<b>Author</b>	<b>PMS role</b>	<b>Type of IOR</b>
Tomkins, 2001 (AOS)	PMS to plan and to master events	Dyadic relationships
Mouritsen, 2001 (MAR)	PMS crafts inter and intra-organisational practices	Dyadic relationships
Dekker, 2003 (MAR)	Value chain analysis used to analyse, support decision making and monitor activities	Dyadic buyer-supplier relationship
Dekker, 2004 (AOS)	PMS to manage IOR problems (appropriation concerns and coordination requirements)	Dyadic relationship (alliance)
Hakansson and Lindt, 2004 (AOS)	PMS to facilitate cooperative coordination	Dyadic relationships
Mahama, 2006 (AOS)	PMS enables the three dimensions of cooperation: information sharing, problem solving, willingness to adapt to changes	Dyadic supply relationships
Mouritsen and Thrane, 2006 (AOS)	PMS as a force in establishing and developing IOR	Horizontal network (competitors)
Thrane and Hald, 2007 (MAR)	PMS as a factor and as a force	Supply networks
Thrane, 2007 (AOS)	PMS as a force in providing trajectories for change	Horizontal network
Richardson and Kilfoyle, 2009 (MAR)	The role of PMS evolves with the evolution of the governance relationships	Network
Vosselman and Van de Meer, 2009 (AOS)	PMS is used for both control and trust building	Dyadic and network

**Table 7: Studies on PMS in IOR**

Earlier studies in this field unveiled the adequateness of PMS practices in IOR (e.g. Tomkins, 2001; Hakansson and Lindt, 2004). Tomkins (2001) went further suggesting two potential PMS roles, specifically to support the planning of a collaborative future and to mastery events, which vary according to the level of interdependencies. Hakansson and Lindt (2004) opened the back box of coordination distinguishing between market, hierarchy and cooperative coordination, arguing that a combination of PMS practices is required to facilitate the intersection between these different coordination forms. Dekker (2003) investigated the role of a specific accounting technique, value chain analysis, in a dyadic buyer-supplier relationships. His findings were related to three different uses of the accounting information. Integrated data were used to analyse cost performance, to support the decision making process, for example proposing investment decisions, and to monitor the development of supply chain costs over time. The study by Mahama (2006) focused specifically on performance measurement systems in supply relationships investigating their impact on cooperation. She found that PMS were positively related to four dimensions of cooperation information-sharing, problem-solving, adaptability to changes, restraint from the use of power. Dekker (2004) acknowledged the foremost role of the PMS for managing problems in IORs, namely appropriation concerns and coordination requirements. These systems include financial incentive systems, planning, budgeting, cost calculations and open book accounting. The problem of appropriation concerns is related to partner's opportunistic behaviours and it raised a

fundamental aspect that characterises IOR: trust. It is defined “as the willingness of a party to be vulnerable to the actions of another party on the expectation that the other party will perform a particular action which is important to the trustor” (Velez et al., 2008: 970). Some authors investigated the relationship between the PMS and trust, but contributions are controversial. According to some authors (Tomkins, 2001; Seal et al., 2004; Vèlez et al., 2008; Vosselman and Meer-Koistra, 2009) the PMS produces trust. In contrast, Dekker (2004) and Meer-Koistra and Vosselman (2000) see trust as an alternative to the PMS in that trust is more effective in supporting inter-organisational relationships. Other authors again (Cooper and Slagmulder, 2004) supported the idea that trust is a precondition for the development of performance measurement mechanisms. Albeit contrasting viewpoints, all these studies agree on the relevance of the PMS in IOR, by recognising that “people have to trust one another, which is the ‘operating principle’ behind certain versions of the network phenomenon—a moral obligation—to the point where to have a healthy relation” (Mouritsen and Thrane, 2006: 243).

The more recent contribution by Richardson and Kilfoyle (2009) focused on the evolution of IOR, recognising that the PMS evolves as the relationship evolves. They studied the evolution of PMS mechanisms in the international postal market during changes in the governance structure from market, to dyadic relationship, finally to the network.

Contributions analysed so far, adopted an outside-in approach (Thrane and Hald, 2006) because they considered the way in which the PMS is determined by the context or the boundaries of the relationships. On the contrary, there are some other approaches that adopt the opposite, an inside-out perspective which means that the PMS has recognised a powerful role. These second streams of studies, draw on Actor Network Theory (ANT), acknowledging a PMS active role. Mouritsen et al. (2001) provided evidence that the introduction of new control practices, open book accounting and functional analysis, influences inter-organisational as well as inter-organisational relationships and activities. Mouritsen and Thrane (2006) developed the concept that accounting is an actor that mediates, shapes and constructs IOR. According to these authors, the accounting makes the enterprise, that still exists even though network actors change overtime. In this sense, they found control practices as source of stability and predictability in networks. Adopting the same logic, Thrane (2007) focused on the change process and unveiled the constitutive role of the PMS in providing trajectories for change, generating oscillations, schizophrenic and bifurcations in the network of relationships. According to these authors “accounting exists prior to context and shapes and defines the boundaries and structures surrounding transactions” (Thrane and Hald, 2006: 289). Thrane and Hald (2006) adopted both these perspectives to find that the PMS is simultaneously a

factor, influenced by the context, and an actor influencing relationships, feeding into fragmentation and integration dynamics.

As it has emerged from the analysis, studies in this field are mainly interested in the role of PMS in networks and IOR. Nonetheless, the majority of them is focused on business networks or on dyadic relationships, neglecting the issue of performance measurement use in public networks (Barretta and Busco, 2011).

Few authors have begun investigating this field, mainly considering management control mechanisms more in general. Grafton et al. (2011) explored antecedent factors that influence the organizational design choice of implementing a public sector reform of building networks of hospitals, finding mandated control requirements largely decoupled from the practices actual in use. Johansson and Siverbo (2011) analysed the control tools public sector organisations can use in order to cope with the problem of cooperation in outsourced municipal services. They focused on governance package in general distinguishing between contact phase (market or trust orientation and supplier selection) and control phase (results control, action control and/or social control) finally proposing three different configurations that can be adopted in practice. They contributed to the management accounting literature showing that, not only actions need to be aligned in networks, but also different control mechanisms need to interact with each other. Finally, Carlsson et al., (2011) investigate the interdependence between inter-and intra organisational control in networks providing care service to elderly people. They found that inter-organisational social controls created an informal hierarchy that by-passed the formal hierarchies while self controls reinforced the importance of being flexible to accommodate pensioner's needs.

These recent studies illuminate the knowledge about the importance of the PMS in public networks and inter-organisational relationships highlighting the role of control systems in creating public networks (Grafton et al., 2011), in addressing cooperation problems (Johansson and Siverbo, 2011), and in influencing working practices (Carlsson et al, 2011). However, the question about the use of PMS in public networks is left unanswered.

### **3.2 PMS IN PUBLIC NETWORKS**

The public sector literature on network performance is characterised by two different types of studies: studies that are aimed at proposing measures for evaluating networks (e.g. Provan and Milward, 1995; Provan and Sydow, 2008; Herranz, 2010), and studies that, treating network performance as a dependent variable, are mainly interested at investigating factors that affect network results.

The first group of researches is driven by the seminal question “Do networks really work?” (Provan and Milward, 2001), and their objective is to propose criteria and measurement for public networks. Performance measures are aimed at measuring three different network aspects (Provan and Sydow, 2008): network structure, network process and network outcome.

The initial diffusion of the network concept was mainly associated with the identification of measurement for analysing the network *structure*: density, centrality, multiplexity and structural holes were proposed as measures to evaluate the position of nodes and ties in the network. Density is defined as the number of actual relationships in a network divided by the maximum numbers of ties that are possible (Provan and Sydow, 2008). Centrality measures the position of actors within the network by assessing the number of direct links between network actors in order to evaluate the level of fragmentation and integration (Provan et al., 2007). Multiplexity refers to the number of different kinds of exchanges or different types of relationships between actors (Provan et al., 2007). Structural holes represents “the degree to which a firm's partners are linked to each other” (Ahuja, 2000: 428), which is useful to identify the existence of cliques and therefore the level of disconnections inside the network.

These structural indicators are valuable for evaluating networks as they evolve, “when cross-sectional data are available. For instance, the existence of multiplex ties between partner organisations can be used as an indicator of network strength and likely sustainability” (Provan and Sydow, 2008: 11)

During the 1990s, continuous calls for achieving public value (Davis and West, 2009) stimulated the attention of public sector scholars on evaluating the ability of the network to deliver outcomes that satisfy clients’ expectations. Network *outcomes*, and especially network effectiveness, have become recurring topics of research. Provan and Milward (1995) defined network effectiveness as the improvement of the well-being of clients and the overall quality of service delivery.

Several scholars have investigated how network outcomes can be measured (Provan and Milward, 2001; Kenis and Provan, 2009; Turrini et al., 2010). Measuring network outcomes can be related to the measurement of financial performance, non financial performance or network survival (Provan and Sydow, 2008). These studies have been concerned with the choice of the most appropriate criteria for measuring networks (Sydow and Milward, 2003) and they have asserted the importance of adopting multiple criteria of evaluation in order to account for the multiplicity of network actors and their divergent interests (Klijn and Koppenjian, 2000). In this respect, Behn (2001) recognised that: “the one-bill, one-policy, one-organisation, one-accountability holdee principle does not work for performance” (2001: 77) because most programs involve collaborative undertakings. Drawing



on this recognition, Provan and Milward (2001) suggested to evaluate networks at three different levels of analysis, accounting for different interests: community level, measuring effectiveness, quality and social impacts; network level, considering network growth, synergies, legitimacy; organisational level focusing on costs, resource acquisition or organisational survival.

Parallel to the diffusion of investigations about the network outcome, the attention has been also catalysed by the measurement of the network *process*. The importance of evaluating the network process is driven by the recognition that there can be a good network, from process evaluation, but with a poor service provided, from outcome evaluation (McGuire and Agranoff, 2011). Moreover, difficulties in evaluating network outcomes, prompted for measuring the network process (Provan and Sydow, 2008). Learning, trust, fairness, legitimacy and power are proposed as process measures (Provan and Sydow, 2008), which can be useful to evaluate the benefit for the single organisation being part of the network.

The second group of studies treat network performance as a *dependent variable* with the purpose to investigate factors that affect network performance. Network structure, managerial strategies and behavioural skills are some of the identified variables. They are defined as endogenous factors influencing network performance (Kenis and Provan, 2009).

Considering the network structure, Provan and Milward (1995), found that network stability and centrality positively influence network effectiveness. Also the presence of high integration through clusters in the network positively impact on network effectiveness (Provan and Sebastian, 1998). On the contrary, integration across the entire network has a poor impact on effectiveness. The relationship between density and centralisation has been also discussed by Fujimoto et al. (2009) in assessing the impact of the implementation of health practice and prevention programs.

Focusing on policy networks, Klijn et al. (2010) investigated the relationship between managerial strategies and perceived network outcomes. They found that network strategies do matter on perceived outcome and the impact is different depending on the specific strategy adopted. Connecting, defined as the activation of actors, mobilisation of resources, supporting of cooperation, was found the most promising strategy in realising network outcomes. In a similar vein, the study by Meier and O'Toole (2001) in US school districts, found a relationship between network management and public programme. Herranz (2010) related managerial strategies with network effectiveness, focusing specifically on coordination strategies. He found that different network coordinating approaches –bureaucratic, entrepreneurial and community- are associated with different performance indicators at the organisational, network and community level.

Behavioural skills have also been recognised as a relevant dimension that accounts for network results. Crosby and Bryson (2010), investigating the features of the integrative leader, suggested that his behaviours and approaches impact on the success of cross-sectional collaboration. In a similar manner, Cristofoli et al. (2011) investigated the managerial competences for a successful network management. They found that managerial styles vary according to the network structure and therefore do impact differently on network outcome.

A recent contribution by Kenis and Provan (2009) added the importance of exogenous factors, namely type of inception, governance and evolution stage, in shaping network performance.

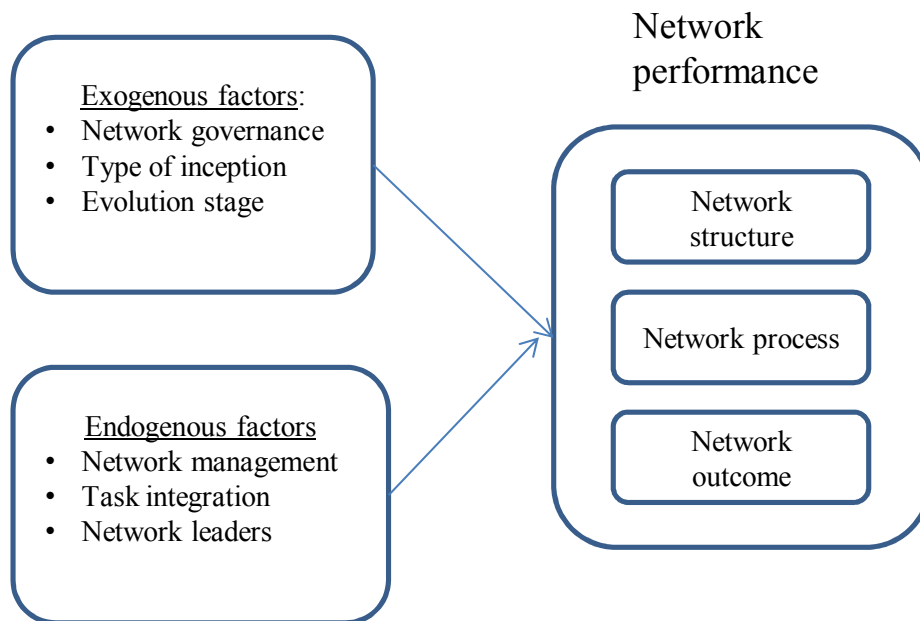
With respect to the type of inception, voluntary or mandated networks, were found having different impacts on network results. Van Raaij (2006) found that network outcomes, evaluated in terms of network legitimacy, climate and activating capacity, were perceived as different by actors in voluntary or mandated networks.

Provan and Kenis (2008) investigated the impact of three different governance modes- shared, lead and network administrative organisation-on network effectiveness. They claimed that structural and relational contingencies, namely trust, size, goal consensus and nature of the task, influences the success of the network governance form and in turn, network effectiveness.

Finally, the evolution stage of the network is also associated with different network expectations (Kenis and Provan, 2009). Networks in their earlier stages influence network structures and processes rather than outcomes (Dockery, 1996; Goss, 2001). On the contrary, mature networks impact mainly on network outcomes (Kenis and Provan, 2009)

The recent literature review by Turrini et al. (2010) tried to summarise all this contribution building an overall framework that links exogenous and endogenous factors with network performance. They found network effectiveness being influenced by three main categories of variables: network structural characteristics, such as size, integration or formalisation, network functioning characteristics, in terms of steering, nurturing, buffering and network contextual characteristics, which include system stability or resource munificence

The following picture synthesises what has been investigated so far in the field of performance in public networks.



Picture 1: Network performance and their determinants

Literature on public network performance is still flourishing (e.g. Herranz, 2010; McGuire and Agranoff, 2011). To date, the attention of public sector studies has been catalysed by the identification of measures for evaluating networks and factors that can influence these measures. Less attention is devoted to their use, albeit it is widely acknowledged the importance of investigating how performance measures are used (Moynihan et al., 2011).

The public sector literature is mainly interested in investigating how to measure the added value of the networks and its determinants, while the PMS literature in IOR explores the role of performance measurement in business networks and the role of control practices more in general in public networks.

### 3.3 PMS ROLE TO SUPPORT NETWORK MANAGERIAL PROBLEMS

After analysing the literature on PMS in IOR and in public networks, these contributions are here discussed with respect to their support in policy and managerial activities. Accordingly, the previously identified network problems are now reconsidered for policy and managerial relationships, specifying the support provided by the PMS.

#### 3.3.1 PMS role in supporting policy activities

The public sector and the PMS literature suggest several roles for the PMS in supporting policy problems. With respect to the difficulties in identifying the objective, the nature of the problem

associated with policy discussions, the PMS can serve to provide knowledge of the environment (Hall, 2010). Without a specific focus on networks, Hall (2010) investigate how information support managers in their activities. He posited that information is useful to develop knowledge of the environment, rather than to support the decision making problem. Ha argued that: “managers primarily use accounting information to develop knowledge of their work environment rather than as an input into specific decision-making scenarios. In this role, performance information can help managers to develop knowledge, to prepare for unknown future decisions and activities” (Hall, 2010: 302). Drawing on Actor Network Theory, Thrane (2007) addressed the active role of managerial information, asserting its primary functions in supporting the change process, providing trajectories for change. These contributions, albeit not focused on public networks, suggest the ability of the PMS in identifying problems, actively driving the change process.

With respect to the second problems of aligning different strategies of network actors, the literature provides contrasting viewpoints about the role of the PMS. According to some authors (e.g. Kliijn et al., 2010) the management of the policy implementation process and its associated problems can be supported with network management strategies which include, among others, technical instruments for steering network actors (Kickert et al., 1997; Koppenjan and Kliijn, 2004). On the other hand, some other studies, assigned the PMS a marginal role, recognising leadership behaviours and skills as the fundamental aspect for a successful network management because useful to align strategies and solve network conflicts. Agranoff and McGuire (1999) found that conflicts resolution can be managed with political skills of bargaining, negotiation, diplomacy, and consensus-building (p.27). McGuire (2002) suggested the managerial activities of activating and mobilising as effective management approaches in operating within policy areas. In the same vein, Silva and McGuire (2010) identified the leadership traits for a successful network management. These contributions hidden the importance of the PMS in aligning strategies of network actors and acknowledged behaviours and skills as foremost aspects of network management.

The third policy problem in related to the identification of measures for evaluating network activities and outcomes. This aspect is connected with problems in evaluating process, outcome and structures of networks (§ 3.2). Network managers are, not only concerned with the identification of the best criteria for evaluating network (Kenis and Provan, 2009), but also with the political games inside the network. This means that the identification of the criteria for measuring networks is the result of a policy games, strongly influenced by the issue of power distribution inside the network. According to some authors (e.g. Kliijn and Koppenjan, 2000), the PMS has a limited impact on power distribution, which mainly depends on actor dimensions and resources availability. Focusing

on relationships, Agranoff and McGuire (2011) recognised the importance of interactions in modifying network relationships. These studies therefore, identify the difficulties in measuring network, but at the same time underemphasise the importance of the PMS in influencing power distribution during the process for defining these measures.

<b>Policy Problems</b>	<b>PMS role</b>
Objective definition	<ul style="list-style-type: none"> <li>• PMS to provide knowledge (Hall, 2010)</li> <li>• PMS provides trajectories for change (Thrane, 2007)</li> </ul>
Strategies alignment	<ul style="list-style-type: none"> <li>• PMS to measure the effects of network management strategies (Klijn et al., 2010)</li> <li>• Leadership behaviours more relevant than PMS to manage networks –strategies alignment and conflict resolutions- (Agranoff and McGuire, 1999; McGuire, 2002; Silva and McGuire, 2010; )</li> </ul>
Measurement definition	<ul style="list-style-type: none"> <li>• Difficulties in identifying criteria for network measurements (e.g. Provan and Kenis, 2009)</li> <li>• PMS has a limited impact on power distribution: resources distributions influence power → citizens lack the know how and capacity to be present in network processes (Klijn and Koppenjan, 2000) or interactions can modify power distribution (Agranoff &amp; McGuire, 2011)</li> </ul>

**Table 8: PMS roles in supporting policy problems**

### **3.3.2 PMS role in supporting service delivery activities**

The literature on public sector and performance measurement provides contrasting viewpoints about the role of the PMS in supporting problems associated with the operational service delivery.

With respect to the difficulties in aligning objectives of different actors toward the common network interest, the literature offers contrasting contributions. On the one hand, it is recognised that ex-ante control, achieved through target setting, can steer the network, assigning network goals to align partner interests (Dekker, 2004). Focusing on a dyadic relationship rather than on the network as a whole, Dekker (2004) suggested that “ex-ante control mechanisms mitigate control problems by aligning partners’ interests and by reducing coordination needs before implementing the IOR” (p.32). The role of the PMS in aligning actors toward the same network goal was also acknowledged by Moyinhan et al.(2010), who asserted the importance of PMS in directing attention and shaping behaviours. At the same time, more recent investigations (e.g. McGuire and Agranoff, 2011) gave the PMS scarce importance with respect to its ability in supporting objectives alignment. They asserted that “the use of ex-ante formulated objectives is usually untenable because actors adapt their perceptions and objectives interactively” (p.9).

With respect to the second network problem of aligning actions facilitating the coordination of activities, the role of the PMS was found discordant in the literature. On the one hand, the PMS was found a useful device to enact cooperation favouring information sharing, problem solving and

willingness to adapt to changes (Mahama, 2006). On the other hand, the PMS is considered not enough to support actions alignment; the development of trust is a precondition for a successful alignment of partners' activities. These contributions are related to business networks, neglecting the potential role of the PMS in aligning actions in public networks for service delivery.

Finally, with respect to the problem of defining the responsibility for the service delivered, I found contrasting results. Public sector studies recognised the importance of measuring performance at different network levels in order to ensure the accountability of different network actors (e.g. Provan and Milward, 2001). At the same time, the more general public sector literature suggested trust and reputation as substitute of performance. Moynihan et al. (2011) asserted that “principals might respond to the exploitation of incomplete performance contracts by trying to write ever-more detailed contracts or they could rely instead on more relational forms of contracting, using trust and reputation as a substitute for performance monitoring”(p.i151).

These contrasting viewpoints and scarce attention on the specific public network field, justified the purpose of this research to explore the role of PMS in supporting network problems.

<b>Service delivery problems</b>	<b>PMS role</b>
Objective alignment	<ul style="list-style-type: none"> <li>• Ex-ante outcome control can provide network goals to align partner interests (Dekker, 2004)</li> <li>• PMS to direct attention (Moyihnan et al., 2010)</li> <li>• Ex-ante formulated objectives are unattainable because actors adapt their perceptions and objectives interactively (McGuire&amp;Agranoff, 2011)</li> </ul>
Actions alignment	<ul style="list-style-type: none"> <li>• PMS enacts cooperation favouring: information sharing, problem solving, willingness to adapt to changes (Mahama, 2006)</li> <li>• PMS are not enough to support coordination (trust is also necessary) (Vosselman &amp; Van der Meer Koistra, 2009)</li> </ul>
Definition of responsibility for service delivery	<ul style="list-style-type: none"> <li>• Network PMSs have to be defined at multiple levels: community, network, organisational to account for different responsibility and interests (Provan&amp;Milward, 2001)</li> <li>• Trust and reputation as substitute of performance monitoring (Moynihan et al., 2011)</li> </ul>

**Table 9: PMS roles in supporting policy problems**

### **3.4 RESEARCH OBJECTIVE**

The literature review has analysed both the PMS in IOR and in public networks with the purpose to understand how the PMS can support the management of network problems. From this analysis, some literature gaps have emerged.

First of all, the public sector literature is mainly aimed at identifying the best criteria for evaluating networks and its determinants, neglecting the issue about how these measures can then support network managers and stakeholders.

Second, the literature about PMS in IOR is instead interested in investigating how PMS and control mechanisms more in general can support network activities. Nonetheless, this studies mainly consider dyadic relationships, rather than the network, and they are focused on business networks, neglecting the public sector.

Third, considering the potential roles of the PMS in supporting network problems contrasting contributions have been identified (§ 3.3). According to some authors (e.g. Dekker, 2004) , PMS has a foremost role in supporting decision making, aligning strategies and behaviours and support network measurement. At the same time, other scholars, proposed other aspects, such as trust, power of reputation as substitute of the PMS (e.g. Moynihan et al., 2011).

These research gaps allowed to clarify the research objective, that can be defined as follows:

*how can the network PMS, intended as the system of measures adopted by network actors, support network managerial problems?*

This objective can then be split into three main research questions.

1. What are the network PMS technical characteristics? This first research question is derived from the public sector literature that pointed out difficulties in identifying the best measurement criteria for evaluating networks (e.g. Sydow and Milward, 2003). Given the possibility of adopting different measurement criteria (Kenis and Provan, 2009) and multiple perspectives of evaluation (Provan and Milward, 2001), the first step of the research is aimed at explaining characteristics and problems of the PMS adopted by each network actor.
2. How the network PMS is used by network actors? This is the core of the research project given the objective to analyse how different network actors make use of the available information. The importance of analysing the use of information is widely recognised in both public sector and PMS studies (e.g. Moynihan and Pandey, 2010). This research question is also justified by the recognition that PMSs can serve different functions (Behn, 2003); “researchers at least considered the possibility that managers may not use accounting information, that its role may be limited, or that new roles and possibilities for accounting information may emerge (hall, 2010: 302).” In this research the attention is devoted to the PMS use in public network that has received less attention on public network studies.
3. How do support processes influence network PMS technical features and uses? This third question is associated with auditing procedures and Information Systems, that have been

recognised influencing both design and use of PMS (Ferreira and Otley, 2009). Auditing is of extremely importance in public sector management given the increased accountability needs exploded with the diffusion of the “audit society” (Power, 1997) in late 1990s. Information Systems instead are related to the recognised support ICT can provide to using and managing information inside organisation. While these aspects have received widely attention in public sector and performance measurement literature, they have been scarcely addressed with respect to the support than can provide in the network PMS use.



# CHAPTER 4: CONCEPTUAL FRAMEWORK

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This chapter illustrates the conceptual framework that has been adopted in the analysis. The first part of the chapter details the notion of public service network (par 4.1) and of network Performance Measurement System (par 4.2). In the second part, the three dimensions of analysis will be illustrated: technical Performance Measurement System (PMS), PMS use and support processes.

## 4.1 PUBLIC SERVICE NETWORKS

Public sector studies use to investigate policy networks and collaborative networks separately, without considering their potential overlapping. The collaborative network is here defined collaborative service delivery network, or simply service delivery network (§ 2.1), because the collaboration between network actors is achieved around the service provision.

Recent contributions (Agranoff and McGuire, 2003; Rethemeyer and Hatmaker, 2008) addressed the importance of considering interrelations between these two networks given that decisions and activities that take place in one network can influence activities of the other. It is acknowledged that:

“Once a collaborative mechanism is selected for public service provision, it generates its own political economy (through small numbers bargaining and dependence on state resources) that generates some pressure to engage in political activity” (Rethemeyer and Hatmaker, 2008: 633)

The overlapping between vertical relationships in policy networks and horizontal relationships in collaborative service provision networks (§ 2.1) requires an integrated approach to network investigation (Agranoff and McGuire, 2003):

“future research should attempt to link policy networks with collaborative networks of a different nature [...] future work needs to better specify the nature of interactions that occur between these components of a network system” (Rethemeyer and Hatmaker, 2008: 641)

In this research policy and collaborative service delivery networks are both explored as a unique network system, hereafter called public service network.

Accordingly, *public service networks are a set of interdependent actors that jointly work together to deliver a public service, that comprises both the policy implementation and the operational service delivery.*

The basic assumption is that policy and service delivery networks cannot be separated because strongly interrelated with each other. This definition gives the possibility to further characterise the network objective, actors and relationships for public service networks.

The network objective is to provide a public service that comprises both the implementation of a public policy and the practical service delivery.

Network actors include service regulators, represented by local administrators or government bodies, service providers, both private and public organisations in charge of delivering the service, and associations of users that are organised groups of users, who represent the voice of the customers receiving the service. Given the overlapping between activities of policy implementation and service delivery, the same network actor can be involved in both of them.

Network relationships instead are derived from the activities of policy implementation and operational service delivery that the network can perform. Accordingly, network relationships can be distinguished between policy and managerial relationships. Policy relationships are interconnections between actors that are generated around the activities of policy implementation, while managerial relationships are developed around the activities of service delivery.

The distinction between policy and managerial relationships is different with respect to the distinction between policy and collaborative networks. In this study, the network is investigated posing attention, not only on the nature of the network actor, but also on the type of the relationship. Table 10 clarifies the terminology associated with the public service network conceptualised here.

<i>NETWORK</i>	Policy network	Collaborative (or service delivery) network
<i>ACTIVITIES</i>	Policy making and implementation	Operational service provision
<i>RELATIONSHIPS</i>	Policy	Managerial

**Table 10: Network labels**

The public service network derives by the overlapping between policy and collaborative service delivery networks. This network performs two main activities, policy making and service provision, that are exploited through policy and managerial relationships respectively

#### **4.1.1 NETWORK ACTIVITIES AND RELATIONSHIPS**

Given the objective of the research to explore the role of PMSs in supporting network problems, the attention has been catalysed by the content and the flow of information (Hopwood, 1996).

Accordingly, network relationships are here characterised depending on the content of the information flow: communication to support policy making activities or communication to support service delivery activities.

The relationship is defined as a *policy relationship* when network actors interact to define or implement a public policy, This relationship can involve either two or more network actors as recognised since the late 1970s:

“Policy formation and policy implementation are inevitable the results of interactions among a plurality of separate actors with separate interest, goals and strategies” (Scharpf, 1978: 346).

Seminal papers on policy networks (Kickert et al., 1997; Klijn and Koppenjian, 2000; Koppenjian and Klijn, 2004) suggest to split the policy making process can be split into three main phases: policy activation, policy games and policy outcome. The policy process is usually seen as a collection of games between actors (Klijn and Koppenjian, 2000) and therefore the primary policy activity is represented by interactions between policy actors that occur around these policy issues. Games take place in network arenas (Klijn and Koppenjian, 2006), where different objectives, strategies and perceptions of network actors collapsed together generating conflicts. This core activity of policy games is complemented by two other activities: policy activation and policy outcome. The policy activation represents the moment in which the network of actors is established. It represents a source of uncertainty (Koppenjian and Klijn, 2004) given that the identification of the policy problem can generate conflicts and different viewpoints from the involved network actors. The other policy activity is represented by the final decision making, the policy decision, which is the result of the previous set of games and interactions.

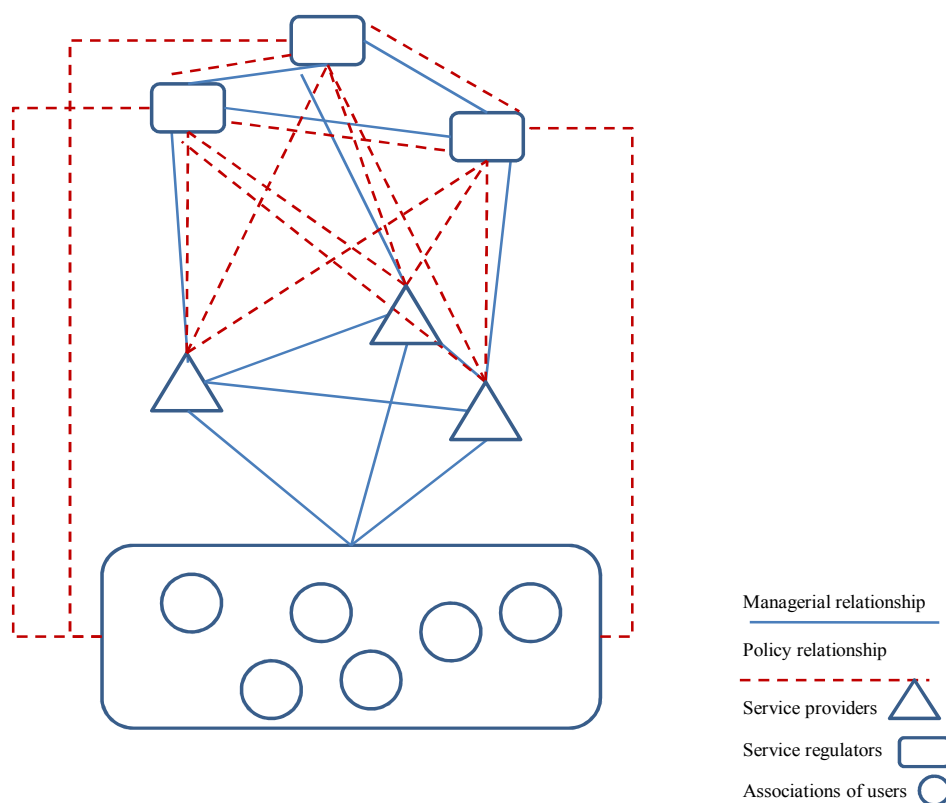
The relationship is labelled as a *managerial relationship* when network actors interact to manage activities related to public service delivery. Managerial activities related to service provision can be derived from the traditional public service management literature:

“Management, in the sense of exercising some discretion, requires that managers think and act to find the best ways of achieving some target or objectives, using and directing other people’s skills. [...] The management has some formal authority as well as carrying out a set of activities such as planning, budgeting, performance measurement, setting up organisational arrangements, through which they direct and control the others” (Flynn, 2007: 2).

Accordingly, the activities of planning, measurement and reporting of the public service are here considered as constitutive of the managerial process of service delivery.

The distinction between policy and managerial relationships gives the possibility to characterise each network actor with multiple relationships, that would have not been possible considering policy and service delivery networks separately. The typical example is the case of the service regulator, such as a local agency. It can be involved in policy relationships when it discusses with another regulatory body about how to implement the service. At the same time, it is characterised by managerial relationships with service providers in order to control the service delivered. The adoption of this conceptualisation gives the advantage to account for interrelations between policy and collaborative service delivery networks (Rethemeyer and Hatmaker, 2008), rather than treating them separately.

Picture 3 graphically represents policy and managerial relationships between network actors.



Picture 2: Network relationships

Picture 3 highlights the three different categories of actors – providers, regulators and users- that are involved in the public service network. This overall network includes both managerial relationships (blue

lines) that link all the three categories of network actors with each other, and policy relationships (red lines) that links users with regulators and regulators with providers.

It is worth to notice that network relationships are a snapshot in a precise moment of time. They are not stable (Van de Ven, 1976; Stern, 1979; Ring and Van de Ven, 1994; McDermott, 2007); rather, they evolve overtime during the network life cycle (for a review see Saz-Carranza and Vernis, 2006). Changes in network relationships can be influenced by several factors, such as power distribution, resource dependence, political context, trust, leadership or membership structures (Huxham, 2003; McDermott, 2007; Vlaar et al., 2007).

#### **4.1.2 NETWORK ACTORS**

A distinctive characteristic of public networks is the existence of a multiplicity of actors that can vary widely from one network to another. The different nature of actors, their different objectives and expectations need to be taken into account for the purpose of this study because they can influence what the network can actually achieve (Provan and Milward, 1995; Provan and Sebastian, 1998). Adopting a principal-agent perspective, Provan and Milward (2001) identified three broad categories of network constituents: principals, who monitor and fund the network; agents, who work in the network as administrators or service professionals; clients, who receive the service.

These general categories can be here further specified for a mandated public network in charge of delivering the public service (see Table 11).

The *principal* is here represented by local administrations at various governance levels – central or local - that have the role of regulating the service, which means monitoring and funding the public service network. Their objective is to plan and control the service in their area of competence with a particular attention on financial constraints given by the need to control the available funding. Formally mandated networks are also characterised by the presence of a central local administrative entity in charge of leading, coordinating and governing the growth and maintenance of the network activity (Kenis and Provan, 2009). This central entity, sometimes referred to as network broker (Mandell, 1984; Lawless and Moore, 1989), can be either a network actor or a purposeful established organisation. Provan and Kenis (2008) distinguished these two types of brokers, between network leader and network administrative organisation (NAO). The former is the case of “core provider agency that assumes the role of the network leader because of its central position in the flow of clients and key resources” (Kenis and Provan, 2009: 447). The latter instead is a separate administrative entity “set up specifically to manage and coordinate the network and its activity” (Kenis and Provan, 2009: 448). Its purpose is the network governance and therefore it is in charge of coordinating actions and key decisions, often through a mandate. If networks are

mandated, like in this study, the actor with the responsibility of coordinating and leading the network is explicitly defined by the regulation (Kenis and Provan, 2009). It derives that, for a formally mandated network, local administrators can be divided between:

- Service administrator, which is the network coordinator of actions and key decisions for the whole network. Its objective is to support the service integration through the coordination of the decision making process about the policy implementation and the management of service delivery. Accordingly, is it potentially involved in both policy and managerial relationships with all the other network actors.
- Service regulator. It is responsible for planning and controlling the public service in its own area of competence but, unlike the service administrator, it does not have the purpose of fostering the network objective of service integration. It can be involved in policy relationships with service regulators in order to discuss with them about the policy implementation. It is also involved in managerial relationships with service providers, through the mandated service contract. Service administrator and regulators can be the same actor if it is in charge of both coordinating activities, planning and controlling the service.

*Agents*, following Provan and Milward's (2001) classification, are those actors that work in the network as service professionals. For a public service network, they include service providers, that can be either single service providers or consortiums of providers (Hoge and Howenstine, 1997). Single service provider (here simply labelled providers) are private organisations that operatively deliver the service following a contract signed with the service regulator. Like all business organisations, providers' objective is to maximise the economic profit while, at the same time, satisfying customer requirements. When these private organisations become part of a public network, their objective of economic value maximisation is subject to contractual constraints. This means that the maximisation of the economic value has to be aligned with constraints written in the contract. They can be related to both specific target values to achieve for the service delivered or specific fulfilments to accomplish, such as the creation of a website or the publication of Citizens Charters (Cooper, 1993; Pollitt, 1994). Accordingly, providers are mainly involved in managerial relationships with the service regulator because of the existence of a service contract; with other providers (if they are part of a consortium) and with their clients to deliver the service and receive feedback about potential improvements. They can also be interested in policy relationships with the service administrator if decisions about the policy implementation affect their service requirements.

*Consortiums* of providers are a specific type of service providers, not always found in network activities. They are a group of service providers, either private organisation or public entities, that choose, voluntary or on a mandated basis, to work together in order to operationally deliver the service. Consortiums are established to deliver different types of public services, such as mental health service, transport service or tourism services (Hoge and Howenstine, 1997; Fyall et al., 2000; Warner and Hefetz, 2008). In case of mandated networks, their main objective is to deliver the service respecting contract requirements. Two main constraints are associated with this objective: the limited authority of the consortium, given by the existence of a contract and the need of sharing resources with other service providers. Like for the case of the single service provider, the consortium can be involved in managerial relationships with service regulators and users or in policy relationships with the service administrators.

*Clients*, following Provan and Milward's (2001) classification, are those who receive the service. They are here labelled users and they can involve both general public and consumers advocacy groups (Provan and Milward, 2001). They are interested in having their need for the public service satisfied and therefore they are paying particularly attention to service quality and the cost for accessing the service. Both these elements can impact on the decision to access the public service. While the general public is generally the receiver of the service, consumers advocacy groups are actively involved in network activities (Agranoff and McGuire, 2001; Provan and Milward, 2001). In fact, the public sector client has progressively increased its importance, passing from being a receiver of the service, arriving at the centre of the provider's strategy and finally being involved in the decision making process (Warner and Hefetz, 2008). This evolution of the user's role allows to associate users with both managerial and policy relationships. The former take place with the service provider, given that users receive the service and providers' report, but they can also communicate with the service provider through website, call centre or information point. The latter instead take place with service administrators and they are the result of a public engagement movement (Irvin and Stansbury, 2004; Rowe and Frewer, 2005) that fosters the participations of citizens and clients in the public administration and decision making.

<b>P&amp;M (2001) general categories</b>	<b>Network actors for a public service network</b>	<b>Network Actor Objective</b>	<b>Constraints</b>	<b>Type of relationships</b>
Principal	Service administrator	To integrate the public service	Financial constraints	Policy relationships with all other network actors Managerial relationships with service regulators
	Service regulator	To plan and control the local public service in its competence area	Financial constraints Regulatory constraints (defined by the administrator)	Policy relationships with service administrator or users Managerial relationships with service providers or consortiums
Agent	Consortium	To deliver the service fulfilling contract requirements	Limited authority Resource sharing	Policy relationships with service administrator Managerial relationships with service providers, users and service regulator
	Single service provider	To maximise economic value	Respect contractual commitments Satisfaction of clients' requirements	Policy relationships with service administrator Managerial relationships with other service providers, users and service regulator
Clients	Users	To maximise their utility from receiving the public service	Quality of the service Costs for using the service	Policy relationships with service administrator Managerial relationships with providers of consortiums

Table 11: Network actors

## 4.2 NETWORK PMS

The literature review (see § 3.1 and § 3.2) has shown a great interest in network performance in the last ten years. Despite this increasing attention, it is quite surprisingly that a shared definition of what is a network Performance Measurement System (PMS) is still missing (Turrini et al., 2010). Public sector scholars have frequently asserted the importance of measuring network performance in order to assess network accountability (Agranoff and McGuire, 2001) and support policy makers



(Provan and Milward, 2001). Yet they do not explicitly define network performance, even when the objective of the study is the evaluation of network performance. For example, the seminal paper by O'Toole (1997) recognised that “network performance is explained here by the degrees and type of integration, external control, stability, and environmental resource munificence of the arrays” (O'Toole, 1997: 49). Agranoff and McGuire (2001) acknowledged the importance of measuring performance: “we must be able to measure the outcomes and performance of networks in order to assess how accountable a particular network is to its stakeholders and for achievement of its stated goals” (Agranoff and McGuire, 2001:311). The recent study by Kenis and Provan (2009) was aimed at identifying determinants of network effectiveness and they argued that: “we are here interested in studying network level performance or what Provan and Milward (2001) articulate as the joint production problem, where multiple agencies are responsible for one or more components of a single service.” (Kenis and Provan, 2009: 440-441). A first attempt at providing a PMS definition is found in the study by Provan and Milward (1995), who defined network effectiveness (hence a specific dimension of the network PMS) as the improvement of the well-being of clients and the overall quality of the service delivery.

These authors underlined the importance of measuring performance and propose measurement for evaluating whether networks really work; rather, they do not define a network Performance Measurement System.

This research wants to explicitly provide a definition for the network PMS given that this concept represents the focus of the entire investigation. For a public sector organization, performance measurement is defined as “the regular collection and reporting of information about the efficiency, quality and effectiveness of government programs” (Nyhan and Martin, 1999: 348). This definition for a single public organization can be shifted to the network and it becomes as follow:

*The network Performance Measurement System (PMS) is the procedure carried out by each single network actor for the regular collection and reporting about the efficiency, quality and effectiveness of the organisational and the network activity.*

Accordingly, the PMS is analysed with respect to three levels of analysis:

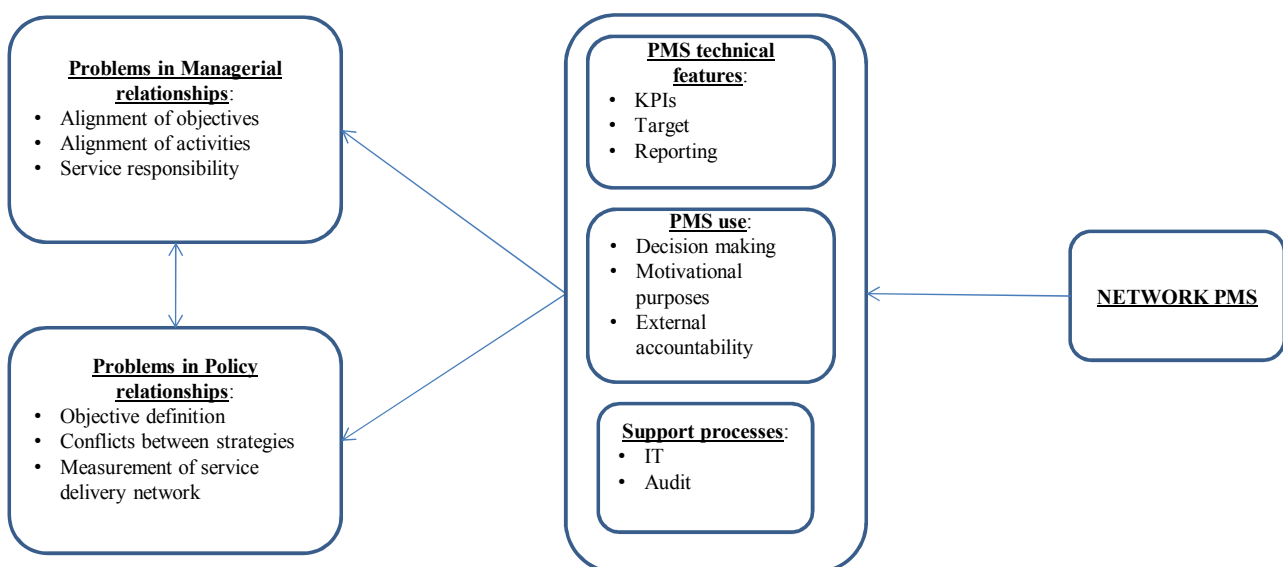
- PMS at the network level as a whole. This measurement system allows to collect data about the activity performed by the entire network;
- PMS of the single actor inside the network; this represents the organisational PMS that is used, and eventually modifies, by the actor involved in the network. This system can be

useful to monitor organisational activities, but also benefits and costs of the single actor being part of the network;

- PMS of network relationships, which include performance measures to evaluate interactions between network actors. This aspect is extremely important given the recognition that there can be a high performing network (from the PMS at the network level), but with a poor interaction performance (McGuire and Agranoff, 2011).

The differentiating element with respect to the traditional PMS is represented by the level of analysis, that has shifted from the single public organisation to the whole network, the single actor and their relationships. The consequence is that the PMS can be related to both the service delivered by networks, or what it is often called network outcome (Provan and Sydow, 2008), and to the interaction process among network actors, also defined network process (Koppenjan, 2008; Provan and Sydow, 2008). This means that there are three distinctive types of information that can be generated by the system: facts about the overall public service, information about the single network actor and data about actors relationships.

The conceptual framework for investigating how the network PMS can support the management of network problems is organised around three main dimensions: PMS technical features, PMS use and PMS support processes (see Picture 4).



Picture 3: Conceptual framework

The first dimension of the framework, PMS technical features, is derived from the PMS definition. The regular collection and reporting about the network activity implies the analysis of the planning and control cycle (de Bruijn, 2002; Jansen, 2008), which incorporates Key Performance indicators (KPIs), targets and reporting.

The second dimension of the framework is represented by the PMS use. This dimension is extracted from the public sector literature that recognises the importance of complementing technical aspects of the PMS with its use. “Performance measurement is not an end in itself” (Behn, 2003: 586). Rather, it is used to accomplish something, ranging from evaluation, control, motivation, and knowledge (Behn, 2003; Johnsen, 2005). This means that targets and reports alone are not able to explain whether and how politicians and public managers use information (Jansen, 2008). According to these claims, public sector scholars have been long interested in investigating how and why public managers use performance information (ter Borgt, 2004; Moynihan and Pandey, 2010), especially after the diffusion of NPM ideas (Hood, 1991). Therefore, network PMS is analysed considering also how network actors use the information provided by the system.

The third dimension of the framework is represented by support processes, that are recognised as useful to facilitate PMS technical design and use. Several organisational and environmental factors, such as technical, institutional or behavioural factors (Pollanen, 2005; Fryer et al., 2009) can inhibit the development and the use of performance measures (Fryer et al., 2009). These impediments have called for the development of support processes in order to enact both the technical PMS aspect and its use. For this reason, the last element of the conceptual framework is represented by support processes that include both the auditing system (Power, 1994; Barzelay, 1997; Leeuw, 1996) and the information technology (Bannister, 2001, Dechow et al., 2007). The former is useful for increasing data reliability, while the latter is necessary to better support the process of data collection and reporting.

Following, each of the dimensions of the conceptual framework will be analysed.

### **4.3 PMS TECHNICAL FEATURES**

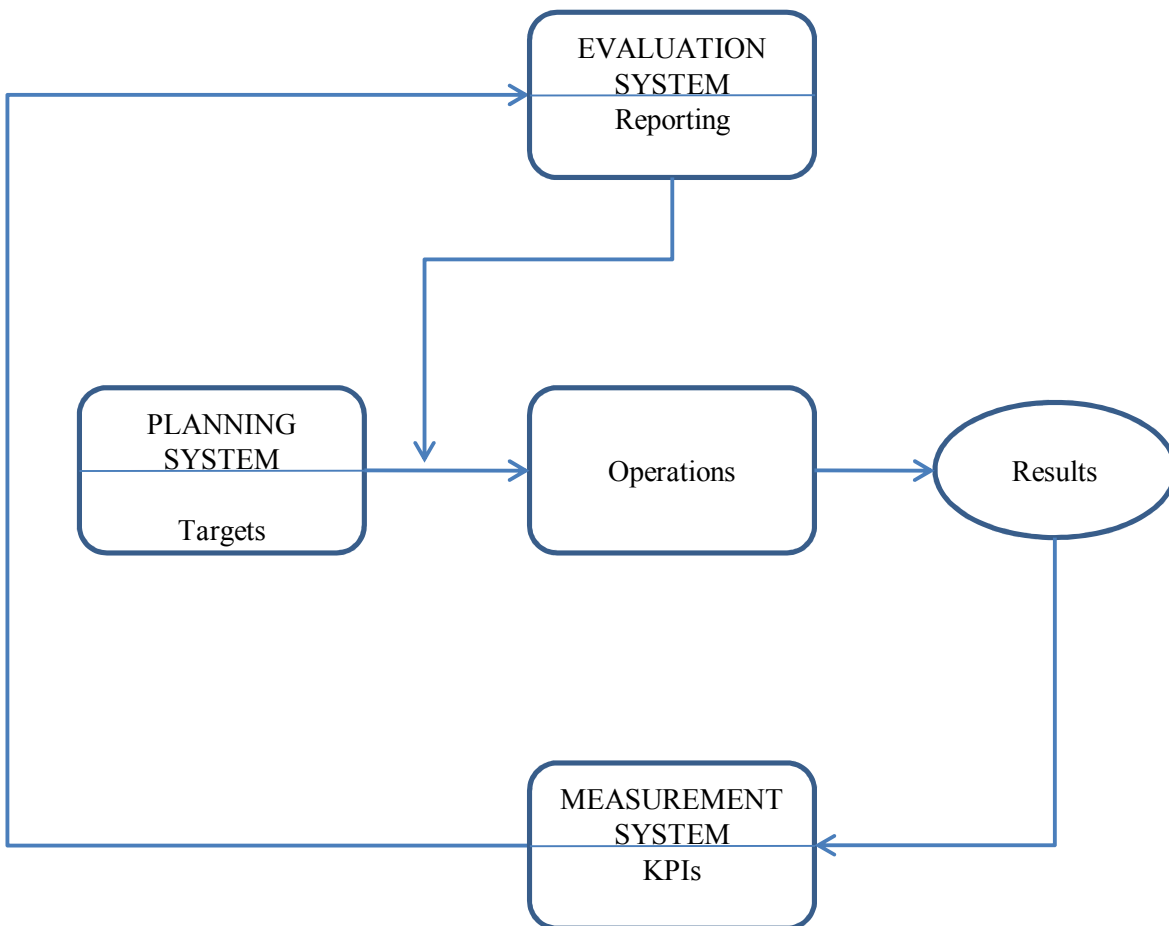
The technical dimension of a PMS has gained prominent importance with the diffusion of NPM ideas (Hood, 1991; 1995; Pollitt and Bouckaert, 2000; Jansen, 2008), that have catalysed the attention of both academics and practitioners on the development and application of effective performance measurement systems (Massey, 1999; Bovaird and Löffler, 2002). Public sector scholars are still devoting attention, time and money to performance measurement, management and evaluation (van Helden, 2010). This is even truer for public service networks, where the majority of studies on performance are aimed at defining performance criteria and measurement for assessing network effectiveness (for a review see Kenis and Provan, 2009; Turrini et al., 2010).

The technical dimension of a PMS is here analysed with reference to the public sector management control cycle, which implies the following actions: deciding what to measure and how to measure, interpreting the data and communicating the results (Fryer et al., 2009). Specifically, the technical

PMS dimension is analysed with reference to the control model derived by Flamholz (1996). It comprises three elements (Picture 5):

- Key Performance Indicators (KPIs), that are numbers useful to represent aspects of the network activity, included in the measurement subsystem.
- Targets, that are associated with the planning subsystem. They are useful for setting objectives, directing working activities towards the desired final goal or for benchmarking actual results with predefined goals .
- Reports, that represent documents generated at the end of the control cycle to provide feedbacks about how well the system is performing.

In a mandated public network, these three elements of KPIs, targets and reports can be explicitly defined in a service contract (Sanderson, 2002; Jansen, 2008) that regulate the relationship between service regulator and service provider.



Picture 4: Control model (adapted from Flamholz, 1996)

Each of these aspects will be here discussed.

#### 4.3.1 KEY PERFORMANCE INDICATORS (KPI)

The first aspect to be analysed is represented by the measurement system, that implies decisions about what and how to measure: the selection of Key Performance Indicators (KPIs).

Early indicators were primarily financial, but the attention has been gradually moved towards other measures (e.g. quality). This shift is justified by the tendency of public organisations putting citizens and customers at the centre of their reform agenda (Irvin and Stansbury, 2004; Rowe and Frewer, 2005). This trend has brought about the proliferation of performance indicators that have been not always associated with improvements in the quality of the indicators themselves (Lemieux-Charles et al., 2003; Lonti and Gregory, 2007). On the contrary, organisations have often developed a large numbers of indicators, many of which are obsolete or not used, remaining organisational myths (Modell, 2004).

Nonetheless, this wide array of indicators gives the possibility to measure different dimensions of performance, often known as 3E's (Jackson and Palmer, 1992). Efficiency measures compare the output of the service provided with the resources used to produce it. Effectiveness measures evaluate the outcome of the service provided, while economy measures are related to the volume of inputs used. Bouckaert and Van Doren (2003) introduced the fourth E, the equity. It is a measure to evaluate whether citizens have the same opportunity to get public services in the same quantity and quality. A widely diffused approach for analysing performance measurement is based on the process oriented model (Pollanen, 2005), in which performance measures are categorised into four dimensions:

- Input measures that evaluate the state of resources used in providing the service;
- Output measures that quantifies the amount of work completed in terms of service demand, output and equity;
- Process measures that account for the relationship between input and output, also defined as efficiency in the use of resources;
- Outcome measures that are related to the characteristics of the service provided, also known as effectiveness.

These four dimensions are the same that can be found in measuring public networks (Sydow and Milward, 2003), but they need to be associated with the specification of the level of analysis given by the existence of multiple actors with multiple and divergent interests (Provan and Milward, 2001). The identification of the proper indicator for evaluating network effectiveness has vividly attract accounting and public network scholars (for a review see Sydow and Milward, 2003; Provan and Sydow, 2008; Kenis and Provan, 2009) because of the existence of technical difficulties in selecting these indicators. These difficulties are associated with the seminal problem of multiple

principals and multiple tasks (Dixit, 2002) that characterises public sector organisations. The presence of multiple principals means that bureaucrats serve several masters, like users of the service, payers of the service, politicians or professional organization. It derives that each agency has several ends to achieve (multiple tasks), which are often in trade off. Therefore PMS should be able to monitor the progress towards different goals of different stakeholders. The customer is interested in receiving a service which corresponds to his expectations and at the same time accessible. The citizen wants to judge the activity of the government and the value it is creating for the community, and policy makers need information in order to improve their decision making process.

The existence of multiple stakeholders is further accentuated in network structures (Provan and Milward, 2001; Herranz, 2010), wherein

“Assessing public network performance presents especially difficult conceptual and methodological challenges because of their multi-organisational inter-relationships and because they are often used to address ‘wicked’ public policy issues that cannot be addressed with the administrative tools of the single agency” (Herranz, 2010: 445-446).

The challenge is represented by the development of appropriate indicators for multilevel performance. In their study about network effectiveness, Provan and Milward (2001) suggested to develop performance indicators for three different categories of network stakeholders – community, network and organisation- explicitly recognising the importance of what to measure and for whom also in public networks.

The analysis of network Key Performance Indicators is considered here useful to understand which dimensions of performance are considered by each network actor, which dimensions of performance are used to measure the network as a whole and how they differentiate with each other.

#### **4.3.2 TARGET**

The second technical dimension is represented by targets, that enter the planning subsystem of the control cycle (Flamholtz, 1996). The target can be defined as the level of performance the organisation needs to achieve for each of the Key Performance Indicators (Ferreira and Otley, 2009). The importance of setting targets for public organisations has emerged with the NPM wave, that has stressed the importance of defining explicit standards for performance measures (Carter, 1988; Hood, 1991).

Setting targets is useful at the organisational, but also at the network level. At the organisational level, it is useful ex-ante to clarify objectives and drive behaviours towards these desired objectives. Furthermore, it is also useful ex-post to compare actual results with the target value in order to

identify the amount of the performance gap and the reason behind this variance (Otley, 1999; Ferreira and Otley, 2009). At the network level, setting targets *ex ante* is claimed as beneficial because it can facilitate the alignment of actor network's actions (Dekker, 2004) given that "measures direct attention and shape behaviours" (Moynihan et al., 2011: 150).

Two aspects need to be considered in analysing network targets: the identification of the target value and behavioural effects. The identification of the target value can be based on internal benchmarking (Zairi, 1996; Jonhston et al., 2001) using historical standards based on past performance, or on external benchmarking, using other organisation based-target or the "best in field" benchmark (Zairi, 1996). The behavioural dimension associated with targets is related to the possibility to use target values as a basis for incentives and motivation, albeit they can result in dysfunctional consequences for public service employees (Lapsley, 2008). In fact, the relationship between reward, motivation and performance is long recognised as complex (Ferreira and Otley, 2009). On the one hand, recognising a reward for target achievement is useful to motivate individuals while aligning individual own goals with those of the organisation (Hopwood, 1972). On the other hand, it is associated with several dysfunctional effects. For example, the desired behaviours not rewarded can be neglected (Kerr, 1975), rewards for public sector professionals can be closely aligned to professional values and ideologies (Lapsley, 2008), targets can be short term focused or based on imprecise measures (Widener, 2006). Specifically for public networks dysfunctional behaviours for target setting have been highlighted by McGuire and Agranoff (2011). They argue that network actors can adapt their perceptions interactively on the basis of the *ex-ante* formulated objective.

#### **4.3.3 REPORTING**

The third technical dimension of the network PMS is represented by reports, that are useful for communicating results, albeit this aspect is less discussed in the literature (Smith, 1993; Ammons, 1995; Fryer et al., 2009). Reports can have different structures. They can look like dashboards, league tables or performance information portfolio (Feit, 2003; Wisniewska and Stewart, 2004; Pidd, 2005; Greatbanks and Tapp, 2007). Yet reports have the same purpose of providing feedbacks about how the activity has been performed (Stewart, 1984; Mayne, 1997; Pollanen, 2005). Accordingly, they can be used to support both internal and external accountability for the single organisation, but also for the network as a whole. On the one hand, performance reports can be used to support internal accountability, providing information to managers inside the organisation. On the other hand, they can support external accountability, informing a wide range of stakeholders. This last aspect is clearly visible in networks where multiple aspects of performance (Provan and

Milward, 2001) are of interest to a wide array of stakeholders: citizens, policy makers and organisations inside the network.

The analysis of the report dimension is associated with two main aspects. The first aspect is the analysis of the content of the report in terms of type of information included and frequency of the document delivery. Moreover, in mandatory networks (Agranoff, 2007) it is possible to distinguish between mandatory and voluntary reports. Mandatory reports are required by law, usually explicitly defined by contracts. Citizens Charters (Cooper, 1993; Pollitt, 1994) are a typical example of these documents. Voluntary reports instead include documents and information exchanged between network actors without an external imposition.

The second aspect is the analysis of the flow of information that allows to trace formal and informal relationships between network actors. Information flows are considered essential mechanisms to any PMS (Otley, 1999; Ferreira and Otley, 2009) because they keep the system together by providing feedback and feed forward information. In the case of a single organisation the importance of the flow of information is associated with the notion of single and double loop learning (Argyris and Schön, 1974; 1978) because they support the learning process. When the focus shifts to the network of organisations, the analysis of the information flow is also useful to trace relationships generated by the network PMS. This approach takes its cue from the social network analysis (Fredericks and Durland, 2005), where sociograms are used to map actors (graphically represented by nodes) and relationships between them (graphically represented by lines). “The relationship lines in the sociogram could represent resource or communication flows or influence, or could provide an illustration of the connections among individuals” (Fredericks and Durland, 2005: 16).

In summary, the report dimension is useful in this research to investigate the content of the communication and the connections generated by formal and informal information exchanged.

#### **4.4 NETWORK PMS USE**

The second dimension of the conceptual framework is related to the network PMS use, that represents a relevant aspect given that “the key factor in effective performance management is the manner in which performance information is used” (Pollanen, 2005: 10). Therefore it is not surprisingly that public sector management accounting research is mainly interested in understanding the use of accounting techniques (van Helden, 2010). After analysing technical features of network PMS it is then important to investigate how these information are used (Moynihan and Pandey, 2010). The issue of the PMS use in networks has been scarcely investigated



in the public sector literature (see § 3.2). the identification of the potential PMS uses is derived from the general accounting and public sector literature. Six different roles have been identified:

- *Diagnostic role*; according to this perspective, performance measures are useful for setting goals, controlling activities and organizations, motivating people, learning and diffusing accountability concepts (Hood, 1995; Behn, 2003; Popper and Wilson, 2003; Johnsen, 2005).
- *Knowledge role*, which has been recently recognized in the accounting literature as a fundamental aspect in the current dynamic environment (Hall, 2010). Given that managers need to take decision as fast as possible, it is fundamental to provide them with the information to know what is happening around them.
- *Supporting role*; this has been highlighted by studies on the role of managers within public networks (McGuire, 2002; Agranoff, 2006; Bryson et al., 2006; Thomson and Perry, 2006). McGuire (2002; 2006) proposed a set of activities manager should run to complement intra-organizational management: framing, activating, mobilizing and synthesizing; some others (Crosby and Bryson, 2010; Silva and McGuire, 2010) specified the unique skills of a network manager, such as the ability in negotiating, mediating and trust building. These studies shed light on the possible role for PMS to support to the managerial activities of framing, activating, mobilizing and synthesizing.
- *Coordinating role* that derives from the broader literature on inter-organizational relationships. Studies in this field (Langfield-Smith and Smith, 2003; Hakansson and Lindt, 2004; Mouritsen and Thrane, 2006) have underlined the importance of control systems more in general in enhancing trust building and coordination among different organizations involved in collaborative arrangements.
- *Formal compliance role*, that derives from the institutional theory (Meyer and Rowan, 1977) and it is mainly associated with the continuous pressures public administrations are receiving for being accountable for results towards citizens and customers (Kloot and Martin, 2000). Citizen's Charter performance indicators represent the typical example of report used for external accountability (Stewart and Walsh, 1992; Sanderson, 2002). These pressures have been often associated with the proliferation of performance measures that are, in practice, not used. In this case, PMS is developed to provide legitimacy (Hopwood, 1984; Lapsley, 1996, Modell, 2004) within the institutional environment, rather than to support decision making and service improvements (Sanderson, 2002). Modell (2004) developed the concept of organisational myths to describe the situation in which performance measures do not permeate public sector organisation.

- *Active role*, that derives from public sector studies (Chua, 1995; Arnaboldi and Azzone, 2010), that have highlighted the constitutive nature of accounting. In this case, measures are not merely a supporting tool. Rather, they represent an active force that transforms organizations and their activities (Chua, 1995; Arnaboldi and Azzone, 2010). This perspective suggests that the role of PMS is not only to provide an objective representation of the network, but it becomes also a fundamental actor within the network (Callon, 1998), which mobilises members, their actions and behaviours in a particular direction (Chua, 1995; Lowe, 2001; Arnaboldi and Azzone, 2010).

## 4.5 SUPPORT PROCESSES

The third dimension of the conceptual framework is represented by support processes that provide assistance for both the definition of technical network PMSs and their use. Both audit and information technology (IT) are useful in aiding the network PMS.

### 4.5.1 AUDIT

Audit has a significant impact on public sector management and expressions like “audit explosion” (Power, 1994) or “audit society” (Power, 1997) have become common for describing the expanding use of inspection practices in public administrations. Power (1997) defines audit as the “control of control” since “auditors began to experience a wave of formalised and detailed checking up on what they do” (Power, 1997: 3). Accordingly, audit procedures affect not only substantive activities, or what it is called financial audit (Power, 2003), but also internal processes and systems of control (Sanderson, 2002).

The widely adoption of performance measurement systems by public sector organisations has brought about the introduction of auditing performance (ter Bogt et al., 2010). Auditing performance is important for three main reasons:

- “Performance auditing makes it possible to distinguish ambitions from realizations;
- Performance auditing unravel intended and unintended consequences;
- Performance auditing is able to unravel different aspects of the implementation and adoption of NPM” (Leeuw, 1996: 93-34).

Audit is considered here as a support process to network PMS because of its ability to increase reliability of information through inspections (Power, 2003).

There are different types of audit that include financial audit, practices of environmental audit, Value For Money audit (VFM), management audit, forensic audit, data audit, intellectual property

audit, teaching audit and technological audit (Power, 1997). The public sector is interested in the conventional financial audit and the VFM audit (Lapsley, 2008); this last type of audit procedure is related to the establishment of Audit Commissions for the professional inspections of performance and performance activities.

The concept of auditing is scarcely developed in public network studies, albeit the recognition of its widespread importance in providing reliable information to evaluate if networks really work (Provan and Milward, 2001). A potential reason why is given by the fact that network performance has recently received academic and practical relevance and the attention is mainly focused on the problem of defining how to measure networks, rather than controlling how performance are assessed. Taking clues from the public sector literature that assigns audit practices a foremost role (Power, 1994; 1997), this research considers audit as another dimension of the network PMS. Specifically, attention will be paid to both auditing procedures on data and auditing procedures on the processes. Data auditing, also called performance auditing, is related to inspections about the reliability of the information provided (Bowerman, 1995; Guthrie and Parker, 1999). Audit on the process instead is focused on the reliability of activities for arriving at that specific number (Glynn and Murphy, 1996).

#### **4.5.2 INFORMATION TECHNOLOGY (IT)**

Information technologies (IT) are considered as the major objective of the modernization agenda of local governments (Gore 1997; OECD 2003). They are not accounting systems, and therefore they cannot be considered in the technical dimension of the network PMS. Nonetheless, IT enter the conceptual framework because they are interdependent with performance measures and other control processes (Chapman, 2005). A mutual dependence relationships exists between IT and PMS because PMS needs IT for reporting and performance management processes and IT needs PMS to justifies its existence (Dechow, et al., 2007).

IT can support PMS use because it can provide a platform for accounting information to flow, but at the same time it can create impediments to the development of the PMS (Grandlung and Mouritsen, 2003). The importance of IT has been also recognised for public administrations because of “its potentialities to collect, store and manage large volumes of data and information, which can be transferred and shared among public managers” (Nasi et al., 2011: 821). Moreover, IT is often recognised as the primary driver for public management change (Dunleavy et al., 2005), increasing pressures towards a digital era governance (Dunleavy et al., 2005; Nasi et al., 2011).

Shifting from the single organisation to the network form, IT can be particularly fruitful to support network relationships and network PMSs. First of all, ITs foster interactions:

“With modern information and communication technologies (ITs), people, tools and tasks are more vividly interconnected than ever. [...] The basic properties of ITs provide occasions for structuring organisational forms that go far beyond older technologies where feature and functions are relatively fixed.” (Pertland and Feldman, 2007: 781-82)

This quote recognises the linkages between IT and organisational forms, which is an well established aspect of organisational studies (Barley 1986; MacKenzie and Wajcman 1999; Kolb, 2008). This connection between technology and humans is often investigated drawing on Actor Network Theory (Latour, 1987), that is centred on the idea of translation as a first principle to study how technology shapes and is shaped by humans.

Second, IT have also been acknowledged as supporting tool in inter-organisational practices. For example, open book accounting practices (Mouritsen et al., 2001), widely diffused in supply chain networks, are often supported by IT infrastructures that facilitate real time data sharing. Therefore, IT will be here analysed, not with a technical connotation, but from a managerial viewpoint pointing out:

- Which specific IT tools are used;
- The type of activity they support;
- The relationship they facilitate;
- Problems associated with their usage.

# CHAPTER 5: RESEARCH APPROACH

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This chapter has the objective to describe the research approach. The first part explains the reasons behind the selection of the Lombardy Region as exemplary network to investigate the role of the PMS in public networks. The second part instead describes the process of data collection and data analysis.

## 5.1 A SINGLE LONGITUDINAL CASE STUDY: THEORETICAL SAMPLING

The objective of the research to investigate the role of PMS in public networks has been supported by two methodological choices: a qualitative approach to the research and a single longitudinal case study as a specific qualitative method.

The qualitative methodology has been selected because it is considered suitable to describe and interpret complex human phenomenon, often in the words of selected individuals, called informants (Heath, 1997). Moreover, this qualitative research is rooted in an interpretive paradigm in that it is aimed at exploring socially meaningful actions through the direct detailed observation of people in natural settings in order to arrive at understandings and interpretations of how people create and maintain their social worlds (Neuman, 2000). In this specific case, the aim is to explore how managers and politicians make use of performance measures to deal with policy making, strategic and operative activities in the network. Moreover, the qualitative methodology gives the possibility to better understand the network phenomenon within its relative patterns and to further adjust the initial framework (Yin, 1994). It is consistent with previous accounting studies that underlined the importance to critically explore how and why performance measures are used in their organisational context (e.g. Hopwood, 1983. Otley, 1994). Particularly for this research, the perspective has shifted from the organisational to the network context. “By establishing the case itself as the focal point of the research process (rather than focusing on a particular social theory), accounting research becomes driven by problems and issues relating to accounting practice, rather than by the concerns of social theorists” (Humphrey and Scapens, 1999:100). This quote by Humphrey and Scapens (1999) pointed out the benefits of the case study approach, mainly given by the possibility of linking interactively theory and observations with the final aim of proving results useful to practice (van Helden, 2010).

The second methodological choice was related to the decision to adopt a single longitudinal embedded case study was considered the most suitable approach given the complexity and under-researched topic of the role of PMS in public networks (Marshall and Rossman, 1995). Specifically,

the richness of data behind the single case study (Yin, 1994) gives the possibility to enter the micro-dynamics of network's actors and their use of the PMS, usually neglected by previous research. Moreover, a single case study for a network investigation implies analysis and data collection for several organisations. The complexity to study multiple organisations in order to arrive at a single network case study is used to explain the reason why there are a few empirical studies on the network as a whole (Provan et al., 2007). The preference for a single, rather than multiple, case study was also found in qualitative papers from top journals, such as *Administrative Science Quarterly*, *Accounting Organizations and Society*, *Organisation Science* or *Strategic Management Journal* (e.g. Arino and Smith Ring, 2010; Maguire and Hardy, 2006; Clark et al., 2010; Wouters and Wilderom, 2008). Furthermore, The network investigation was longitudinal in nature to have the possibility to follow network dynamics and evolution over a period of three years. The analysis began in October 2008 and network actors were then followed until the end of 2011. Finally, the rationale behind the selection of the embedded case study is provided by Yin (1994), who considers this methodology a valid scientific approach when it follows the traditional scientific method of developing theory, designing the study, preparing and collecting the data, analysing the evidence, and writing up the report.

The identification of the specific case study is based on theoretical sampling (Eisenhardt and Graebner, 2007) which is considered appropriate for case study approaches because they “are particularly suitable for illuminating and extending relationships and logics among constructs” (Eisenhardt and Graebner, 2007: 27).

Theoretical sampling followed two steps: the selection of the public service and the identification of the network for the specific service identified. The local public transport system in Italy was considered an exemplary service for investigating the public network, while the Lombardy Region was identified as a representative case to investigate the problem at issue. Following, I will detail the reasons behind these two choices.

#### **Theoretical sampling: public transport service**

The first step of the theoretical sampling led to the identification of the local public transport as the relevant service for representing the public service network. Reasons are twofold.

First, public transport expenditure represents the largest source of expenditure for Italian Regions after public health (Ministero dell'Economia, 2008). In Italy, Regions are the first administrative division of the State, provided with the power of managing local public services and their associated expenditures. At the administrative level, Regions are then divided into Provinces (that collections

of City Councils), and City Councils. Public transport expenditures and decisions, are not only influenced by the Italian regulations, but they also depend on regulations defined at European level, which further accentuated the complexity of policy relationships. Moreover, the public transport is recognised as a complex and social issue because it strongly influences the everyday life of citizens. Transport systems have always had a crucial impact on urban development patterns (UITP, 2009a) and on mobility (UITP, 2011), fostering real sustainable development. The International Association of Public Transport (UITP) recognised the foremost role of the public transport:

“The provision of good public transport enables cities to thrive and fulfil their economic, environmental and social aspirations. Good public transport is vital to successful urban areas, enabling people to access jobs and services, employers to access labour markets and businesses to reach the customers for their services. Good public transport is clean, fuel and carbon efficient and enhances the attractiveness of city centres and the health of the citizens.” (UITP, 2009b:1)

The potentialities of the local public transport are then counterbalanced by the reduced public funding, that stress government promoting effective service while justifying value for money (UITP, 2011).

Second, the transport service well exemplifies the public network structure that has raised in the last 15 years with the diffusion of post-NPM reforms aimed at integrating previously decentralised services. Following the NPM wave (Hood, 1991), the desire to reduce state involvement in the planning and delivery of public service affected also the public transport with the consequence that market and competition became the leitmotiv. Processes of deregulation and privatisation dominated the 1980s and 90s all around Europe with the inevitable effect of introducing service fragmentation, incoherent policy and disjointed service delivery (O’Sullivan and Patel, 2004; Christensen and Læg Reid, 2007; Peters, 2006). Recently, post-NPM reforms have recognised the importance of the system integrity (O’Sullivan and Patel, 2004) in order to coordinate previously fragmented activities (Sørensen and Longva, 2011). Service integration requires transport actors at different levels to jointly work together in order to deliver a coordinated public service. The joint working is enacted at the operational level for integrating the service delivery, and at policy level for harmonising the policy implementation process.

The interconnections generated by these different transport actors give rise to a network organisational form, with its three distinctive characteristics. First of all, a declared common network objective, that is represented by the service integration. Achieving service integration implies both the definition of an integration policy and the service coordination at the operational level. Second, the existence of a multiplicity of actors, that comprise ‘the People’, the transport authorities and service operators (van de Velde, 1999: 153), each of them with different specific

objectives. 'The People' are interested in service quality, the transport authority in service outcome and public expenditure while service operators, mainly private organisations, have the creation of economic value as the main objective. This structure is representative of the multiplicity of actors with different objectives and expectations that characterised public service networks (Provan and Milward, 2001). Third, the existence of interdependencies, that are clearly visible in the public network. On the one hand, interdependencies affect operational service provision because transport operators need to coordinate their activities in terms of scheduling, timetables, defining ticketing and guaranteeing inter-connections. On the other hand, interdependencies affect the policy implementation process given that multiple actors interact with each other during the policy making process.

#### **Theoretical sampling: Lombardy Region network**

The second step of the theoretical sampling led to the identification of the Lombardy Region as exemplary case of public networks for local public transport service.

The selection of the Lombardy Region was driven by the maturity stage, within the Italia context, of its transport network, created with the introduction of competitive tendering procedures in 2003. In fact, the imposition of competitive tendering procedures represented the mandatory requirement for the creation of the transport network. These procedures, separating the actor in charge of regulating the service from the actor in charge of delivering the service, introduced a fragmentation in policy implementation and service delivery giving rise to a network structure in order to guarantee an integrated service. Competitive tendering procedures were introduced at the Italian level with the Legislative Decree 422/98, but each Region followed a different path of implementation (see Table 12), enacting the transport reform with different time-frames and specific content.



<b>Region</b>	<b>Law to implement the Leg. Decree 422/97</b>	
Abruzzo	152/98	Law for the local public transport
Basilicata	22/98	Reform of the Regional Local Public Transport to enact Leg Decree N. 422/97
Calabria	23/99	Laws for the local public transport
Campania	3/02	Reform of the Local Public Transport and Mobility Systems in Campania Region
Emilia Romagna	30/98	General discipline for Local and Regional Public Transport
Lazio	30/98	Dispositions for Local Public Transport
Liguria	31/98	Laws for Local Public Transport
Lombardia	22/98	Local Public Transport Reform in Lombardy Region
Marche	45/98	Laws for reforming the Local and Regional Public Transport
Molise	19/00	Integrated laws to manage the Local Public Transport
Piemonte	1/00	Laws in Local Public Transport matters to enact Leg Decree N. 422/97
Puglia	18/02	Unic Test to regulate the Local Public Transport
Toscana	42/98	Laws for the Local Public Transport
Umbria	37/98	Laws in Local Public Transport matters to enact Leg Decree N. 422/97
Veneto	25/98	Discipline and organization of Local Public Transport
Friuli Venezia Giulia	23/07	Enactment of Leg Decree N. 111/2004 for Local Public Transport, roads and mobility
Sardegna	21/05	Discipline and organization of Local Public Transport
Sicilia	-	
Valle d' Aosta	29/97	Laws for Local Public Transport

**Table 12: Regional Laws for the reform implementation**

It derived that the number of competitive tendering varied widely from one Region to another. Moreover, each Region was responsible for directly awarding competitive tendering for the railway service, while competitive tendering for the bus service (object of this study) were awarded by local administrations (either Provinces or City Councils).

In October 2008, when this research project began, some regions such as Abruzzo or Calabria did not award any competitive tendering, some others started the process, while others again (e.g. Emilia Romagna or Lombardy) almost completed the competitive tendering procedures (see Table 13)

Region	N. of competitive tendering	of which	
		Awarded by the Region	assigned
Abruzzo	-	-	-
Basilicata	2	-	-
Calabria	-	-	-
Campania	4	1	2
Emilia Romagna	10	1	9
Lazio	7	-	7
Liguria	4	-	3
Lombardia	25	3	20
Marche	4	-	4
Molise	1	-	1
Piemonte	3	-	1
Puglia	6	1	6
Toscana	11	-	11
Umbria	2	-	2
Veneto	1	1	1
Friuli Venezia Giulia	5	4	4
Sardegna	-	-	-
Sicilia	-	-	-
Valle d'Aosta	1	1	1
Bolzano	-	-	-
Trento	-	-	-

Table 13: Status of competitive tendering at the end of 2008 (Source: Isfort, 2008)

Given this jeopardize situation, the attention has been catalysed by those Regions that competed the competitive tendering procedure at the end of 2008: Lombardy, Tuscany and Emilia Romagna. They were characterised by a network organisational structure for delivering the service because of the presence of private operators controlled by service regulators through a service contract. This means that both the operative service provision and the policy implementation were managed by a plurality of actors interconnected with each other. Out of these three regions, the Lombardy Region was selected because it was starting a further reform process to enact the Regional Reform. In fact, it activated a policy implementation process in 2008 with the specific purpose to integrate the transport service between Provinces and City Councils, and finally at the overall Regional level. This policy process activated a complex network of managerial and policy relationships between service regulators, service operators and associations of users that has been investigated from the October 2008 until November 2011.

In 2008, the Lombardy transport network was organised in 22 territorial basins, wherein the local transport service was delivered by a provider (either a consortium or a single organisation) through

a service contract, signed with the City Council or the Province. When the tendering procedures were awarded in 2003, the Region was administratively organised in 11 City Councils and 11 Provinces, each of them responsible for managing tendering procedures in their territorial area of competence.

Results of competitive tendering for City Councils are summarised in Table 14.

City Council	Operator before the tendering	Operator awarding the tendering	Starting day of the service contract
Bergamo	ATB	ATB Consortium	2005
Brescia	Brescia Trasporti	Brescia Trasporti	2004
Como	SPT Como	ATI	2005
Cremona	KM	KM	2004
Lecco	Line Lecco	ATI	2005
Lodi	Line	Line	1999
Mantova	APAM	APAM	2004
Milano	ATM	Concession until end 2006	
Pavia	Line	Line	2004
Sondrio	ASM	ASM	2004
Varese	AVT Varese	Consortium Insubria	2006

Table 14: Competitive tendering in Lombardy Region – City Councils-

The table shows that in City Councils the local transport service is mainly provided by a single service provider with the exception of Bergamo and Varese. The situation was completely different for Provinces that were at that time characterised by many small service providers. Results of competitive tendering were awarded by consortiums of providers (see Table 15).

Provinces	Area	Operator before the tendering	Operator awarding the tendering	Starting day of the service contract
Bergamo	Lotto sud	AGI, ATB, Autostradale, Bertola, Flaccadori, Locatelli, SAB, SAI, SAV, STAR, TBSO, Voulaz, Zambetti, ZANI	Consortium Bergamo Trasporti Sud	2005
	Lotto est		Consortium Bergamo Trasporti Est	
	Lotto ovest		Consortium Bergamo Trasporti Ovest	
Brescia	Lotto 1	PAM, Autostradale, Bonomi, Brescia Trasporti, Flocchini, FNMA, Garattini, Gelmi, KM, La Valle, Laffranchi, Nicolini, Pellegrini, Pini, Righetti, SAB, SABBA, SAIA, SAV, SIA	Consortium Trasporti Brescia Sud	2004
	Lotto 2		Consortium Trasporti Brescia Nord	
Como	Lotto 1	SPT Como, FNMA, CTP, Spreafico	Consortium STECAV	2005
Cremona	Lotto 1	KM, LINE, STAR, AGLAPAM, FNMA, SAI, SAIA, SISA, STEA, Cremonesi, Aschedamini, Comuni di Voltido,	Consortium Cremona Trasporti	2004
	Lotto 2		Consortium Adda Trasporti	

		Calvatone, Cà d'Andrea		
Lecco	Lotto 1	SAL, SAC, Viganò, Maggioni, Linee Lecco, Dell'Orto, SPT Como, Zani, Crippa, Line Lecco	Consortium Trasporti	Lecco 2005
Lodi	Lotto 1	AGI, ASM Sila, Forti, LINE, STAR	ATI	2006
Mantova	Lotto 1	APAM	APAM	2004
Milano	Lotto 1	AGI, ASM Sila, ATINOM, ATM, ATMA, Autostradale CTNM, FNMA, LINE, SAI, STAR, STIE, ZANI, GTM TPM + 21 smaller providers	Concessions estende until 2006	
	Lotto 2			
	Lotto 3			
	Lotto 4			
	Lotto 5			
	Lotto 6			
Pavia	Lotto 1	Arfea, ASM Sila, Cuzzoni e Gilona, Della Valle, Ferrari, Fontaneto, Garbarini, Granata, LINE, STAC, STAV STUMP, SAPO	ATI	2006
	Lotto 2		ARFEA	
	Lotto 3		ATI	
Sondrio	Lotto 1	STPS, Perego, Rainoldi, Sondrio chiesa, De Pianto	STPS	2005
	Lotto 2		STPS	
	Lotto 3		Perego	
Varese	Lotto Nord	AGESP, Baldioli, Beltramini, Castano, FNMA, GLC, Maretti, Morandi, Nerini, Nicora e Baratelli, Restelli, SACO, STIE, Varesine	Extension of the concession system until the end of 2006	
	Lotto Sud			

Table 15: Competitive tendering in Lombardy Region – Provinces

Within this context, the local transport system has been analysed for seven territorial areas: three City Councils (Milano, Brescia and Lecco) and four Provinces (Milano, Lecco, Bergamo and Brescia). The logic behind the selection of these seven territorial areas was driven by the desire to have example of polar types (Pettigrew, 1990), which means a variety of situations in terms of number of territorial actors and relationships between them where the process of interest is “transparently observable” (Pettigrew, 1990: 275). Pettigrew (1990) advocated how to choose these polar cases:

“Go for extreme situations, critical incidences and social dramas. [...] Go for polar types. [...] Go for high experience levels of the phenomena under study. [...] Go for more informed choice of sites and increase the probabilities of negotiation. (Pettigrew, 1990: 274-275).

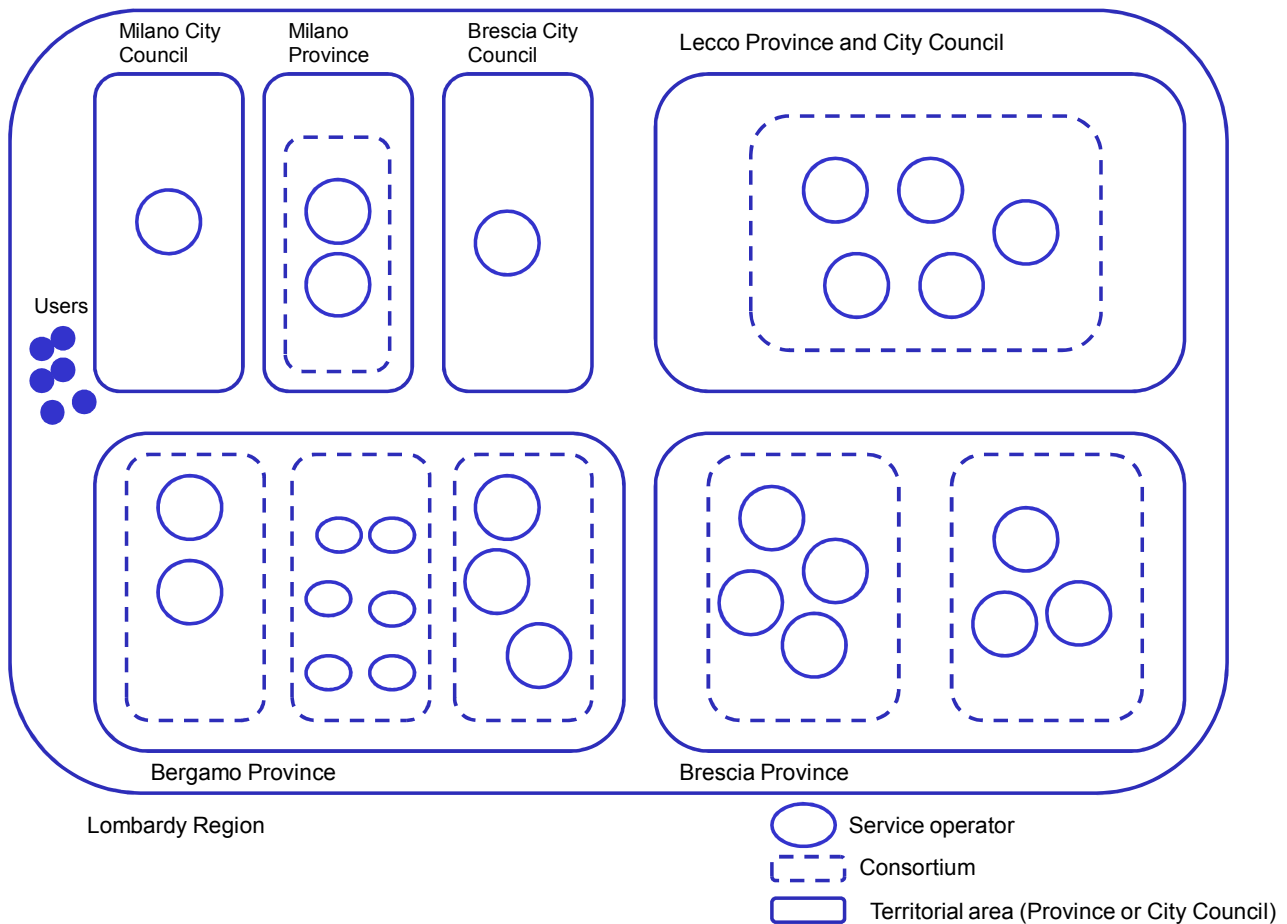
Moreover, seminal network studies (e.g. Borgatti and Algin, 2011), acknowledged that “it is the researcher – by choosing a set of nodes and a type of tie- that defines a network. [...] In reality, however, the choice of nodes should not generally be regarded as an empirical question. Rather, it should be dictated by the research question and one’s explanatory theory” (Borgatti and Algin, 2011: 2).

Following these suggestions, Milano and Brescia City Councils have been selected because they signed a contract with a single service operator, but characterised by different size for both the territorial area and the service provider. Milano Province was selected because it was the service regulators with the higher number of competitive tendering issued (six), and within this area, the focused was devoted to the unique active consortium. The territorial area of Lecco was selected because it was an exceptional case for Lombardy region: the same consortium, Lecco Trasporti, was qualified for the service delivery in both the Province and the City Council area. Finally, the Provinces of Bergamo and Brescia were selected because characterised respectively by three and four consortiums with a different numbers of single service operators involved. This differences were considered useful to account for a variety of relationships between network actors.

<b>Service regulators</b>	<b>Consortiums of providers</b>	<b>Single operators</b>
Bergamo Province	Bergamo trasporti Ovest (BTO)	SAB Autoservizi Srl, Autoservizi locatelli Srl, Autoservizi Zani srl
	Bergamo Trasporti Sud (BTS)	SAI Treviglio Srl, SAB Autoservizi Srl, Autoguidovie Spa (AGI), Autoservizi locatelli Srl, TBSO Spa, Autoservizi Zani srl
Brescia City Council	/	Brescia Trasporti
Brescia Province	Trasporti Brescia Nord	SIA (Società Italiana Autoservizi) Spa, SAIA Trasporti Spa, Brescia Trasporti Spa, ATV Srl
	Trasporti Brescia Sud	SAIA Trasporti, SIA Autoservizi, APAM Esercizio
Lecco City Council	Lecco Trasporti	SAL (Servizi Automobilistici Lecchesi) Srl, ASF Autolinee Srl, Autoservizi Zani Evaristo Srl, Line Lecco Spa
Lecco Province		
Milano City Council	/	ATM
Milano Province	Brianza Trasporti	AGI, Trasporti Pubblici Monzese

**Table 16: Network actors**

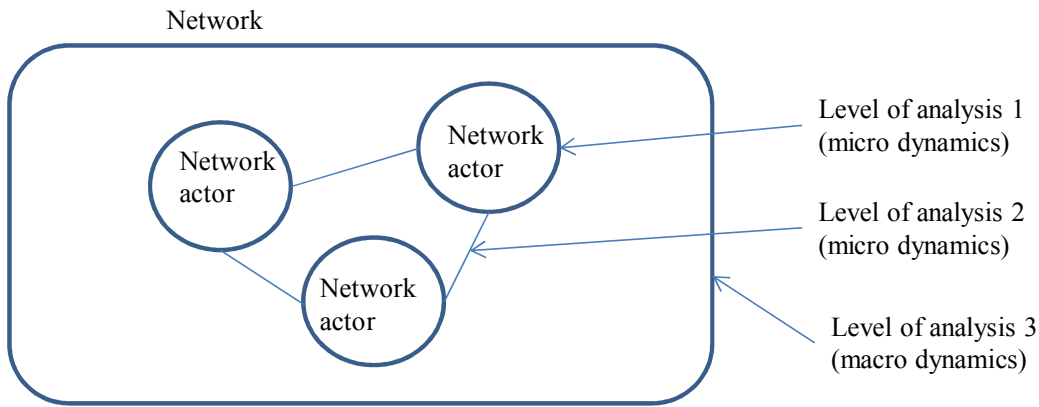
Picture 6 graphically represents the network under investigation, wherein the network as a whole is represented by the entire Regional system. The Regional transport network is then divided in sub-units, each of them corresponding to a specific territorial area (either the Province or the City Council). Specifically, three City Councils and four Provinces. Inside these local areas, the attention has been devoted to consortiums and single service providers. Moreover, organised association of users have been included in the analysis because of their increased importance in public administrations with the diffusion of public engagement concepts (Irvin and Stansbury, 2004; Rowe and Frewer, 2005). In fact, public entities have started involving users in policy decisions to account for the citizens' opinion in implementing policy decision. In the Lombardy network, organised associations of users include Assoutenti, that has specific competences in transport issues, and spokesperson of commuters, also involved in the network activity.



Picture 5: Network graphical representation

### 5.3 UNIT OF ANALYSIS

The Regional network under investigation represents an embedded case study characterised by multiple levels of analysis: the network as a whole, network organisations, network individuals and furthermore the relationships between them. This choice is consistent with the research question about the role and uses of PMS in public networks. The interviews and observations in my research are vehicles to capture aspects of the network PMS at the whole network level, at the single organisational level and at the relational level. This means that, throughout the research, I focused on three levels of investigation: the single actor level, the network relationship and the network as a whole (Picture 7).



**Picture 6: Level of analysis**

First, I focused on the single network actor, investigating its role in the network, the PMS and its relative use. This perspective gave me the possibility to understand the position of the actor in the network and how its network activity is supported by the PMS. In this first level of analysis, the service administrator, the seven service regulators, the six consortiums and the eight single service providers, one association of users and one spokesperson of commuters with their relative PMS have been investigated independently. Network actors include also individuals, here represented by users of the service. Users represent relevant network actors because they both receive the service and influence the policy making process. This category of individual is investigated with reference to organised association of users and spokesperson of commuters.

Then, I focused on relationships between network actors, considering the micro-dynamics of the local public network. The attention has been here catalysed by policy and managerial relationships distinguishing between activities that generate policy discussion and activities that generate the operative service delivery.

Finally, the level of analysis shifted to the network as a whole considering the entire set of network actors and their relationships as macro-level of analysis. This overall view gave the possibility to detect misalignment in the PMS characteristics and uses between the single organisation and the network level.

Table 17 synthesises the three level of analysis with their relative actors for the network under investigation.

Unit of analysis	N. units	Type
individual	1	Association of users
	1	Spokesperson of commuters
Organisation	1	Service administrator
	7	Service regulators
	6	Consortiums
	8	Single service providers
Relationships	1	Policy relationships
	1	Managerial relationships
Network as a whole	1	Regional network

Table 17: Unit of analysis and network actors

## 5.4 DATA COLLECTION

I gathered data from six different types of sources over a period of three years, from October 2008 to November 2011, within the Lombardy Regional Transport network:

- a) Regulation at the European, National and Regional level;
- b) Archival data from the network as a whole and from each network actor;
- c) Media commentaries;
- d) Participant observations;
- e) Semi-structured interviews with managers, politicians and representatives of users involved in the public transportation network;

The first source of data is represented by Regulatory documents. This analysis was the starting point of the empirical part of this research project. In fact, once the local public service was identified as network of analysis, European, National and Regional Laws about the local public transport have been reviewed with the objective to build a comprehensive picture of the National and Regional transport landscape (see Table 18). This analysis was extremely useful for the theoretical sampling that gave the possibility to identify the Region, Provinces and City Councils to be investigated.



	<b>Reference</b>
European	EEC No 1893/91 EEC N. 1370/2007
National	Law No. 151/81 Law No 142/90 Law No 549/95 Law No 59/97 Leg. Decree No. 422/97  Financial law 2002  Law N. 266/05 DDL N. S 772 (Disegno di Legge Lanzillotta) DDL N. 884/08 (Disegno di Legge Bianchi) Law 133/08 DDL “Piano Triennale per lo sviluppo”
Regional	Reg. Law N. 152/98 Reg. Law N. 22/98 Reg. Law N. 23/99 Reg. Law N. 3/02 Reg. Law N. 30/98 Reg. Law N. 31/98 Reg. Law N. 45/98 Reg. Law N. 19/00 Reg. Law N. 01/00 Reg. Law N. 18/02 Reg. Law N. 42/98 Reg. Law N. 37/98 Reg. Law N. 25/98 Reg. Law N. 23/07 Reg. Law N. 21/05 Reg. Law N. 29/97
Lombardy Region	Reg. Law 22/98 Reg. Law 01/02 Local Public Transport Act (2008)

**Table 18: Regulatory documents**

The second source of data is represented by archival data, which include network meetings minutes, network meeting presentations, Citizens’ Charts, service contracts and annual reports. Furthermore, during interviews, I gained the possibility to access to internal reporting used by single network actors, mainly service providers, to monitor their own activities and additional memos and data used during policy games. Documents may fulfil a variety of purposes: obstacles to understanding, carriers of information and ‘facts’ to be translated and interpreted (Prior, 2003, p21). The role of documents as the gathering of ‘facts’, which shapes both policy making and judgement, has wider influences. In particular, these representations may represent an integration of the views, positions and alignment of key actors in network policy and managerial debates (Prior, 2008).

<b>Type of data</b>	<b>Brief Description</b>
Network Meetings minute (for policy decision)	11 network minutes
Network Meetings presentation (for policy decision)	13 presentations (ppt)
Citizens' Charts	Lecco Trasporti ATM Brescia Trasporti BrianzaTrasporti Trasporti Brescia Sud Trasporti Brescia Nord
Contract between regulators and providers	Bergamo Province-BTS Bergamo Province-BTO Brescia City Council-Brescia Trasporti Milan City Council-ATM Milan Province –Brianza Trasporti Lecco City Council-Lecco Trasporti Lecco Province-Lecco Trasporti
Annual report	AGI ATM Brescia Trasporti Brianza Trasporti Linee Lecco SAIA SIA SAL
Internal KPIs/reporting	Brescia Trasporti Linee Lecco SAL AGI 15 Assoutenti reports
Letter-memos	24 Amendments 4 Questions and answers

**Table 19: Archival data**

This study has also drawn on media commentaries about the policy process for implementing the decision of service integration. The media analysis reveals the users' concerns and their opinion with deliberations and discussions that happened in formal meetings, that was considered particularly useful given the decision to involve users in the local public network analysis. The media coverage included analysis of newspapers and television interviews, mainly focused on the specific city object of the analysis. This perspective - the media lens on city life – has been advocated as an illuminating way of visualising the city (Czarniawska, 2002, p.67); as a means of getting behind factual accounts of city life (Lapsley et al., 2010) and as a key way of detecting political power processes (Lapsley and Giordano, 2010).

Another data source I used is represented by observations, which complemented interviews by exploring possible differences between what people do and what they say (Huxham ,2002) and by

capturing both social interaction and the particular settings where these occur. A particularly meaningful observation was represented by the participation at network meetings organised by the region to discuss about the policy implementation. Even though my role during the meeting was that of the silent observer, I had the possibility to gain further insights about network dynamics and policy games. Moreover, informal discussions with network meeting participant complemented the case study material. Findings from these data sources were completed with the evidence provided by semi-structure interviews. I formally interviewed 28 informants, including managers of providers' organisation, managers and politicians from public administrations and representatives of users (see Table 20). Each formal interview was 45-110 minutes in length, digitally recorded and then transcribed. I followed a pre-defined list of questions (see Appendix), preliminary send to the interviewee and organised around three main parts. The first part of the interview was aimed at understanding the role of the organisation inside the local transport network with the objective to detect both managerial and policy relationships. The second part was focused on the PMS actual in use, its characteristics and its main content, while the last part was focused on the type of PMS use and associated problems.

<b>Network actor</b>	<b>Name</b>	<b>Role of the interviewee</b>
Service Administrator	Lombardy Region	Director of the Transport Unit Director of the Tariffs Unit
Service Regulators	Bergamo Province	Mobility Manager
	Brescia City Council	Mobility Manager
	Brescia Province	Mobility Manager Councillor
	Lecco City Council	Mobility Manager
	Lecco Province	Mobility Manager Councillor
	Milano Province	Mobility Manager
	Milano City Council	Mobility Manager Responsible of transport unit
Service Providers	ATM	CFO Operative director Strategic controller
	Brescia Trasporti	Operative director CFO
	SIA/SAIA	General director CFO Operative director
	Brianza Trasporti (AGI)	General director
	Linee Lecco	General director
	Locatelli	General director Operative director
	SAL	General director
Users	Assoutenti	Director Vice-director
	Commuters	Spokesperson

**Table 20: List of key informants**

## 5.5 DATA ANALYSIS

The multiple sources of data were analysed adopting a qualitative approach which meant textual analysis, sorting data into themes and cross-referencing them with theory in order to increase the internal validity of the case study material (Denzin, 1978). I primarily analysed texts, transcribed interviews, observation notes, and documents, considering some basic additional information about context such as the age the specific features of the territorial area, organizational charts of political contingencies. The empirical material was first analysed textually, highlighting emergent themes pertaining to the conceptual elements and outlining circular and contingent causalities (Morin, 1999). The textual analysis was organised by network actor: quotes from interviews with each network actor were categorised distinguishing between PMS use, technical characteristic or support processes (see Table 21).

Network actor	Interviewee	Quote	Category
Region	Responsible of the transport Unit	Tariffs adjustments are defined depending on the achievement of some quality standards. This means that we increase tariffs if buses are clean, punctual and regular. So, if there are measures to demonstrate that service quality has really increased, then we can justify this increasing in the tariff level”.	PMS use
	Director of the Tariff Unit	The situation is patchy. There are some virtuous regulators, such as Brescia City Council, where there are some technicians with very good IT and managerial competences in dealing with performance measures. They are able to fill the entire report and deliver data on time. On the contrary, there are some smaller City Councils that do not have the competences for doing this and we have some missing data from their performance	PMS support processes
ATM	CFO	Milan City Council included a lot of indicators in the contract. We also have a contract with the City Council of Copenhagen, where we deliver the metro service. The situation there is completed different: the relationship with the service regulator is managed with one performance measure only, service reliability. Here in Milan instead we have to provide a lot of indicators, many of them questionable given their high subjectivity	PMS technical characteristics

Table 21: Data analysis – example-

For each network actor, I draft a narrative complemented by quotes and additional evidence from archival and observations with the objective to build a tentative explanatory model (Ryan and Bernard, 1994). Then, I organised network actors by categories (administrator, regulators consortiums, providers, users), given their similarities, and I focused on relationships between, distinguishing between policy and managerial relationships. These themes and patterns emerged from textual analysis were cross-checked with the other data sources and then complemented with other informal telephonic discussions in order to clarify competing interpretation.

# CHAPTER 6: THE PUBLIC TRANSPORT NETWORK

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The objective of this chapter is to analyse the public transport network in Lombardy Region focusing on network actors, their activities, their PMS with its relative characteristics and uses.

According with this objective, next paragraphs are organised as follows: the rise and evolution of the transport network will be first analysed following changes at the regulatory level (§ 6.1); the Regional network will be then described (§ 6.2) distinguishing between policy and managerial relationships associated with the local transport service. Each network actor will be then analysed (§ 6.3) with a focus on activities it performs, problems and the role of the network PMS.

## 6.1 TRANSPORT REGULATION AT THE ITALIAN LEVEL: FROM FRAGMENTATION TO INTEGRATION

This paragraph has the objective to describe the rise and evolution of the public transport network in Lombardy Region, from service fragmentation to integration. The mandatory nature of the network required the analysis of the transport regulation in order to analyse the network development. Accordingly, the national and the regional regulation will be presented.

The local public transport system is defined by the Regional regulation as the set of connections that link City Councils and Provinces with their conurbation and that is characterized by a strong connection with the local area, high service frequency and high density of bus-stops (Reg. Law 22/1998). This service can be delivered through different modes, including bus, tram, metro, light rail, trolley bus and ferry or hydrofoil in case the local area is characterised by the presence of lakes or rivers. It is important to clarify that, as stated in the definition, railways services are not included in the definition of the local public transport and, as a consequence, not included in this analysis.

The first legislative intervention in the Italian public transport dated back 1981 (see Table 22) and it represented the first attempt to address the severe problems that affected the service. At that time, public administrations owned transport companies and costs for management costs had progressively increased. At the beginning of the 1980s the percentage of coverage of costs was nearly the 20% and this situation of deficit prompted policy maker implementing the first transport regulation (Buzzo Margari and Piacenza, 2005). The Law N. 151/81 was aimed at defining public transfers from the state to local authorities in order to control for the big transport deficit. The subsequent Law N.142/90 regulated the role of Provinces and City Councils in delivering local

services, including public transport. This Law gave local authorities the possibility to manage local service through different governance modes: direct service provision, concession, special agency, institution or agency with the prevalence of public capital, with the final aim to increase efficiency and effectiveness in service delivery. The European intervention in the public transport field at the beginning of the 1990s (EEC No 1893/91) introduced the concept of service contract and it strongly influenced the Italian transport context. The public service contract has been defined (EEC No 1893/91) as “a contract concluded between the competent authorities of a Member State and a transport undertaking in order to provide the public with adequate transport services. A public service contract may cover notably: transport services satisfying fixed standards of continuity, regularity, capacity and quality; additional transport services, transport services at specified rates and subject to specified conditions, in particular for certain categories of passenger or on certain routes; adjustments of services to actual requirements” (EEC No. 1893/91; art. 14).

After this European regulation, and with the attempt to deal with the crisis of the system, the Law N. 549/95 regulated public financing. Specifically for the public transport, it introduced the principle of deregulation of competences from the central state to Regions, albeit never put in practice. The acceleration at this reform process arrived with the Law N. 59/97 (Legge Bassanini) that transferred the decision making role from the national to the regional level. It was enacted in practice, also in compliance with the European legislation, with the Legislative Decree N. 422/97. It introduced three main changes: deregulation in service planning and delivery, separation between service regulator and service provider, competitive tendering for service provision.

These two legislative interventions have prompted changes in the Italian public transport system and they will be analysed in detail.

<b>Legislative intervention</b>	<b>Main content</b>
Law No. 151/81	The first legislative reference to local public transport services
Law No 142/90	Definition of the role of Provinces and City Councils in local service delivery
EEC No 1893/91	Introduction of the concept of “public service contract”
Law No 549/95	Deregulation of public transport competences from the Central government to Regions
Law No 59/97	Shift of decision making role from state to regions
Leg. Decree No. 422/97	Deregulation, separation between regulation and provision, competitive tendering

**Table 22: Legislative intervention at the Italian level**

### 6.1.1 National Law 59/1997 and Legislative Decree 422/97

The National Law N. 59/1997, also defined “Legge Bassanini”, is related to the delegation of competences from the central state to local administrations in order to reform the public administration and simplify administrative procedures.

It was aligned with the NPM principles and with the European regulation of decentralisation and privatisation. The reform was practically enacted with the legislative Decree N. 422/97, also known as “Decreto Burlando”, and it was based on four main pillars:

- The transfer of the decision making authority at the local level. Specifically, from national to regional level for railways, and from regional to provincial and municipal level for buses;
- The separation between the actor in charge of planning and regulating the system from the actor in charge of delivering the service;
- The liberalisation. This implies that concession system had to be turned into a competitive system, in which services are assigned to a service operator through a competitive tendering;
- The increasing of economic efficiency of expenditure of transport.

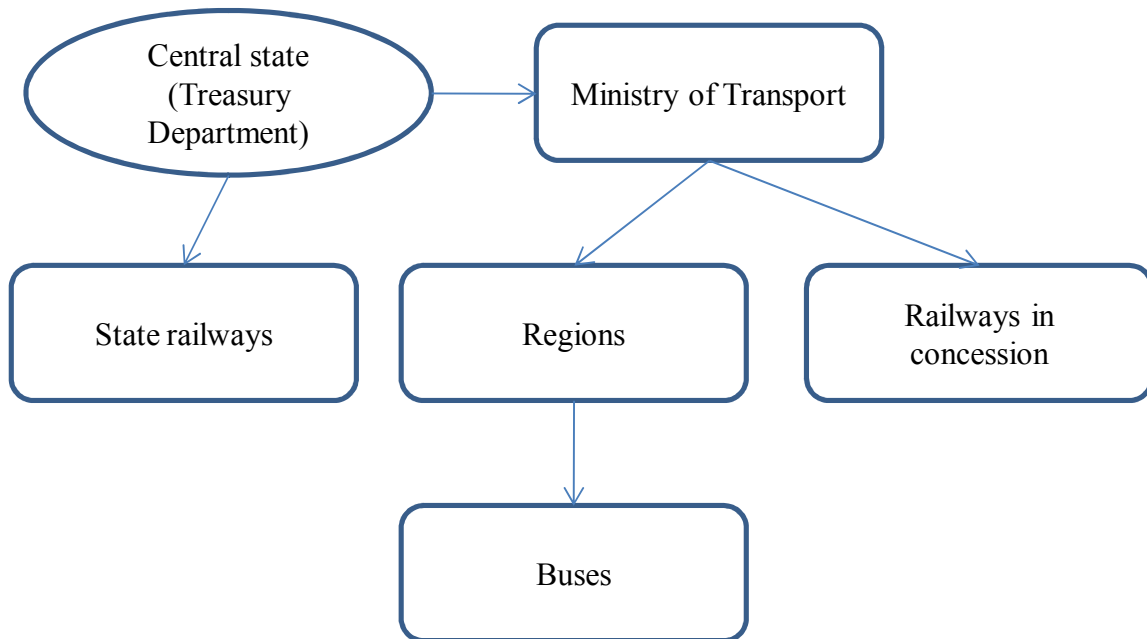
Following these guidelines, the reform reallocated actors’ role in the transport system as follows:

- The National Government has direct competence on the national roads and on national public transport networks (planes; inter-city, inter-regional and high speed trains; inter-regional buses; navigation). In the previous order the national Government was fully in charge of the railway network, while the reform transferred, in accordance with the subsidiary principle, the functions related to local service to the regional administration. The General Transport Plan (PGT) is the document that defines the national guidelines of the transport policy.
- The Regional Administration has competences on: the strategic planning of the whole regional transport network; planning, financing and managing the regional train service; money transfers to Provinces and to the City Councils in order to subsidise bus services; planning, financing and managing the regional road network.
- Provinces have competence on: planning and financing the inter-urban and urban bus network, outside the large conurbations; planning, financing and managing the local road network. With the reform Provinces are no longer solely in charge of administrative functions related to bus services but also of the planning ones, which were assigned before to the regional body.
- At the urban policy level the main City Councils have competence on planning, financing and managing urban public transport by bus, tram and underground.

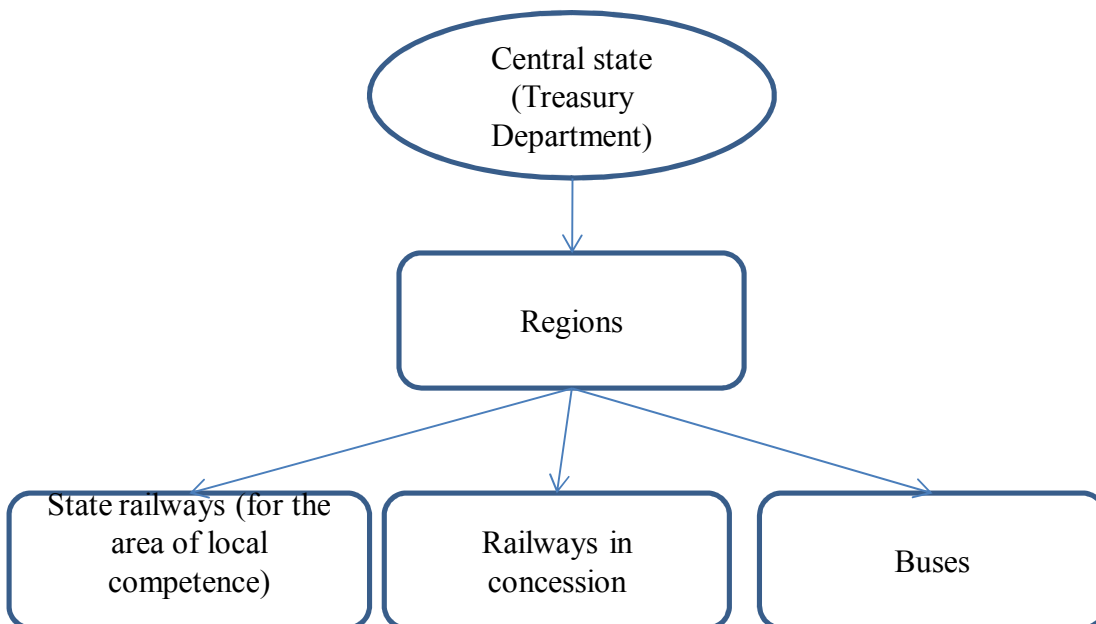
- Transport companies provide the transport services, with competences completely separated from the public administrations.

Picture 8 graphically represent changes in the role of public transport actors.

**Before the Legislative Decree N. 422/97**



**After the Legislative Decree N. 422/97**



Picture 7: Roles of transport actors before and after the reform

As it emerged from the picture, the Legislative Decree has introduced deregulation principles bringing the Region at the centre of the management and policy making process in the local



transport service. These deregulation principles were associated with several changes in practice that will be discussed in detail in the next paragraph.

### **6.1.2 Main changes associated with the Transport Reform**

The Legislative Decree N. 422/97 has been associated with three main changes: competitive tendering to identify the service operator, service contracts to manage the relationship between providers and regulators and the possibility to introduce a local agency for the mobility (called mobility agency).

The first challenge associated with the reform is represented by the liberalisation of the system that opened the transport service to the market definitely abolishing the concession system for service provision. Service regulators, Provinces and City Councils in the case of local public transport, have been called to define the content and the characteristics of the contract terms. For a competitive tendering in the public transportation system five different aspects represent the constitutive elements (Alderghini and Sparacino, 2008; Popoli and Batti, 2007):

- Level of rigidity of the competitive tendering: in a rigid competitive tendering, the object is represented by the service only. Planning competences are still in charge of the service regulator. In the case of a flexible competitive tendering instead the potential incumbent formulated the contract bid, increasing its power towards the service regulator.
- Size of the service area object of the tendering: the competitive tendering can affect a single bus line, a system of bus lines or a whole territorial basin. In the Italian case, territorial basins almost correspond to the geographical area of the Province or City Council.
- Procedure for selecting participants: it can be an open procedure if all the actors with the required qualifications defined in the contract specification can take part to the tendering; reduced procedure if only defined actor selected by the contracting regulator can define a bid; negotiated procedure if only pre-defined actor selected by the contracting regulator can participate and then negotiate contractual content with the regulator;
- Conditions for admission: the admission can be governed if there are a set of required standards that are necessary for an operator to take part to the competitive tendering; on the contrary, it is a free admission if there are no constraints for the participation at the competitive tendering.
- Award criteria: the selection criteria must take into account both the economic and technical issues of service provision. While the economic elements are easily quantified, problems of evaluation emerge from operative issues that are difficult to verify and quantify. The

possibility of assigning arbitrary weights to different elements of the bid could alter the final result of the award process.

The second challenge is related to the service contract, that regulates the relationship between the service regulator and provider. This contract is signed by the local authority, either the Province or the City Council, with the provider that wins the competitive tendering. It can be a consortium or a single service provider. There are two different types of contract depending on how the risk is shared between regulators and provider, gross cost or net cost contracts.

In a gross cost contract the tendering authority agrees to pay an operator a specified sum to provide the specified service for a specified period. Revenue from fares is passed to the tendering authority, which bears the revenue risk. The service provider generally carries the cost risk, though there may be provisions for cost increases to be passed through, such as elements of wage or fuel costs. Generally the tendering authority will take responsibility for working out routes, and may also specify the vehicles to be used. Because the operator has no direct commercial relationship with passengers it is common for the tendering authority to provide a system of bonuses and penalties to give operators a financial incentive to provide the desired quality of service.

In a net cost contract the operator takes on both the revenue risk and the cost risk. It keeps the revenues from fares, and the tendering authority provides a contribution in the form of additional contracted income. This offsets obligations that the tendering authority may have to ensure the provision of a public transport service, or to meet social objectives where the cost of providing such a service would not be commercially viable if it depended solely on the fare income that it could achieve. On especially popular and important services it may be possible for the tendering authority to receive a premium payment from the operator running these routes rather than providing financial support.

The third challenge is related to the possibility to introduce a mobility agency with planning and controlling competences. The legislative Decree N. 422/97 gave some margins of freedom to each Region to practically reorganise the public service. It results that the path for the implementation of the regulation has been different from one region to another. In some cases, regions have introduced another administrative actor, the mobility agency, with specific responsibilities on service planning and controlling, substituting the role of Provinces or City Councils.

### 6.1.3 The transport reform in Lombardy Region: network creation and evolution

The reform process in the Italian public transport has started in 1997, but paths of implementation have been different from one region to another and several other regulations have been introduced with the purpose to smooth the initial reform (see Table 23).

Law	Main content
Financial law 2002	Set the 31/12/2002 as deadline for transforming temporary aggregation of companies in consortiums or limited companies
Law N. 266/05	Extension until 31/12/2008 the possibility for service regulators to maintain concession systems
DDL N. S 772 (Disegno di Legge Lanzillotta)	In house concession for local public transport banned
EEC N. 1370/2007	Definition of exceptional cases for which in house concessions are still applicable
DDL N. 884/08 (Disegno di Legge Bianchi)	Definition of price cap mechanisms for defining tariffs
Law 133/08	Further extension for in house concessions until 31/12/2010
DDL “Piano Triennale per lo sviluppo”	Identification of three mechanisms for awarding local public transport service: competitive tendering, concession to a public-private company, in which at least one partner is awarded through competitive tendering, in house concession (exceptional)

Table 23: Legislative intervention at Regional level

The regulation of 1997 stated that, in order to enhance efficiency and competitive pressure, non-tendered concessions could be banned as of January 2004. By that date all subsidised local transport services (rail services included) must be tendered off, either route by route or by a bunching of routes. Thus, the actual regime in place in Italy is a so-called limited competition regime based on tendering procedures.

The reforming path in Lombardy Region (see Table 24) started with the Regional Law 22/98 and the subsequent Regional Law 2/02 to enact the national regulation. The deadline for bringing tendering procedures to an end was fixed at the end of 2004. Tendering procedures for bus networks started in 2002 in order to arrive on the 1<sup>st</sup> of January 2003 with all services assigned by tendering.

Year	Main event
1998	Regional Law 22/98: introduction of tendering procedures
2002	Regional Law 01/02: awarding of tendering procedures
2004	Completion of tendering procedures (exception of ATM in 2005)
2005	Signing of contracts between regulators and providers (exception of ATM in 2007)
2008	Signing of the Local Public Transport Act

Table 24: Main steps of the network evolution

The Regional Law 22/98 defined the role of service regulators for the local public transport service:

- Region: general governance of the system, with competences on strategic planning of the whole regional transportation network; planning, financing and managing the regional train service; money transfers to Provinces and City Councils to subsidise bus services;
- Provinces: regulation on bus service in the province area, with competence on planning and financing the inter-urban bus network;
- City Councils: regulation of bus service in the City Council area, with competences on planning, financing and managing urban public transport by bus, tram and underground.

The planning activity of Provinces and City Council is regulated by a three year document called “Three year planning service”, that contains the identification of territorial local basins and the characteristics of the competitive tendering.

Concerning the management of competitive tendering, the regional Law defined the maximum contract duration in 7years. It decided for a flexible tendering procedures through which the public administration decided some service requirements, e.g. which municipalities must be connected or which main bus lines must be guaranteed, some quality requirements, e.g. the average age of the vehicles; the transport company decides timetables, stops and routes in compliance to the guidelines provided by the public administration. Tendering with respect to an area and not to a single bus line ("competition for the market"): in this way bus companies have the real opportunity to prove their management skills. Net priced contracts (i.e. the operators keep the revenues) were also promoted to encourage operators' initiatives. In November 1999, this agreement was signed between the Region and local entities.

The Regional Law 1/02 clarified some aspects not considered by the previous regional Law. Specifically, the division of the areas of Provinces and City Councils in smaller territorial basins (called “lotti”) to be awarded through competitive tendering. This meant that, the single Province or City Council had the possibility to assigned more than one contract in its local area of competence depending on the number of territorial basins identified. The second clarification was related to the separation of the ownership between the agency that owns the infrastructure from that agency that manage the service. The third and last point concerned the definition of the new tariffs system, differentiated on the basis of the distance or of the zone.

In order to take part to competitive tendering many smaller operators joined in temporary association of companies (ATI, Associazione Temporanea di Imprese) in order to achieve the minimum dimension to win the bid. This temporary association of companies had to be transformed in limited companies or consortiums within three years by the awarding of the tendering. It derives

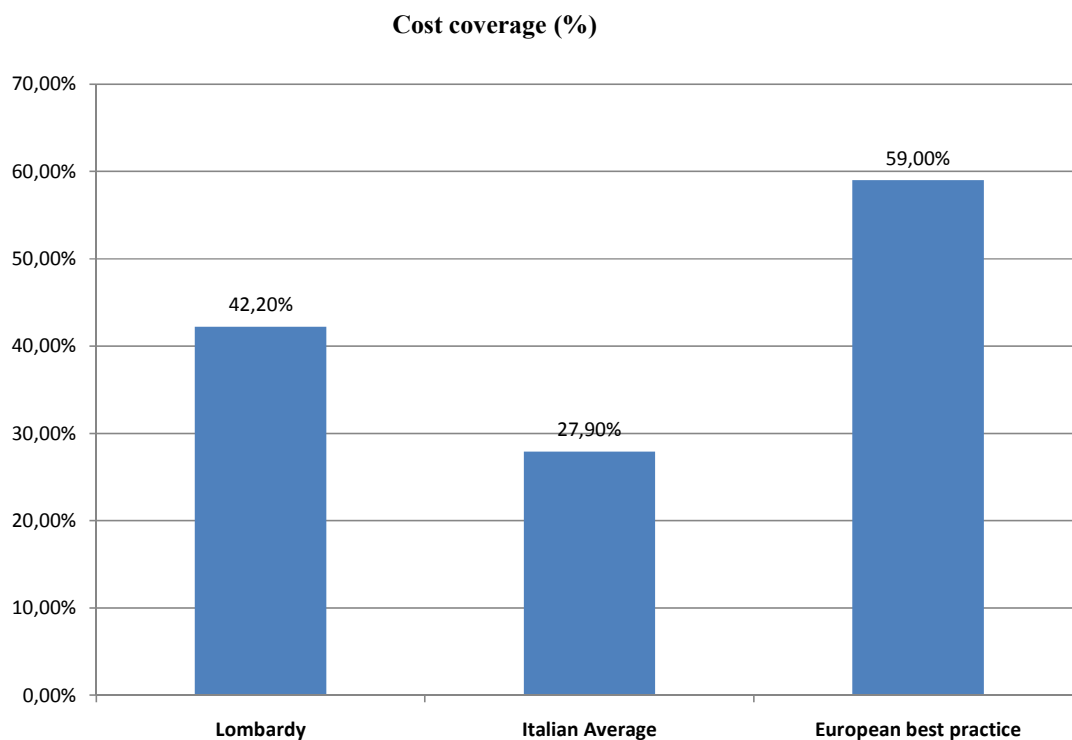
that the service provision could be in charge of a single transport operator (this happened for city council and for larger service provider) or by consortiums of providers.

In the majority of the cases, tendering procedures awarded by City Councils did not change the transport context (§ 5.1). Six City Councils assigned the territorial area to the same operator that delivered the service through the concession system. Milano city council extended the concession system until the end of 2006; the competitive tendering procedure then started in 2007 and ATM passed from delivering the service through a concession to delivering the service through a contract. In the City Councils of Bergamo and Varese a consortium of service operators awarded the competitive tendering; they were organised in ATI (Associazione Temporanea d'Imprese), that are temporary associations of companies to be transformed within two years either in a limited company or in a consortium. All of them were then transformed in the legal form of the consortium because it was considered easier to be managed.

Unlike City Councils, the majority of Provinces assigned territorial areas to consortiums of providers.(§ 5.1). After these competitive tendering procedures, the numbers of service providers in the Lombardy Region has reduced to 16 operators (apart from Varese and Milano where concession systems were still in place), many of them organised in consortiums.

The awarding of tendering procedures activated a mandated network for service delivery that characterised both the operative service provision and the policy implementation process. On the hand, the introduction of a service contract forced service providers inside the consortium working together following standards defined by the contract itself. Moreover, service contracts specified performance indicators to monitor, their target level and reports to be generated. As a consequence, managerial relationships were established through a mandate, the contract, that regulate, not only horizontal interactions inside the consortium, but also vertical interactions between regulators (either the Province or the City Council) and service providers (single organisation or consortium). On the other hand, the complete implementation of the transport reform (Regional Law 22/98 and 01/02) activated policy discussions between the Region, service regulators, providers and association of users.

Albeit the changes brought about by the previous regional Laws, and mainly associated with the competitive tendering procedure, performances of the transport service at the Regional level were still poor, with the percentage of cost-coverage higher with respect to the best European best practice and a low customer satisfaction (see Picture 10).



**Picture 8: Cost Coverage – benchmarking data-**

In order to improve this context of crisis of the system, exacerbated by the reduction of funding the region received from the central state, another regulatory intervention was enacted. It was represented by the Act for the Local Public Transport signed in October 2008, whose aim was to further enact the content of previous regional Laws, arriving at better performance results. Actors that signed this act included: the Region, Provinces, City Councils, representatives of smaller City Councils, transport providers and their associations, railways companies, unions, associations of users and commuters. This Local Act reduced the number of territorial basins from 22 (one per each Province and City Council) to 7 with the main purpose to integrate the service provided by the Province with the service provided by the City Council. Territorial basins identified were the following: Bergamo, Brescia, Milano and Monza, Como and Varese, Lecco and Sondrio, Lodi and Pavia, Cremona and Mantova. According to this act, each territorial basins can be divided in a maximum of three sub-areas to be awarded through competitive tendering. Furthermore, the transport service in each basin has to be regulated by a mobility agency with competences in planning and controlling the service. These mobility agencies include members from the Region and the interested province or City Council. By signing this act, a policy process aimed at implementing the content of this act started in 2008, activating a set of policy relationships that complemented the already existent managerial relationships generated by the service contract.

## 6.2 NETWORK ACTIVITIES

This paragraph has the objective to analyse the specific policy and managerial activities for the local public transport network. Picture 11 graphically represents managerial and policy activities for the Regional transport network with their relative interactions, which highlight the overlapping between them, as already specified in chapter 4. Managerial relationships are activated around the service planning, measurement and reporting, while policy relationships are established around the activation of policy discussions, and then continue with policy games, arriving at the final decision about the transport policy.



Picture 9: Network activities

Managerial and policy activities do not represent two independent processes, but there is a reciprocal influence. Activities related to the planning of the transport service at different levels are influenced by the output of policy decisions. For example, the definition of standards for the service provision was defined once at the beginning of the contract and it was then impossible to be modified because this was a decision taken by policy actors during 1998 (Reg. Law 22/98). At the same time, information generated by reporting activities impact on policy activities. Specifically, the network report defined by the Region acted as a trigger for the activation of the policy cycle, while other network actors' reports influenced interactions and discussions during policy games. Network actors are involved in both policy and managerial activities, but exploiting different actions (see Table 25 and 26)

Considering managerial activities, the service administrator is involved in service planning and reporting, but not in service measurement that is instead demanded to the other network actors. Service regulators, consortiums and single providers are involved in all the managerial activities, while users do not take part in planning activities.

<b>Network Actor</b> <b>Managerial Phases</b>	<b>Administrator</b>	<b>Regulator</b>	<b>Consortium</b>	<b>Provider</b>	<b>Users</b>
<b>Service Planning</b>	Tariffs definition	Standard definition Target definition	Operative scheduling	Operative scheduling	
<b>Service Measurement</b>		Inspections	Data collection	Data collection	Complaints/suggestions
<b>Service Reporting</b>	Network report definition	Service regulator reporting	Consortium reporting	Provider reporting	Informal reporting

Table 25: Managerial Phases

With respect to policy activities, the service administrator plays a predominant role being involved in all the policy activities of discussion activation, gaming and final decision making. The consortium is not involved in the entire policy process, while the remaining network actors take part in policy games.

<b>Network actor</b> <b>Policy Phases</b>	<b>Administrator</b>	<b>Regulator</b>	<b>Consortium</b>	<b>Provider</b>	<b>Users</b>
<b>Policy discussion activation</b>	Problem identification Solution proposal				
<b>Policy Game</b>	Interactions Discussions Conflicts	Interactions Discussions Conflicts		Interactions Discussions Conflicts	Interactions Discussions Conflicts
<b>Policy Outcome</b>	Final policy decision				

Table 26: Policy Phases

The following paragraphs will detail activities, technical characteristics and roles of PMS per each network actor.



## **6.3 THE SERVICE ADMINISTRATOR**

The Region is the administrator of the Regional transport system as defined by the Reg. Law N. 22/98. Given this formal role provided by the Law, it holds a supervision position in both policy and managerial activities. From a policy point of view, it plays a foremost role activating and leading the entire policy process. It identified the existence of a problem, recognised actors that influenced the problem and it proposed a solution trying to convince other network actors about the validity of its proposal. During policy games, it directed and administered policy discussions about the structure and regulation of the local public service, by organising network meetings, leading discussions, orchestrating network interactions, managing conflicts, generating network minutes and finally making the last policy decision. From a managerial point of view, it is responsible for defining the level of tariffs each year and their relative increasing. It is also in charge of defining the overall network report related to the entire Regional service. By receiving performance reports about local transport performance from all service regulators, it prepares the Regional document that provides the overall picture of the Regional transport system.

The following paragraphs analyse the technical PMS used by the Region and its role in supporting policy and managerial activities.

### **6.3.1 TECHNICAL PMS FOR THE SERVICE ADMINISTRATOR**

The Region collects a few KPIs from service regulators. Data from Provinces and City Councils are then summed together arriving to an overall KPI for the Regional network as a whole. Measures (see Table 27) are related to the financial dimension, specifically profitability and growth, and they are useful to monitor the funding gap for financing the service. The state of resources is monitored with a focus on buses and fleet average age. The service administrator is also interested in having an overall picture of service output, considering tariffs and integrated tariffs, transported passengers, service productivity and quality.

Performance dimension	Area	KPI
Financial	Profitability	Revenue from tickets
		Revenue from integrated tickets
	Growth	Investment level
		Investment for interconnection
State of resources	Buses	n. buses
		Fleet average bus age
Equity	Tariffs	Cost of single, weekly, monthly annual tickets
	Integrated Tariffs	Cost of single, weekly, monthly annual tickets
Service Demand	Passenger	Transported passenger
		Passenger-km
		Inhabitants/skm
Service Output	Service level	n.city councils receiving the service
		Average days of service
		N lines (routes)
	Productivity	Bus-km
	Quality	Regularity
		punctuality
		Customer satisfaction

Table 27: KPIs at the service administration level

These KPIs are related to the regional network as a whole and they are defined by summing data by each service regulator. This means that each service regulator, either the Province or the City Council is in charge of providing its own collected data to the Region. The technical office of the Region is then responsible for summing these data and defining the overall network value. For example, taking the transported passenger as a KPI, this measure is collected by each service regulator and the final KPI “transported passenger at the regional network level” is included in the regional report.

### 6.3.2 NETWORK PMS ROLE FOR THE SERVICE ADMINISTRATOR

The network PMS supported the Region in policy and managerial activities.

Considering policy activities, the Region was actively involved in all the policy phases, always supported by numbers. Network KPIs were useful in signalling the existence of a transportation problem: data from the 2007 Regional report activated the policy process started in 2008. Measures were the following: 50% of the customers dissatisfied about the service; 40% of citizens used the transportation service; 41% level of coverage of costs; 14.1 km/h, average commercial speed of transportation vehicles on urban routes. These numbers were useful in generating awareness about the existence of a problem in the Regional transport system, as emerged from the interview with the Director of the Transportat Unit:

“Numbers about the level of costs and revenue gave us the perception that the local transportation system was in crisis. Moreover the analysis of these numbers specified that the local transportation system was inefficient, because of high level cost, and ineffective, because of low satisfaction of users”. [Director of the Transport Unit- Lombardy Region]

The network PMS had a knowledge role in that it was useful in providing an overall picture of the Regional transport system, signalling problems, but it was not enough for supporting the identification of a solution. Additional data were collected from other transport areas in Europe: Barcelona, Paris and Berlin were identified as best practices and a benchmarking exercise was implemented in order to identify the gap between the transport situation in Lombardy Region and those of the best European areas. The European benchmarking allowed, not only to highlight the gap between European and Regional performance, but also to support the activity of proposing a solution to the inefficient and ineffective Regional service. The service integration was identified by the Region as the potential solution pointing out the diagnostic role of the PMS in supporting the decision making process. Service performance could be improved, according to the analysis carried out by the technical office, by integrating the local public transport at the whole Regional level. This meant to integrate the service provided by City Councils with the service provided by the Provinces in adjacent areas. This integration would have give rise to larger territorial basins. Moreover, a mobility agency, established from the merger of personnel of Provinces and City Councils, was proposed to be introduced with the objective to substitute service regulator in controlling and planning the local service.

Policy games were activated with the presentation of this solution of integration to the other network actors. The Region was responsible for leading and coordinating the entire process. Interactions, discussions and conflicts were moderated by the Region, that used the PMS with a supporting to manage controversies. At the beginning, it used slides with numbers about the Regional service and data from the benchmark with the objective to convince the other network actors about the validity of the proposal of service integration. These numbers, were also used to manage conflicts. For example, there were controversies and discussions about the choice of KPIs for evaluating the tariffs level. Service providers were supporting the idea of adopting objective measures and not to use data from the customer satisfaction:

“How can you use data from the perception of cleanliness as a basis from making decisions about the amount of increase in tariffs? It is subjective! If you ask to a Nordic traveller, he will give you a certain answer, but if you ask to a traveller from Egypt, he will have a completely different perception! We propose to use objective measures only!”[Operative Director –ATM]

The position of the service regulator was the opposite, and the Region managed this discussion showing numbers from the benchmark. It showed a slide with a comparison of quality standard adopted by the regional areas of Barcelona, Paris and Berlin providing evidence that data from customer satisfaction were also used in best performing transportation areas.

The last phase of the policy process is represented by making the final decision about the policy implementation. In this case, numbers played diagnostic role. They were synthesised in a unique presentation and used by the Region to justify the final decision. The Director of the Transport Unit clarified this:

“During policy discussions we collected all the materials from the other network actors: KPIs from their reports, additional information or researches were used during these interactions and we were in charge of collecting and analysing them. We spent a lot of hours discussing with network actors because of their different positions and strategies. At the end, after more than 100 hours of round tables we organised another plenary session to present the final policy decision. This decision was the result of all the previous policy meetings and derived from a concertation with all network actors. PMS were central in this presentation because they supported the reason why we chose the proposal of one network actor, and not that of another one”. [Director of the Transport Unit – Lombardy Region]

Considering managerial activities, the PMS supported the decision making process about tariffs definition covering therefore a diagnostic role. It also supported knowledge development about the regional transport service through network reporting.

The definition of the tariffs level for each year is a decision made by the Region on the basis of three network KPIs: service punctuality, regularity and customer satisfaction (specifically the level of cleanliness). This was explained by the Director of the Tariffs Unit during the interview:

“Tariffs adjustments are defined depending on the achievement of some quality standards. This means that we increase tariffs if buses are clean, punctual and regular. So, if there are measures to demonstrate that service quality has really increased, then we can justify this increasing in the tariff level”. [Director of the Tariffs Unit – Lombardy Region]

For example, in 2012 tariffs can be increased if service punctuality achieve 92%, regularity 1% and cleanliness achieve a point of 6 (derived from customer satisfaction surveys with a 1-10 range). This quote highlights the supporting role of the PMS in the regional decision making activity about tariffs definition. At the same time, problems associated with uses of the network PMS have emerged from interviews. They were specifically related to technical characteristics of the network

PMS and to the IT infrastructures. Concerning technical characteristics, problems were related to the metrics. Service punctuality and regularity can be defined adopting different metrics, mainly due to the possibility each regulator has to define the content of the contract. Considering the service punctuality, it can be measured as “number of journeys within 3, 5 or 10 minutes depending on how it is specified in the service contract. As a result, it is assessed in different ways passing from one local area to another. Given these differences, it results then difficult to define an overall regional value for service punctuality. In order to define the punctuality level of 92%, the Region considered the average data of each service regulator, albeit calculated with different metrics.

With respect to the IT support, the existence of a Regional network database supports the activity of data aggregation. In fact, the Region is in charge of defining the Regional PMS report by aggregating data it receives every year from service regulators. The consolidation of data from each Province or City Council is useful to Regional administrators to have an overall picture of the transportation service. Each service regulator can insert KPIs related to its competence area in this Regional database with the advantage for the Region to generate automatically the aggregated data. In practice, several problems were highlighted during interviews:

“The situation is patchy. There are some virtuous regulators, such as Brescia City Council, where there are some technicians with very good IT and managerial competences in dealing with performance measures. They are able to fill the entire report and deliver data on time. On the contrary, there are some smaller City Councils that do not have the competences for doing this and we have some missing data from their performance”. [Director of the Tariffs Unit – Lombardy Region-]

This problem of missing data highlighted the importance of competences in managing numbers and dealing with IT requirements by public managers in Provinces and City Councils.

Moreover, difficulties in using the network database were also confirmed by the mobility manager at Lecco Province:

“To insert data in the system is a big mess! We waist a lot of time when we have to do this. Very often we simply deliver the report on a paper based format, complemented with this CD. It contains an excel file with all the required data”. [Mobility Manager – Lecco Province]

Activity	Network actions	PMS role	Problem /Opportunities
Policy	Problem identification	Knowledge	Alert function played by network PMS
	Solution proposal	Diagnostic	Network PMS not enough→benchmark data Data reliability
	Interactions/discussions /conflicts	Supportive	Opportunity: Network PMS to drive action and to manage conflicts
	Final decision	Diagnostic	Opportunity: network PMS to justify actions
Managerial	Tariffs definition	Diagnostic	Data reliability (different metrics)
	Network reporting	Knowledge	Technical problem with network database Missing data (lack of competences)

Table 28: PMS role – service administrator level

## 6.4 SERVICE REGULATORS

Service regulators are in charge of planning and controlling the transport service in their local area and they represent their local area during policy discussions. In this study seven regulators were analysed:

- Bergamo Province
- Brescia City Council
- Brescia Province
- Lecco City Council
- Lecco Province
- Milano City Council
- Milano Province

The empirical analysis provides evidence of their involvement in both policy and managerial activities. From a policy point of view, service regulators take part in policy games with the objective to support or modify the policy proposal made by the Region. They played an active role in discussions, conflicts and interactions in order to influence the final policy output on the basis of their strategy.

From a managerial point of view, they handle the transport contract with service providers. This means that they plan transport activities through the definition of standards for the service. As a result from the Regional Law N. 22/98, these standards were defined during the competitive tendering and agreed upon with the signature of the contract by the service provider. They cannot be modified for the entire length of the contractual relationship. Moreover, regulators set targets for these service standards at the beginning of each year on the basis of the value achieved the previous year. All the service regulators carry out service measurement periodically with no fixed date, but

usually on a weekly basis. Measurement is exploited through inspections, as clarified in the contract. An inspector from the Province or from the City Council randomly selects a bus journey and verifies all service standards for which targets are set. This inspector then fills a report, whose content is compared with actual data received from service providers to identify eventual misalignments. Finally, service regulators are in charge of completing the performance reporting by aggregating data from service providers operating in their local area.

The following two paragraphs analyse the technical PMS used by the service regulators and its role in supporting policy and managerial activities

#### **6.4.1 TECHNICAL PMS FOR THE SERVICE REGULATOR**

Service regulators collect KPIs explicitly specified by the contract (they are called service standards). These KPIs are defined by the regulator itself and agreed upon by providers when they sign the contract. As a rule, KPIs can not be modified for the entire duration of the 7 years contract. The regional regulation left City Councils and Provinces free to define the content of the contract, following some general guidelines. This freedom gave rise to heterogeneity in the choice of KPIs in service contracts. Differences were visible, not in the performance dimension, nor in the measurement area. Rather, specific differences emerged from the choice of metrics for KPIs. This variety has emerged from service regularity and punctuality. For example, the service regularity is measured by Lecco City Council as the percentage of bus journeys not provided. On the contrary, Brescia City Council measures punctuality as the percentage of bus journeys provided in advance. This variety in KPIs metrics was not problematic for the regulator-provider relationship. Rather, it posed problems at the administrator level in calculating the overall regional value.

Performance dimension	Area	KPI
Financial	Profitability	Revenue from tickets
		Production costs
	Growth	Investment level
State of resources	Buses	n. buses
		Fleet average bus age
Service Demand	Passenger	Transported passenger
		Passenger-km
Service Output	Service level	n.city councils receiving the service
		Average days of service
		N lines (routes)
		N. tickets sold
	Productivity	Bus-km
		Cost per bus-km
Service quality	Cleanliness	Frequency of cleanliness of buses
		Frequency of cleanliness of bus-shelters
	Safety	n. of buses with video cameras
		n. of buses with a connection to the central area of control
	Passenger information	Buses with information
		Bus-shelter with maps
		Bus-stops with scheduling hours
Time to answer at the call centre		
Comfort	n. of bus stops with bus-shelters	
	n. of bus shelters with benches	
	n. of buses with air conditioning n. of buses with floor for disables	
Regularity	% bus- journeys not provided	
	% bus- journeys provided in advance	
Punctuality	% of bus-journeys within 3 minutes	
	% of bus-journeys within 5 minutes	
	% of bus-journeys within 10 minutes	
Quality Perception	Customer satisfaction	

**Table 29: KPIs at the service regulator level**

Performance measures collected by service regulators are mainly related to service characteristics, in terms of demand, output and quality. Service quality covers a foremost role in all service contracts. In fact, all service regulators measure several quality dimensions: cleanliness, safety, passenger information, comfort, regularity and punctuality. In addition to these indicators of objective quality, regulators also require data about quality perceptions, carried out through analysis of customer satisfaction. These KPIs are collected by regulators with a provider level of detail, either the consortium or the single organisation. The mobility manager at Bergamo Province well highlighted this aspect:

“From our point of view, to have a contract with a single service provider or with a consortium of providers is exactly the same because in both of the cases the contract signs a bilateral relationship between us and the service provider. We have three consortiums in the province area which means that



we receive three numbers per each performance indicator, one per each consortium”. [Mobility Manager – Bergamo Province]

The introduction of this list of KPIs in the service contract is considered by service regulator as the major benefit from the previous transport reform (Reg Law 22/988), as clearly emerged from the interview with the Mobility Manager at Milano Province:

“When the public transportation was not regulated by a contract, there was simply a piece of paper in which it was written ‘The company Mario Rossi delivers the bus-journey n. 1 from here to there with this time schedule. Bye bye, see you next year.’ That’s it. Now, with this contract, I have to say ‘Mario Rossi company has some duties, we are giving some service standards, associated also with penalties if not respected...Everything has changed” [Mobility Manager - Milano Province]

#### **6.4.2 NETWORK PMS ROLE FOR SERVICE REGULATOR**

The seven service regulators analysed are involved in both policy and managerial relationships and the empirical evidence showed the same PMS role for all of them. For this reason, results will be presented at the aggregate regulator level distinguishing between PMS role in policy and managerial relationships.

Service regulators are involved in policy activities, specifically in discussions and interactions during policy games. The PMS in this case plays a supporting of network policy activities, helping each regulator persuading the region and the other network actors during policy discussions. For example, data about the service output were used by Milano Province to support its strategy of maintaining the independence from Milano City Council in the new reorganisation of the public transportation service in integrated basins. It used numbers about transported passenger and bus-km to promote its strategy of remaining a single independent territorial area. At the same time, performance measures led to intra-organisational conflicts. This situation happened between different organisational role for the same service regulator: the mobility manager and the councillor, the former with higher transportation competences than the latter. This tensions clearly emerged during a policy meeting, when during an informal discussion with the mobility manager of Brescia City Council, he said:

“The presence or the absence of the councillor during the meeting was not at all problematic. When we were both sat at the round table, he accepted all the proposals; no contradictions, no further questions for details, no participation in the discussion ... nothing! Everything was ok for him. This is because he does

not care of practical matters, such as the tariffs, the scheduling hours: he never caught the bus!”[Mobility Manager –Brescia City Council]

Service regulators use network PMS mainly to support managerial activities. The definition of service standards highlight the PMS diagnostic role. During the moment of service standard definition the regulator specifies performance indicators to be included in the service contract. This is the most important decision making activity carried out by the regulator for two main reasons: standards drive actions of service providers because they represent the requirements to be fulfilled according to the contract they have signed. Second, standards are defined once, at the beginning of the contractual relationship and they can not be modified for the entire duration of the contract. This represents a constraint as discussed with the Mobility Manager at Lecco City Council:

“The environment, users’ attitude and transportation problems can change over seven years, and the impossibility to change what we have set at the beginning of the contractual relationship can be problematic, also because these performance measures are associated with a certain target level and bonuses and penalties are defined on the basis of these measures”. [Mobility Manager –Llecco City Council]

This quote provides evidence of the problem due to the overlapping between policy and managerial activities: the impossibility to modify service standards for the duration of the contract was the result of the previous policy decision of 1998.

Another problem associated with this phase was highlighted from interviews with service providers, that represent receivers of these standards. Many of them pointed out the inability of regulators selecting the most important measures:

“Milan City Council included a lot of indicators in the contract. We also have a contract with the City Council of Copenhagen, where we deliver the metro service. The situation there is completely different: the relationship with the service regulator is managed with one performance measure only, service reliability. Here in Milan instead we have to provide a lot of indicators, many of them questionable given their high subjectivity”. [CFO – ATM]

This tendency of including a big array of KPIs in the service contract is also a signal of limited trust between service regulator and provider, as emerged from the interview with the General Director of Linee Lecco:

“We have passed from having no control, almost complete freedom of managing our activities to the control of everything! Maybe City Councils have very low expectations from service providers and this is the reason why they monitor everything!”[General Director – Linee Lecco]

Problems about standard selection emerged also at Lecco City Council, where the contract finally defined by the regulator was the same of the Lecco Province because of the difficulties by managers in the City Council selecting and defining the list of KPIs.

These situations highlight managerial and technical competences in dealing with numbers as a relevant skills for service regulator managers.

A second managerial activity is represented by the definition of targets for the previously listed KPIs. In this case, targets are defined at the beginning of each year, on the basis of the performance value achieved in the previous period. Targets, in this case, are used with a coordination purpose to drive providers' actions. By setting a specific value to achieve, on the basis of which a monetary bonus or a penalty is associated, service regulators want to increase the ability of service providers, mainly those working in consortiums, aligning their actions and promote quality. This was clarified by the interview at Brescia City Council:

“The transportation company has a limited attention towards its clients. This is the reason why it is important we fix targets, to provide directions. We are in charge of promoting the discounted price on students tickets, not the company!” [Mobility Manager, Brescia City Council]

Another comment came from the interview at Brescia Province:

“The association of targets with bonuses and penalties is fundamental in order to drive company's behaviours towards the improvement of service quality”. [Mobility Manager – Brescia Province]

Problems with this activity are related to the definition of the reference value. The approach adopted by Brescia Province was the following:

“Targets are defined starting from the historical value. We take the result achieved in the previous year and we incremented this value by 5% if the previous year's target was achieved. Otherwise, the target does not change from the previous period.”[Mobility Manager – Brescia Province]

Another managerial activity is represented by service measurement, that involves service regulator for a limited amount of time given that it receives the report from service providers. This activity was clarified from the interview at Brescia City Council:

“Inspections are carried out on a sample basis or after a complaint we receive from users of the service. Our inspector uses the bus and collects some performance measures, for example he measures punctuality, reliability, cleanliness and he fills this information in a document. If something does not respect quality standard we contact the company, but so far this has never happened.”[Mobility Manager –Brescia City Council]

This quote highlights the PMS diagnostic role and at the same time benefits and problems associated with inspections. Inspections are not defined on a regular basis, but they are carried out occasionally with the purpose to audit the process of data collection and reliability of the measure collected by the provider. The problem of this activity is the lack of a structured inspection process: inspections are carried out on a weekly basis, but with a random selection of the bus-journey. If on the one hand, this activity is aimed at providing auditing on measures the regulator periodically receives from providers, on the other hand, the inspection activity is carried out on a sample basis. This means that it does not guarantee the reliability of all data and processes adopted by the service provider to collect and transmit performance measure.

The last managerial activity is represented by reporting. Service regulators collect KPIs defined in the contract from each service provider or consortium. In this case, performance measures have a formal compliance role because these data are directly transmitted to the Region. The role of the regulator in this case is limited; it has a “paper-pusher” role [informant’s words] rather than a decision making role. In fact, decisions are taken on the basis of the target value and the role of Provinces and City Councils in this phase is limited to the aggregation of performance measures. Moreover, from interviews it has emerged the problem of adoption of different technologies for data collection: service contracts do not clarify the procedures for collecting data, but each provider is free to decide. This implies that the same performance measure can be assessed with different technologies, but there is no control on this process. For example, data about transported passenger can be estimated or it can be precisely defined by monitoring all bus accesses. The City Council, as highlighted from the Lecco case, does not know how each provider collected this data with a result of low data reliability.

Activity	Network actions	PMS role	Problem /Opportunities
Policy	Discussion/interactions/ conflicts	Supporting	Opportunity: PMS to support the strategy Problems of intra-organisational conflicts
Managerial	Standard definition	Diagnostic	Lack of competences (inability to reduce KPIs) Low level of trust Rigidity of the previous policy decision
	Target definition	Coordination	Subjective measures
	Inspections	Diagnostic	Opportunity: preliminary form of audit on data and process Problem: occasional activity
	Service regulator reporting	Formal compliance	No audit on the process of data collection

Table 30: PMS roles – service regulator level

## 6.5 CONSORTIUM OF SERVICE PROVIDERS

The consortium includes aggregation of service providers, in the legal form of “Società consortile a responsabilità limitata”, that was established with the specific purpose to take part to the competitive tendering. In fact, at the time of the first competitive tender (2003 for contracts signed in 2004) service regulators defined a minimum number of bus-km as a pre-condition to take part to the tendering. The high fragmentation of the service in the Regional area forced smaller service providers aggregating with each other in order to satisfy this requirement conditions, giving rise to the consortium.

Specifically, six consortiums have been object of the analysis in the local areas of Lecco, Bergamo Brescia and Milano (§ 5.1):

- Lecco trasporti
- Trasporti Brescia Nord
- Trasporti Brescia Sud
- Bergamo trasporti Ovest
- Bergamo trasporti Est
- Brianza Trasporti

Consortiums are involved in managerial, but not in policy activities. They carry out planning activities through operative scheduling, measurement activities, through data collection, and reporting activities preparing the report for the service regulator. Surprisingly, from interviews it appeared their lack of involvement in policy activities as emerged from the interview with the General Director of Locatelli (a service provider that is part of Bergamo Trasporti Ovest Consortium):

“When we established the Consortium, our initial idea was to increase our power in negotiations with the Province. In practice, we never did nor we are doing this activity because we lack the culture for sitting together and defining a common action strategy to adopt with the Province. I know, the consortium could have been a great opportunity to increase the power of small service operators like us, but in practice we preferred to work together for operationally deliver the service and nothing else”. [General Director – Locatelli]

This quotes points out the limited trust among providers inside the same consortium. The willingness of working together is limited to the requirements defined in the contract. As a consequence, single organisations, rather than the consortium, prefer to take part independently to policy discussions. This means that single providers support their own strategy alone during policy discussions and the consortium is not involved in these policy activities.

The following two paragraphs analyse the technical PMS and its use in supporting consortiums’ managerial activities.

### 6.5.1 TECHNICAL PMS FOR THE CONSORTIUM

KPIs at the consortium level are the same collected by the service regulator because of the existence of the service contract between these two network actors.

Performance dimension	Area	KPI
Financial	Profitability	Revenue from tickets
		Production costs
	Growth	Investment level
		<a href="#">Investments for consortium resources</a>
State of resources	Personnel	n. of personnel
	Buses	n. buses
		Fleet average bus age
Service Demand	Passenger	Transported passenger
		Passenger-km
Service Output	Service level	n.city councils receiving the service
		Average days of service
		N lines (routes)
		N. tickets sold
		<a href="#">% intermodal runs</a>
	Productivity	Bus-km
		Cost per bus-km
Environment	n. of hybrid vehicles	
Service quality	Cleanliness	Frequency of cleanliness of buses Frequency of cleanliness of bus-shelters
	Safety	n. of buses with video cameras n. of buses with a connection to the central area of control
	Passenger information	Buses with information Bus-shelter with maps Bus-stops with scheduling hours Time to answer at the call centre

	Comfort	n. of bus stops with bus-shelters n. of bus shelters with benches n. of buses with air conditioning n. of buses with floor for disables
	Regularity	% bus- journeys not provided % bus- journeys provided in advance (in anticipo)
	Punctuality	% of bus-journeys within 3 minutes % of bus-journeys within 5 minutes % of bus-journeys within 10 minutes
	Quality Perception	Customer satisfaction

**Table 31: KPIs at the consortium level**

These measures are collected because of a mandatory requirement with two exceptions (highlighted in blue in the table) that account for relational effects: investments for consortium resources and % of intermodal runs. The first KPIs is internally used to monitor the amount of resources the consortium as a whole receive from the service regulator because this amount of money is then divided between service operators on the basis of their bus-km. The second KPI about the % of intermodal runs accounts for interconnections between different service providers in the same consortium and it is then used for external accountability. Specifically, it is published on Citizens' Charts.

The level of detail for these KPIs is the consortium itself: data from each provider are delivered at the organization that represents the consortium in external relationships. As already specified in the case of regulator, the exception is represented by service regularity and punctuality, that are collected with a journey level of detail.

### 6.5.2 NETWORK PMS ROLE FOR THE CONSORTIUM

Consortiums use network PMS to support the managerial activities of operative scheduling, data collection and reporting. Specifically, it is used to support coordination of activities. Interviews and observations highlighted some problems associated with these activities.

First of all, the consortium is in charge of planning the service on the basis of the content of the contract. KPIs defined by the service regulators are used by the consortium for the operative scheduling of the service. Single service providers sit around a table to discuss how to align their journeys and bus stops in order to satisfy targets defined by the regulator. On the one hand, network PMS, and specifically, targets, support alignment of actions as specified by the interview at Locatelli:

“Once we receive the target value from the Province, we organise a meeting with all the other provider in the consortium and discuss together about how to schedule the service in order to achieve the targets set.

This is true especially for service punctuality that is different depending on the journey and therefore on the specific area in which each operator deliver the service” [Operative Director – Locatelli]

At the same time the activity of joint working for scheduling the service led to the emergence of limited trust between network actors, as clarified by the Director at AGI:

“In order to align my timetable with that of the other providers, I ask them their timetable for that specific transportation node. It was important in order to avoid that the passenger of my bus-line arrives at that interconnection point and loses the coincidence because we have not aligned hour scheduling. I have not received any scheduling, the provider did not want. At the end, I was forced checking timetables on its website, even though they were not updated”. [General Director – AGI]

This quote supports the idea that for the operative scheduling, network PMS enacts action alignment, but it can also highlight problems of lack of trust between consortiums’ actors.

Consortiums are also responsible for collecting data about the service delivered by single providers. These data are then delivered every quarter and every year to the service regulator. This is the process for data collection: the organisation that formally represents the consortium (usually the provider with the higher amount of bus-km) collects KPIs from each service provider, These data are received on an excel file and summed together in order to define the final consortium value that will be included in the report. Two major problems were here identified: technical problems for data collection and the lack of a network information system. First of all, the provider responsible for aggregating data at the consortium level does not control for the process of data collection of each single service provider, nor for the quality of the data received. The reason behind this approach was explained by the Director at Linee Lecco, responsible for collecting data for the consortium Lecco Trasporti:

“We do not care about the reliability of the data other companies are delivering to us, because the role of the consortium is not a managerial one! As a consortium we are asked to provide a report about the overall service provided: if one of the organisation makes mistakes in providing the data, I’m not responsible for its mistake. As I am not responsible for its mistake, I’m also not responsible for checking data!” [General Director – Linee Lecco]

The second problem is related to the lack of a consortium Information Technology (IT) both to share data of single providers in real time, but also to facilitate the process of data collection. Consortium’s share resources include a website and a call centre, both useful to give them a single



access point to consortium information. Apart from this, the consortium has not developed a common IT system to share and collect data. The reason behind this problem is given by the mandatory nature of the relationships and consequently by the limited willingness of each single organisation sharing its data with other providers.

The third managerial activity is represented by the definition of a consortium reporting system. Starting from the data collected, two different consortium reports are generated: the report for the regulator and the report for the user, both mandated by contract. The report for the regulator includes all service standards defined by the contract with their relative actual value; it is delivered to regulator every quarter and every year by each consortium. Moreover, the contract requires the diffusion of another document, the Citizens' Chart, addressed to service users with the objective to inform them about the quality of the service. KPIs included in this report are related to service quality only and provide also a detailed results of customer satisfaction analysis. Both these reports are not used by the consortium; rather they represent a formal compliance for the consortium itself. The reason behind this use is explained by the lack of specific objectives set by consortium's actor: activities are instead driven by KPIs and target included in the contract.

<b>Activity</b>	<b>Network actions</b>	<b>PMS role</b>	<b>Problem /Opportunities</b>
Managerial	Operative Scheduling	Coordinating	Limited trust
	Data collection	Formal compliance	Technical problems for data collection Lack of consortium IS
	Consortium reporting	Formal compliance	Lack of audit on single providers data

Table 32: PMS roles – consortium level-

## 6.6 SINGLE PROVIDER LEVEL

The previous paragraph analysed the activity of service providers organised in consortiums; in other words, the focus was on activities made by single providers for the consortium. In this paragraph instead the attention is devoted to activities carried out by single providers for themselves, as single organisation in charge of delivering the transport service.

Service providers include single organisations that independently deliver the service. The following service providers have been analysed:

<b>Single provider</b>	<b>Consortium</b>
ATM	None
Brescia Trasporti	None
LineeLecco	Lecco Trasporti
SAL	Lecco Trasporti
Locatelli	BTS/BTO
AGI	Brianza Trasporti
SAIA	Brescia Nord/Brescia Sud
SIA	Brescia Nord/Brescia Sud

**Table 33: List of single service providers**

ATM and BresciaTrasporti are not part of consortiums, but autonomously delivered the service for Milano City Council and Brescia respectively on the basis of the service contract. The remaining providers instead are part of the previously listed consortiums.

Single service providers are involved in both managerial and policy activities. As in the case of consortiums, they are responsible for the operative scheduling, data collection and provider reporting. Moreover, they take part in policy discussions, actively participating at policy games.

The following paragraphs detail the technical PMS and its role in supporting the single provider's policy and managerial relationships.

#### **6.6.1 TECHNICAL PMS FOR THE SINGLE PROVIDER**

KPIs collected by the single provider include the same performance indicators required by the contract between the regulator and the consortium, but with a higher level of detail. This level can be the line level or the single journey. The seven service providers analysed, albeit characterised by different size and areas of competence, use to collect the KPIs required by service contract, which do not vary from one provider to another. Interestingly, differences were visible in the technology for data collection. Larger providers, such as ATM use advanced IT systems, while smaller service providers use to estimate some data, for example, the number of transported passengers. These differences are not considered by service regulators and this can therefore generate problems of low data reliability.

Moreover, additional performance indicators related to internal processes or internal resources are collected: state of bus and bus-shelters, detailed indicators about the environment and data about the risk of provider's activity. These categories of data are not mandatory. Rather, they are voluntary collected by each single organization and related to their own activities.

Performance dimension	Area	KPI
Financial	Profitability	Revenue from tickets Revenue from integrated tickets Production costs
	Growth	Investment level Investments for network resources <a href="#">Investments for interconnections</a>
State of resources	personnel	n. of personnel <a href="#">n. and hours of training courses</a>
	Buses	n. buses Fleet average bus age
	Bus-shelters	<a href="#">Damages to bus-shelters</a>
Service Demand	Passenger	Transported passenger Passenger-km
Service Output	Service level	n.city councils receiving the service Average days of service N lines (routes) N. tickets sold % intermodal runs
	productivity	Bus-km Cost per bus-km <a href="#">Commercial speed (km/h)</a>
	environment	n. of hybrid vehicles <a href="#">petrol usage</a> <a href="#">water usage</a> <a href="#">CO2 emission</a> <a href="#">Decibel</a>
Service quality	Cleanliness	Frequency of cleanliness of buses Frequency of cleanliness of bus-shelters
	Safety	n. of buses with video cameras n. of buses with a connection to the central area of control
	Passenger information	Buses with information Bus-shelter with maps Bus-stops with timetables Time to answer at the call centre
	Comfort	n. of bus stops with bus-shelters n. of bus shelters with benches n. of buses with air conditioning n. of buses with floor for disables
	Regularity	% bus- journeys not provided % bus- journeys provided in advance
	Punctuality	% of bus-journeys within 3 minutes % of bus-journeys within 5 minutes % of bus-journeys within 10 minutes
	Quality Perception	Customer satisfaction
	<a href="#">Risk</a>	<a href="#">Buses maintenance</a> <a href="#">Buses reliability</a> <a href="#">Electronic apparel reliability</a> <a href="#">Injuries to personnel</a> <a href="#">Illness of personnel</a> <a href="#">% complaints</a> <a href="#">Reasons of complaints</a> <a href="#">Response time to complaints</a>

Table 34: KPIs at the single provider level

### 6.6.2 NETWORK PMS ROLE FOR THE SINGLE SERVICE PROVIDER

The network PMS supported the single service provider in managerial and policy activities.

The network PMS is used with a supporting role in policy activities, specifically interactions and discussions during policy game. Performance measures used are not those collected by the consortium, but data about the single service provider. These measures are used to support the position and the strategy of the single actor during policy discussion. For example, ATM uses its internal data to support its strategy to reduce the concentration level in the transportation system. It showed data about the number and the dimensions of players in larger European regions in order to highlight the different dimension between the fragmented Regional system and the less concentrated European system. As with the case of other network actor, the Region was in charge of collecting these reports and moderating the discussion.

Performance measures also enact managerial activities. They were useful as a diagnostic device to support decision making about the operative scheduling of the service: service standards defined by contracts provides guidelines about how to practically deliver the service. Moreover, if the single organisation is part of a consortium, this operating activity is carried out jointly with the other organisations belonging to the consortium finally supporting action alignment. At the same time, service standards limit the range of actions of each single provider. For example, requirements about the introduction of air-conditioned systems on all buses drove the choice about where to invest. This was the situation of Brescia Trasporti, where the contract monitors the percentage of air-conditioned buses with a target value of 100%.

The activity of data collection for the single service provider can be distinguished between the process of data collection for the single organisation itself and the process of data collection for the consortium. In the former case, data are collected in real time or with a weekly frequency and they support the internal decision making process. On the contrary, a few of these measures and with a lower level of detail are periodically delivered to the organisation responsible for the consortium. This process was explained by the General Director at SAL:

“We collect measures for our organisation that are included in our information system. These data are then used to support decisions about how to reorganise the service, for example changing the scheduling of one bus-route or modifying a route. At the same time, we have to reorganise part of the data we collect in order to fulfil consortium’s requirement. Data we collect for the consortium are the same, but the level of detail is different” [General Director –SAL]

The reason behind the lack of use of consortium data is related to the aggregation level of these numbers: the level of detail in the consortium and the frequency of these data is quarterly. This

misalignment in the level of detail and in the time frame explains the reason why the single provider uses individual performance indicators rather than consortium data to support the internal decision making process.

The last managerial activity is represented by the definition of the report. Also in this case, it was visible a misalignment between activities for the single organisation and activities for the consortium. On the one hand, the single providers prepares weekly reports that are internally used, but it is also required to prepared two report for the consortium. They are two excel file used to transmit performance information about the service to the organisation responsible for the consortium. The content is different: one excel file is used to prepare the report for the regulator, while the second file is used to prepare the Citizen’s Chart delivered annually to citizens.

<b>Activity</b>	<b>Network actions</b>	<b>PMS role</b>	<b>Problem /Opportunities</b>
Policy	Interactions, discussions	Supporting	Opportunity: PMS to support the strategy
Managerial	Operative Scheduling	Diagnostic	Constraints provided by the contract Action alignment
	Data collection	Formal compliance	Misalignment in the level of detail
	Provider reporting	Formal compliance	Misalignment between organisation and consortium data

**Table 35: PMS roles – single provider level**

## **6.7 ORGANISED ASSOCIATIONS OF USERS**

The last category of network actors is represented by users, that has increased their importance in public administrations with the diffusion of the public engagement concept (Irvin and Stansbury, 2004; Rowe and Frewer, 2005). Not only private organisations, but also public entities have started involving users in policy decisions almost all around the world. The public transportation network is characterised by two categories of users that actively take part at policy and managerial activities:

- Organised associations of users of the public transportation system, called Assoutenti;
- Representatives of commuters

The former is organised through an office, a website, and people working for it, while the latter is less structured and mainly based on voluntary contributions by commuters.

Considering managerial activities, all the users, both citizens and transported passengers are partially involved in public transport activities because they receive, through the website or on demand, the Citizens’ Chart that summarized the annually performance of each service provider. Moreover, organised associations of users also take part at measurement activities collecting data and generating reports about a specific transport issue, such as the state of resources or the service punctuality for a specific bus route.

The policy process activated in 2008 was characterised by the involvement of associations of users, Assoutenti and representative of commuters, that for the first time took part at the policy making process. The reason behind their involvement was explained by the Director of the Transportation Unit in Lombardy Region:

“This is the approach of our councillor: to listen to several different voices before making decisions. And we could not make decisions about local public transport without listening to users’ needs and requirements. This is the reason why they were involved in our round tables”. [Director of the Tariffs Unit – Lombardy Region]

This decision was welcomed by users, as emerged from the interview with the Director of Assoutenti:

“We know, the Region made a lot of mistakes about policy decisions. We do not agree on many points discussed during policy activities but of course we extremely appreciate the effort of involving us in the policy process”. [Director of Assoutenti]

The representative of commuters was instead more reluctant and showed a lack of trust towards the Region and its approach to the management of the policy process:

“We are sure that a lot of unofficial discussions took place outside the room of the Region and they were the most important, where everything was defined. When we arrived at the official meeting, it was like a script, where every actor played its role as defined in previous informal agreements”. [Spokesperson of commuters]

The following paragraphs describe technical PMS and its relative uses by associations of users.

#### **6.7.1 TECHNICAL PMS FOR ASSOCIATIONS OF USERS**

Users of the service do not directly receive any report about the transportation service, but Citizens’ Charts are made available through the website of service providers and directly at their customer offices. These documents have the same content for all the Citizens’ Charts because its content was defined by the law 22/1998 and performance measures are mainly related to service quality and results of customer satisfaction surveys (Table 36). The level of detail is the consortium or the single provider level, while there are no other performance measures they receive from regulators or from service administrator. In fact, the Region clarifies that it does not publish the report about the service performance at the network Regional level, albeit required by users.

Performance dimension	Area	KPI
State of resources	Buses	Fleet average bus age
	Bus-shelters	Damages to bus-shelters
Service Demand	Passenger	Passenger-km
Service Output	Service level	n.city councils receiving the service Average days of service N lines (routes) N. tickets sold % intermodal runs
	Productivity	Commercial speed (km/h)
	Environment	n. of hybrid vehicles
Service quality	Cleanliness	Frequency of cleanliness of buses Frequency of cleanliness of bus-shelters
	Passenger information	Buses with information Bus-shelter with maps Bus-stops with timetables Time to answer at the call centre
	Comfort	n. of bus stops with bus-shelters n. of bus shelters with benches n. of buses with air conditioning n. of buses with floor for disables
	Regularity	% bus- journeys not provided % bus- journeys provided in advance
	Punctuality	% of bus-journeys within 3 minutes % of bus-journeys within 5 minutes % of bus-journeys within 10 minutes
	Quality Perception	Customer satisfaction

Table 36: KPIs at the users level

At the same time, these organised associations of users, both Assoutenti and Commuters, voluntary collect additional performance measures to further monitor the service they received. This data collection is customised and depends on specific needs. For example, when the tram line 90 in Milan was continuously object of complaints from travellers, Assoutenti prepared an ad-hoc data collection for that specific problem of low commercial speed and punctuality.

#### 6.7.2 NETWORK PMS ROLE FOR ASSOCIATION OF USERS

Association of users have two different types of PMS: official Citizens Charts they receive from service providers and unofficial reports they prepare. As already said, the lack of trust in the data included in official document, led to the use of their unofficial and customized performance measures that support both managerial and policy activities.

Network PMS were used by both Assoutenti and representative of commuters during policy games to support their requirements and they were finally useful to change the initial power dynamics. In fact, during initial network meetings, the largest service providers and regulators had mainly a foremost role during policy discussion. The continuous attention and involvement by users through

amendments and presentation of their collected data provided evidence of their developed skills in technical issues and their unofficial role of auditors was finally recognised in the policy decision:

“A Regional Conference is introduced in order to control performance report prepared by consortiums and service providers. Components of this Conference include [...] one representative of Association of users and one representative of commuters”.

[Network Minute, 7 April, 2011]

Network PMS also support users' involvement in managerial activities. Complaints and suggestions associations of users receive from traveler are used to develop knowledge of the local transportation system and of its problem. During the interview with the Director of Assoutenti, he showed its informal approach for monitoring complaints:

“Look (with reference to the screen of its laptop), these 34 mails are the results of today's transportation problem. Travelers send us whatever problem they have on the bus-line they using. These problems vary widely, from the air-conditioning that is not working to the low punctuality, to the poor condition of a bus-shelter. We track all this information and we then take actions on the basis of complaints we receive”

They also explained the relevance and the use of the informal report they prepare. For example, Assoutenti prepared a report about the bus service in the Region, providing numbers about several aspects: infrastructures with a focus on bus, bus-shelters and bus-stops, punctuality, regularity, frequency, tariffs and modal integration with specific reference to both best and worst performers. These reports were both published on their website but also presented in meetings organised by the association itself. Several evidence are associated with this reports: the report structure as well as the public presentation gave evidence of the high technical competences of these associations dealing with transportation matter and performance issues; they provide a clear signal of lack of trust between users and the auto-certified data from service providers. At the same time, as they underlined, these performance measures are not structured, nor collected on a regular basis. Rather, they represent a way to audit activities carried out by service providers.



<b>Activity</b>	<b>Network actions</b>	<b>PMS role</b>	<b>Problem /Opportunities</b>
Managerial	Complaints/suggestions	Knowledge	Constant audit on data reliability and on the process of data collection
	Informal reporting	Knowledge	Higher technical competences Lack of trust towards providers Unstructured information
Policy	Interactions, discussions	Active	Change in power dynamics

Table 37: PMS roles –users level-

# CHAPTER 7: THE ROLE OF NETWORK PMS

The previous chapter was focused on each single network actor, while this one takes the whole network and network relationships as object of analysis, investigating the role of the network PMS in supporting managerial and policy relationships. The discussion is organised following the three dimensions of the theoretical framework: PMS technical characteristics, PMS use and PMS support processes. The empirical evidence (summarised in Table 38) will be illustrated distinguishing between policy and managerial relationships that characterise the public service networks.

	<i>Policy relationships</i>	<i>Managerial relationships</i>
<b>Technical PMS</b>	<ul style="list-style-type: none"> <li>• Adoption of KPIs from service providers + additional data from users and benchmark data from European cities</li> <li>• Definition of target by network coordinator for tariffs increasing and by regulators to improve service quality</li> <li>• Prevalence of informal data exchange and no additional network reports</li> </ul>	<ul style="list-style-type: none"> <li>• Introduction of new KPIs for measuring network relationships and network service . Level of detail: consortium</li> <li>• Introduction of target for service delivery at the network level by service regulators. No additional target set by the network itself</li> <li>• Prevalence of formal relationships and introduction of new reports for the network as a whole (e.g. mobility paper, annual report)</li> </ul>
<b>PMS use</b>	<ul style="list-style-type: none"> <li>• Administrator: to develop knowledge of the network, to identify problems, to propose solutions</li> <li>• Other network actors: to support their own strategies and to persuade other actors.</li> </ul>	<ul style="list-style-type: none"> <li>• Administrator: to make decisions</li> <li>• Regulator: to make decisions, to motivate, to support external accountability</li> <li>• Consortium: to support external accountability</li> <li>• Provider: to make decisions (organisational PMS only)</li> <li>• Users: formal use</li> </ul>
<b>Support processes</b>	<ul style="list-style-type: none"> <li>• Emergence of technical problems about network database</li> <li>• Audit on processes and data reliability made by users → initial conflicts, then formal role recognised</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of validation on KPIs collected by network actors</li> <li>• Audit on data made by users (informally)</li> <li>• Adoption of single provider IT tools (exception for call centres and websites → network level)</li> </ul>

Table 38: main findings

## 7.1 PMS TECHNICAL CHARACTERISTICS

The technical dimension of a network PMS is here investigated around the three elements of the control cycle (Flamholz, 1996): Key Performance Indicators (KPI), targets and reporting.

The first aspect of KPIs allows to identify network performance measures, distinguishing between the network actor that uses these measures, performance dimensions and the reason behind data collection.

The second aspect of target setting is instead useful to understand what kind of incentives are adopted to foster coordination and motivation in both policy and managerial relationships.

The third aspect of reporting gives the possibility to explore both formal and informal documents exchanged by network actors, finally useful to graphically map formal and informal accounting relationships generated by the network PMS.

	<b>Policy Relationships</b>	<b>Managerial relationships</b>
<b>KPIs</b>	<ul style="list-style-type: none"> <li>• Network KPIs from service providers</li> <li>• Additional data collection: data from users, benchmark data with European transportation networks</li> <li>• Technical problems for data collection</li> </ul>	<ul style="list-style-type: none"> <li>• New network KPIs for measuring network relationships and network service</li> <li>• Misalignment between single service provider KPIs and network KPIs</li> <li>• Technical problems for data collection</li> </ul>
<b>Target</b>	<ul style="list-style-type: none"> <li>• Defined by the Region for tariffs increasing only</li> <li>• Defined by the service regulator and included in the contract</li> </ul>	<ul style="list-style-type: none"> <li>• Reception of the imposed target by service regulators</li> <li>• No additional target set by consortiums of providers</li> </ul>
<b>Reporting</b>	<ul style="list-style-type: none"> <li>• Prevalence of informal data exchanges</li> <li>• No additional report required</li> </ul>	<ul style="list-style-type: none"> <li>• Prevalence of formal and mandatory reporting system</li> <li>• New network reports introduced</li> </ul>

**Table 39: Technical PMS – empirical evidence-**

### 7.1.1 Key Performance Indicators (KPIs) in the public transport network

Network KPIs are collected by each network actor, with a different level of detail and with a different reason behind the data collection (see Table 40). The network administrator, service regulators, consortiums, providers and users are in charge of collecting performance measures about the network. The level of detail can be different; specifically five responsibility levels have been identified:

- Admin L: Administrator Level. Measures are related to the entire regional system;
- Regul L: local administration level. Measures are related to the entire Province or City Council irrespective of the number of service providers in charge of delivering the service in that area;
- Consort L: Consortium Level. Measures are related to the Consortium of providers;
- Prov L: Provider Level. Measures are related to the single organisation in charge of delivering the service;
- Line L: Line level. Measures are related to the specific bus line;

Finally, the reason behind data collection can also be different. Four situations have been distinguished:

- Law. The regional law requires data collection.
- Contract. The contract imposes the collection of that specific performance measure. Contracts also defined the level of detail per each of them.

- Vol Int: Voluntary Internally available. The single network actor decides to collect performance measures for internal purposes that are made available internally only.
- Vol Ext: Voluntary Externally available. The single network actor decides to collect performance measures, not imposed by the contract if any, that are also made available externally.

As evidenced by the table with empty cells, not all performance dimensions are of interest for all the network actors. For example, the equity dimension is measured by the service administrator only, while the level of risk by single providers.

<b>Performance</b>	<i>Administrator</i>	<i>Regulator</i>	<i>Consortium</i>	<i>Provider</i>	<i>Users</i>
Financial	Regul L Law	Consort L Contract	Consort L Contract	Provid L Vol Int	
State of Resources	Regul L Law	Consort L Contract	Consort L Contract	Provid L Vol Int	Provid L Vol Ext
Equity	Admin L Vol Int				
Service Demand	Regul L Law	Consort L Contract	Consort L Contract	Provid L Vol Int	
Service Output	Regul L Law	Consort L Contract	Consort L Contract	Provid L Vol Int	Line L Vol Ext
Risk				Provid L Vol Int	

**Table 40: Network KPIs**

The variety in the dimension of performance, level of detail and reason behind data collection, introduce a relevant aspect emerged from the empirical analysis: network KPIs varies according to the type of relationship supported, either policy or managerial.

### 7.1.2 Network KPIs and policy relationships

The analysis of network KPIs in policy relationships evidenced two main issues: the inability of KPIs to support the policy implementation process and technical problems associated with data collection. This last aspect affects both policy and managerial relationships.

Concerning the inabilities of network measures in supporting the policy implementation process, interviews with network actors and the participation at network meetings, revealed the impossibility

to use data collected by the Region to support the decision making process. Rather, additional data from the benchmark with other European networks were necessary to lead to the identification of a solution. During the first network meeting organised by the service administrator to show the poor performance of the local transport service and the need to implement a service integration policy, the Region started presenting slides with network performance. These data were then complemented with European best practices in order to highlight the gap between the Regional context and the European context. Moreover, during policy games, each network actors used its own performance measures, but often complemented with benchmark data from other best performing networks. For example, representatives of commuters focused on the level of concentration of service operator and the relative customer satisfaction about the service. These indicators were not related to the Regional transport system only; rather, they were benchmarked with the same KPI from the regional network in Zurich to underline the potential improvement of the Italian system. With the same logic, ATM supported its policy activities using its own data compared with the largest players at the European level. These insights underline the lack of completeness for a network PMS to support policy relationships, that instead have to be complemented with benchmark measures.

The second issue is related to the technical problems in data collection. The definition of a network PMS poses challenges, not only for managerial and behavioural aspects, but also for the process of data collection. Difficulties in assessing network data are visible, not only with reference to consortiums, but with a snowball effect, they also influence data at the service regulator and administrator level, finally posing difficulties in supporting policy and managerial relationships.

For what concern differences in technologies for data collection, service contracts do not specify technologies to be adopted for collecting data. For example, service punctuality can be measured relying on real time data-through georeferentiated systems- or they can be manually collected by the bus driver. These different approaches, mainly associated with the dimension of the single service provider, can then create problems for data comparability. In fact, the organisation responsible for collecting data for the consortium does not consider the existence of different technologies. This aspect is then not considered by service regulators, nor by the administrator and there is an amplification of the error while defining the overall network value.

Like technologies for data collection, also the specific metric for each KPI is not clearly specified by the contract. For example, analysis of customer satisfaction are carried out relying on different approaches, and indicators are measured following different standards. Punctuality, for example, can be determined as the percentage of runs within 3, 5, or 10 minutes. Depending on how each

single provider collect this information, there can be problems of data comparability at the consortium level and at the network as a whole.

The reason behind these differences can be partially explained by differences in service regulators' contracts. The Regional Law (n. 422/98) gives each regulator the possibility to independently define the specific content of the contract, following the general regional guidelines. As a result, it derives that the largest service provider (ATM) shares, by contract, its internal information system for tracking bus position with the local administration (Milano City Council). This is not possible for minor providers which instead base their data collection-for example about punctuality- relying on information included in books manually filled by bus-drivers. It derives that even though each province or city council requires similar but not the same performance, it can be difficult to compare all these data at Regional level. These problems about the lack of standards for data collection emerged during policy discussions and one of the output of the policy decision was related to this aspect:

“The Region defines performance measures, metrics and technologies for data collection, frequency of data collection and reporting”

[Network Minute, 02-03-2011]

A second reason behind these differences can also be explained by the lack of auditing on the process of data collection as pointed out by the Director of the Transportation Unit in Lombardy Region:

“Service regulators should verify data they collect from consortiums or service providers. Rather, they simply collects these measures and transmit these reports to us. This is their non-role!”.

### **7.1.3 Network KPIs and managerial relationships**

The analysis of network KPIs in supporting managerial relationships was associated with two main findings: the emergence of new performance indicators that account for network effects and the misalignment between KPIs at the organisational and at network level.

As widely recognised in the literature (e.g. Provan and Milward, 2001), also in the regional transportation network different actors pose the emphasis on different service aspects and with a different level of detail. As specifically analysed in chapter 6, single service providers are mainly interested in having information regarding the level of risk with a line level of detail, while service regulators pose the attention on service demand and service output monitoring the performance of the entire consortium, rather than focusing on the single service provider.

In addition to this, new performance indicators that account for network effects complemented traditional KPIs related to the service level. These new KPIs are related to all performance dimensions and give the possibility to monitor both the integrated service and network relationships (Table 41). These performance measures are collected by the service administrator to know the network level of service integration and by single service provider to evaluate benefits and costs of being part of a consortium.

<b>Dimension</b>	<b>KPI</b>
Financial	<ul style="list-style-type: none"> <li>• Revenues from integrated tickets</li> <li>• Investments for interconnections/network activity</li> </ul>
State of resources	<ul style="list-style-type: none"> <li>• Network personnel</li> <li>• Network infrastructure</li> <li>• Quantity of network relationships</li> <li>• Quality of network relationships</li> </ul>
Equity	<ul style="list-style-type: none"> <li>• Cost for integrated tariffs</li> </ul>
Demand	<ul style="list-style-type: none"> <li>• Number of integrated tickets</li> </ul>
Output	<ul style="list-style-type: none"> <li>• Modal integration</li> <li>• Perceived service integration</li> </ul>

**Table 41: Network additional KPIs**

The analysis of performance for each network actor gives the possibility to highlight misalignment between them. Specifically, network KPIs differ from single organisational KPIs in terms of *level of detail*, performance dimension, subjectivity and time frame. First, there is a misalignment in the level of detail. Measures used by the single provider are characterised by an higher level of detail, the single bus line or bus journey. On the contrary, the type of information collected by the consortium and then aggregated until arriving at the final network value is related to the overall service delivered by summing single service provider data. This means that the network level of detail is represented by the regulator area. The unique exceptions are represented by service regularity and punctuality that are measured with a line level of detail.

Second, there is misalignment in the *performances' dimension*. Single service providers are mainly interested in the risk dimension associated with their activity: damages, complaints, injuries and their relative causes represent a significant portion of single provider's PMS. The attention to the risk dimension is not considered at the consortium level, which, instead poses particular attention to service demand and quality measures. The reason behind this choice is represented by the

mandatory nature of the consortium, that justifies the focus on performance measures set in the contract.

Third, there is a misalignment related to the *measurability*. At the organisational level, the attention is focused on qualitative and subjective data, while at the consortium level the attention is catalysed by quantitative and objective measures. If an event happens, for example a breakdown, the consortium, but also regulators and administrator, are interested in mapping, how often breakdowns happen, while the single provider is also interested in understanding the reason why, the response time, the practices adopted or consequences on the service provided.

Finally, there is a misalignment in the *time frame for KPIs collection*, that varies widely passing from the network arriving until the single provider. The single organisation tracks performance measures in real time where it is possible. For example, service punctuality and regularity are monitored in real time because of a georeferentiated system that connects buses with the operative unit of the provider. On the contrary, the consortium collects data every quarter, while the Region receives data from each service regulator every year.

	<b>Organisational</b>	<b>Network</b>
<i>Level of detail</i>	Line, journey or real time	Consortium/regulator
<i>Performance dimension</i>	Risk	Service quality and demand
<i>Measurability</i>	Qualitative and subjective data”	Quantitative and objective data”
<i>Time frame</i>	Real time data	Quarterly, annual

**Table 42: Technical PMS – misalignments-**

#### **7.1.4 Targets in policy and managerial relationships**

The second technical dimension here analysed is represented by targets. In the regional transport network, two actors set targets: administrator and regulators (Table 43), which affect respectively policy and managerial relationships. The network administrator, the Region, sets target for a few performance measures-punctuality, regularity and cleanliness- subsequently used for defining the level of tariffs increase every year. They are defined on the basis of historical data and defined in policy discussions with service regulators.

Network regulators (Provinces and City Councils) instead set target for performance measures that instead support managerial relationships. Service standards defined by contracts are associated with targets defined every year by Provinces or City Councils. Passing from one service provider to another, different target levels can be set, but also different performance measures can be subject to target. The consortium instead does not set specific target for single service providers inside the



consortium. Rather, target set by service regulator represent the reference value for the level of service provision.

<b>Who set target (target setter)</b>	<b>Who receive target (target receiver)</b>
Network administrator (the Region)	All regional service providers (all consortiums and single service providers)
Network regulator (Provinces and City Councils)	Local service providers

**Table 43: Target setting**

At the Regulator level targets are recognised as crucial for driving providers' behaviours in improving service quality. In this case, target levels for each performance measures are defined in the contract and therefore agreed upon once the consortium signs the contract. For example, Bergamo Province sets target for revenues or transported passengers. Milano City Council defines target for transported passenger, provided and perceived quality. The value for each target is explicitly defined every year, depending on the level of achievement of the previous period. For example, with reference to transported passenger in Bergamo Province: they need to be increased by 1% every year for each year of the contract.

At the end of the year, depending on the level of achievement, bonuses or penalties can be recognised to the consortium. There are two exceptions: cleanliness and passenger information. Targets for cleanliness are not set explicitly. Rather, it is simply required to improve the minimum level of cleanliness actually provided. This general definition has generated controversies between service regulators and providers given the vagueness of the target value itself. Further, this situation has been accentuated by the fact that penalties are assigned on the basis of the achieved value which is, according with providers, subjectively defined.

The definition of target for passenger information instead is based on the achievement of the standard value of 100%. For example, it is required to provide timetables by all bus-shelters arriving at a value of 100% of information provided to users. The decision to use the standard value, equals to the maximum level achievable, is explained by the fact that this information was not monitored before the definition of contracts.

### **7.1.3 Reporting**

The reporting element allows to analyse both formal and informal data and document exchange, finally supporting the network graphical representation. The graphical representation depicts therefore the extension of accounting relationships generated by a network PMS.

Following, formal and informal exchanges are considered. While formal reporting systems support managerial relationships only, informal reporting support both policy and managerial relationships. Given that formal document are required by the law, unlike the organisation of previous paragraphs the formal reporting system to support managerial relationships will be first analysed.

**Formal reporting system to support managerial relationships**

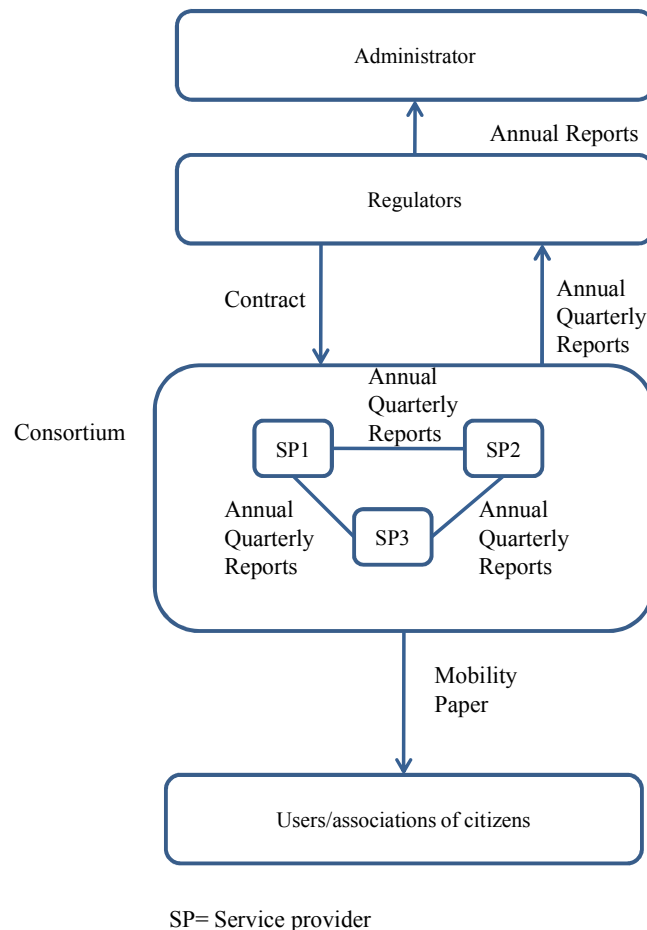
The creation of the network for local public transportation has been associated with the introduction of 5 different reports that are used by network actors for diverse objectives. All these reports are mandatory, formally required by the contract regulators and service providers. Accordingly, the content of the report (KPI and target levels), the responsibility area and receivers of the report are explicitly defined by such contracts.

Report	Main content	Level of detail	Report provider	Report receiver	Problems
Annual report	KPI Target levels	Consortium & provider level	Consortium	Regulator	Changes in measures from one local administration to another No specification of the metric Contract rigidity (no possibility to change KPI)
Quarterly report					
Mobility paper	KPI (quality) Providers description	Consortium level	Consortium	Users	No external control on published data
Monthly report	KPI	Provider level	Provider	Provider	No data sharing with other providers in the consortium
Weekly report					

Table 44: Network formal reporting

These five reports enact four managerial formal relationships:

- Provider-provider;
- Consortium –users;
- Consortium-regulator;
- Regulator-administrator



**Picture 10: Relationships generated by formal reporting**

### *Provider – Provider relationships*

Formal relationships between single providers inside the consortium are limited to data exchanges in order to fill quarterly and annual reports for service regulators. However, each single provider has its own weekly and monthly report. They are specific documents purposefully prepared by each single organisation and internally used to monitor their own operational activities. As emerged from interviews, operating activities and their associated risks, are continuously monitored. Through IT systems, the majority of service provider control the bus-journey in real time. These information are then consolidated weekly and monthly, and delivered to the director of the service in order to provide him with operational performance. Level of details as well as the time frame are higher with respect to measures included in quarterly and annual reports. Even though single providers are organised in consortiums, these information are not shared with each other, posing emphasis of the limited trust between them. The reason for not sharing organisational performance with other providers in the consortium clearly emerges from the interview with the general director in SAL, who said:

“Why should we share our own information about the service with other providers in the consortium? These data are useful for us, for improving our own operational activities. As a consortium, we have the duty to deliver aggregate measures.”

Yet, data required by annual report imply information sharing, but they are limited to the formal requirements set by contracts.

#### *Consortium – Users relationship*

The relationship between users of the service and the consortium is formally established through Citizens’ Charts, here specifically called the Mobility Paper. This document is prepared by the consortium and it differs from the annual report for the service regulator. Differences lie not only in its name, it is called “Carta della mobilità” (Mobility Paper), but also in the type of information included. Unlike the annual report for local administrations, the annual report for citizens is focused on service quality and quantity. Moreover information are provided at the consortium level only. There are no information disaggregated by single service operator.

Even though this report establishes a relation between consortiums and users, in practice users do not consider these measures because they are self-provided by the consortium with no external validation. Also in this case, there was evidence of lack of trust between users and service provider:

“Why should I consider this report? The service provider is auto-certifying its activity. What can I say? That it is delivering almost a perfect service” I don’t think I can find reliable information. I prefer to consider complaints and alerts I receive every day from travellers” [Director of Assoutenti]

#### *Consortium – Regulator relationship*

The relationship between the consortium and the service regulator is formally regulated by contracts signed in 2005. Following contracts guidelines, two different reports need to be exchanged: the annual and the quarterly report.

The annual report is the most important official document that summarises performance measures of the entire consortium and it is delivered during the first months of the next year to the local regulator. This is the procedure for data collection and report delivery: each single service provider collects data by itself, these data are then aggregated by the organisation formally representing the consortium and finally delivered to the service regulator. The report includes KPIs (and their targets) aggregated at the consortium level with the exception of service punctuality and regularity, that are instead related to each single provider. The quarterly report represents another mandatory document required by the contract, that increases the frequency of relationships between service

providers and regulators. It includes some of the measures collected in the annual report – regularity, punctuality, demand- are monitored quarterly by local administrations.

*Regulator-Administrator relationship*

These two categories of policy actors, service regulators and administrator, activate network managerial relationships when they exchange data about the transport service. Annual reports collected by service regulators are then delivered to the service administrator that sums all network KPIs in order to have the picture of the local transportation service at the Regional level. This is the formal managerial relationship because it is required by the Regional Law N. 22/98 and it forces service regulators to transmit performance measures they collect. Data exchange is not supported by a shared data-based, but it is based on an excel file.

*Informal document and data exchange to support policy and managerial relationships*

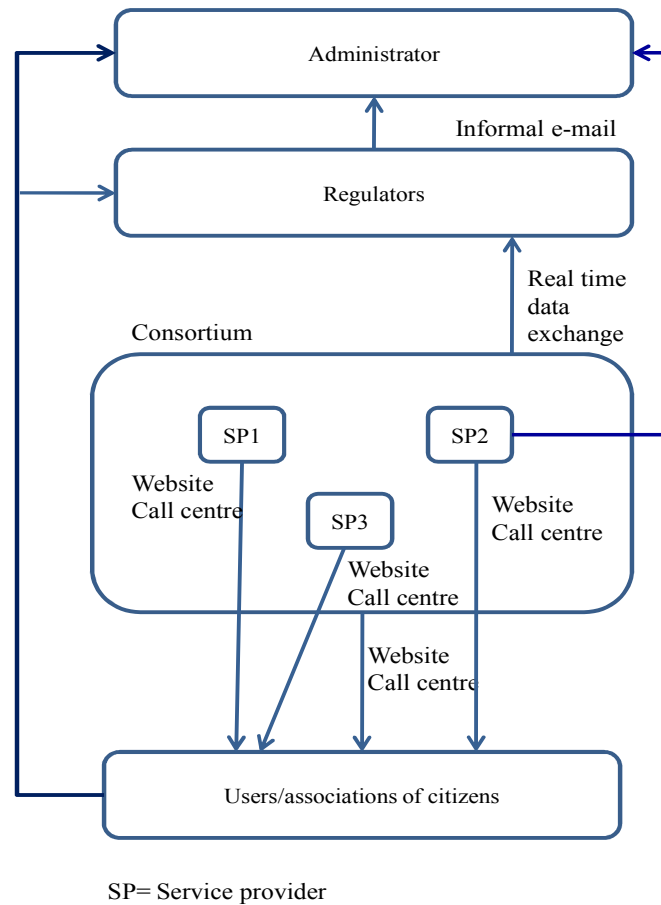
Informal documents exchange includes a variety of data that further connect network actors beyond mandatory reports. They include information provided by call centres, real time data sharing, website information, unofficial reports and e-mail (Table 45).

<b>Data/information exchanges</b>	<b>Main content</b>	<b>Level of detail</b>	<b>Information provider</b>	<b>Information receiver</b>
Information from call centres	News/service update timetables	Line Level	Provider	User
Information on provider website	Bus routes Timetables News/service update	Provider and line level	Provider	User
Real time data exchange	Frequency Regularity Punctuality	Line Level	Provider (ATM)	Regulator
Information from call centres	News/service update timetables	Line Level	Consortium	User
Information on consortium website	Bus routes Timetables News/service update tariffs	Provider level	Consortium	User
Information on local administration website	Name of local provider Links to consortium website	Consortium level	Regulator	User
Information on regional website	Name of local provider Integrated tariffs Timetables (often not working) Policy documents	Regulator level	Coordinator	User
Unstructured report	Service quality State of resources	Provider and Line level	User	Coordinator
Mail/memos	Varies depending on the topic of discussion	Provider level	Provider/regulators	Coordinator

**Table 45: Network informal reporting**

The informal exchange of documents creates network informal ties, strengthening both managerial and policy relationships. Specifically, eight connections have been identified:

- Provider-user
- Consortium-user
- Provider-regulator
- Regulator-user
- Administrator-user
- User-administrator
- Provider-administrator
- Regulator-administrator



Picture 11: Relationships generated by informal reporting

As it emerges from the graphical representation, informal data exchange mainly connect users with the service administrator and service providers.

### *Provider-User relationship*

The provider-user relationship is based on the information sharing about time journey or bus routes or tickets, mainly through call centres or websites. This customer service, 24 hours available but activated on user's demand, is not specific for a public service network. Rather, it simply represents the traditional customer service that existed also before the network creation.

### *Consortium-User relationship*

This informal relationship is specific to the transportation network. The creation of consortiums as overarching organisational structures for local service delivery has brought about the duplication of customer services. Accordingly, call centres and websites have been activated also for each consortium and they provide information about all single providers inside the consortium. Even though the amount of information available is greater in the case of the consortium service, there is still a prevalence of provider-user relationships as clarified by the Director of Line Lecco:

“The introduction of the call centre of the consortium has not changed the phone-calls we receive from our transported passengers. If they want to know something, such as the change in the time scheduled, they call us, not the consortium call centre!”.

### *Provider-Regulator relationship*

This is an exceptional case that has emerged in just one provider-regulator relationship. The largest local service provider in Milan shares its information system to track buses and metros position in real time with the City Council, regulator of the contract. The reason behind this data exchange has been explained by both the provider and the regulator. According to the provider:

“It is the faster to exchange real time data. We have a lot of journeys every hour and the City Council requires by contract so many indicators, that it is easier to share our information system for tracking buses.”

The City Council also said:

“Given the larger dimension of this provider and its adoption of sophisticated technologies, we prefer to have direct and immediate access to these data.”

### *Regulator-User relationship*

As in the case of provider-user relationships, also service regulators do provide information to transported passengers through their website. Data exchanged are a few: the name of service

providers in the local administration area, in some cases also further data about the network dimension, and the link to the provider website. In one case only, I found a local administration, Bergamo Province, that prepares an additional annual report to inform users about service quality and demand in the Province area. The mobility manager clarified:

“We are proud of our report. We know, probably a few people will actually read it, but this wants to be our demonstration of commitment towards transportation service in the province.”

#### *Administrator -User relationship*

The same logic behind regulator-user relationship can be adopted here: the service administrator provides information about the overall regional service to users through the website. The content of web-pages include information about tariffs, names of local service providers and links to their websites. Two additional information with respect to regulators websites can be found: an external link to regional timetables (often not working) and policy documents to inform users about transportation policy decisions.

#### *User- Administrator relationship*

The user- administrator relationship has been activated during policy discussions about how to reorganise the local public transportation service. Associations of users adopted their own unstructured and non formal reports, such as documents about service punctuality or state of resources-buses or bus shelters- to support their requirements during policy discussions. This informal document exchange activates a network tie between these two actors, that has been formalised at the end of the policy discussions. During the interview, the Director of Assoutenti showed two reports they prepared: a detailed analysis of the best European practices in local public transport and a report about the state of local resources for public transport. The former was prepared due to the contribution of users, who travelled in Swiss, Spain, France, Greece, Finland, Germany and UK to collect data about local transportation systems. The latter instead was defined by collecting complaints from commuters and it includes a detailed analysis of the state of resources, buses and bus shelters in the regional area.

#### *Provider/Regulator-Administrator relationship*

Informal e-mail including specific data about service demand, service quality or financial numbers are also exchanged between providers or regulators and the service administrator. This situation has emerged during policy discussions, when topics and documents presented in formal round tables were then complemented by informal and dyadic document exchanged through mail between



providers or regulators and the service coordinator. As in the case of users, the reason behind this informal document exchange rely in the desire of single network actors to further support their position in policy discussions (§ 6.2.1).

## 7.2 NETWORK PMS USE

The analysis of the use dimension gives the possibility to explore how the network PMS support both policy and managerial relationships (Table 46).

	<b>Policy relationships</b>	<b>Managerial relationships</b>
<i>Network administrator</i>	<ul style="list-style-type: none"> <li>• Knowledge</li> <li>• Diagnostic</li> <li>• Supporting</li> </ul>	<ul style="list-style-type: none"> <li>• Diagnostic</li> </ul>
<i>Network regulators</i>	<ul style="list-style-type: none"> <li>• Supporting</li> </ul>	<ul style="list-style-type: none"> <li>• Diagnostic</li> <li>• Coordinating</li> <li>• Formal compliance</li> </ul>
<i>Consortiums</i>	<ul style="list-style-type: none"> <li>• Not used</li> </ul>	<ul style="list-style-type: none"> <li>• Formal compliance</li> </ul>
<i>Single service providers</i>	<ul style="list-style-type: none"> <li>• Supporting</li> </ul>	<ul style="list-style-type: none"> <li>• Formal compliance</li> <li>• Diagnostic</li> </ul>
<i>Users</i>	<ul style="list-style-type: none"> <li>• Supporting</li> </ul>	<ul style="list-style-type: none"> <li>• Formal compliance</li> </ul>

Table 46: PMS uses- empirical evidence

### 7.2.1 Network PMS use in policy relationships

The network PMS supports policy relationships influencing the activities of administrator, regulators, providers and users.

The network PMS is used by the service administrator, the Region, with three main purposes. First of all, it is used to develop knowledge of the environment by annually collecting network PMS by service regulators. The periodical analysis of these data, activates discussions inside the technical office about the existence of regional transportation problems. The second type of use by the network administrator is in providing awareness about the existence of a transportation problem, hence with a diagnostic function. Network reports prepared annually and specifically performance measures related to the year 2007, showed that the local transportation service required a lot of financial resources and it was not able to satisfy citizens' requirements. These internal analysis pioneered policy discussions with other actors involved in transportation issue, leading to another PMS use: the proposal of the service integration as a solution to these low level of performance results. In fact, network PMS, complemented with benchmark data from other European transportation networks were useful to propose a solution. For example, the benchmarking of the regional transportation system with these of Berlin and Barcelona led the Region to support the creation of transportation agencies and territorial basins in order to increase the regional level of

service integration. This was not only a general idea of integration; rather it was a detailed project. The territory of the region was proposed to be divided in four territorial basins, in which all the transportation modes, scheduled hours and tariffs would have been integrated; a mobility agency was proposed to be introduced in each of these basins with the overall responsibility of the planning and monitoring of the service; the overall responsibility of the four mobility agencies and of the coordination of the entire system was proposed to be maintained in charge of the Region.

The network PMS is also used by service regulators and providers with supporting role to sponsor their strategies during policy discussions with the objective to finally persuade other network actors about their idea, changing or influencing the initial proposal made by the service administrator. This role of network PMS as a persuader appeared when controversies about how to practically reorganise the service emerged. For example, a problem arose between Provinces and the Region concerning the territorial configuration of the basins: in order to increase the integration of the service, the best situation would have been the creation of a single regional basin, but the presence of many small players suggested a gradual approach. Nonetheless, Provinces would prefer the smallest territorial basin possible in order to maintain their control over their local area. The Region, on the contrary, pushed to create a basin including at least 2 Provinces in order to force them collaborating with each other. PMSs were used to support the strategies of regulators that wanted to belong to the same territorial basin or, on the contrary, preferred to be kept separate. For example, an alliance was set between Milan Province and Milan City Council, that wanted to maintain their own territorial basins instead of being merged together and they used data to support their position. They benchmarked data of the two different alternatives to support their idea. A unique Milan basin would have 163 million-km, corresponding to 52% of the overall basins in Lombardy Region. By keeping the Province separate from the City Council, the relative dimension of the two basins in Milan would have been lower. Also service providers used performance measure to support their strategy. They were interested in increasing the level of concentration in the transportation system by creating territorial basins with few big players. They showed a comparison between the level of aggregation in Lombardy Region and those in European regional systems: 106 transportation players, 57% of which with less than 20 employees and 66% with less than 50 employees, against a Regional European landscape characterised by a single transportation operator.

Finally, network PMS are used by associations of users. These organised associations of transported passengers have emerged being actively engaged in policy relationships and they used PMS to sponsor their needs and persuade other network actors about the relevance of their requirements.

Performance measures they use come from their unofficial ad-hoc studies that are focused on different service aspects, such as service reliability, punctuality, tariffs or quality of infrastructures. Data they collect can be related to both consortiums, single service providers or specific bus routes, depending on the specific requirement they have. By using these measures, users gave demonstration of their ability in dealing with technical transportation problems, slowly increasing their relative power with respect to other network actors. For example, they used PMS to support their idea of having many small service provider-integrated with each other- in order to maintain competition in the system. This position, not welcomed by large service providers, was supported by the numbers of the Zurich transportation system, where many small service providers are able to deliver a transportation service with an high level of users satisfied.

### **7.2.2 Network PMS use in managerial relationships**

Managerial relationships have also emerged being driven by the network PMS, especially at the regulator and provider level.

The network administrator uses network PMS in a diagnostic manner to make decisions about the level of tariffs increasing for the next year. As already stated (see § 6.3.2), service punctuality, regularity and cleanliness are used in order to define the level of tariff increasing.

Service regulators use network service performance in a diagnostic way to support decision making, but also with a coordination and formal compliance role.

Data about financial resources and service demand, both at the consortium and at the single provider level, are used annually in order to define the amount of funding to allocate to each consortium the next year. Moreover, quarterly data about the demand of the service are used to monitor the service level delivered to users in order to eventually modify bus-routes, timetables, add or remove other routes. Even though service contracts are rigid and do not permit to change performance measures during the 7years-contract, there is the possibility to modify the quantity of the service delivered until a maximum level of 3%.

Performance measures are also used for coordinating purposes. The explicit target defined in the contract is used to coordinate activities through the definition of bonuses and penalties with controversial effects on providers' motivation.

The bonus is recognised if the actual value is greater than the target value and it can increase the annual contribution for the next year until a maximum level of 5%. This approach has motivational effects as it directly impacts on relationships between service providers inside the consortium. In fact, by setting targets on service performance, single providers need to coordinate their activity:

formal meetings, mail, phone calls provide evidence of the commitment of single providers to jointly work in order to achieved the established target.

The issue of penalties is instead different. They are associated with a few service performance and they are mainly focused on relationships and audit. Penalties are assigned if the following situations occur: delay in delivering data to local administrations; delay in providing timely information to users; delay in implementing changes required by local administration. Two penalties are instead associated with service performance: skip of a bus run and service delivery using not declared buses Following informant's words: "penalties are recognised every time there is a breach of the contract. The amount of the penalty varies according with the type of violation: from 1.000 € in case of delay in delivering information to users to 10.000 € in case of not communication of a strike. [Milano City Council contract]

The association of penalties with information exchanges underlines the importance played by relationships in networks for service delivery. This is the reason why it is quite surprisingly that there are no performance measures aimed at monitoring these network relationships.

In local administration's view, the approach of bonus and penalties is fruitful to facilitate coordination among single providers finally improving the transportation service.

Among the local administrations interviewed, only one, Bergamo Province, declared to use performance measures for external accountability, highlighting a formal compliance role. It annually prepares a report and makes it available on its website. It includes data about offer, output quality and quantity at the province level.

Consortiums use data mainly with a formal compliance role in order to increase their external accountability. During interviews, it emerged that "consortiums have not been set for managing activities, but only for governance purposes, because it was required by the competitive tender" [Director at Linee Lecco]. This quote clarifies the reason why the consortium does not have decision making purposes. It was established to comply with an institutional requirement. This means that it has its own juridical form and its own objective, but such objective is externally imposed: to deliver the local public service following the contract guidelines. Yet, the consortium represents a great opportunity for all single service providers to collaborate and set specific network objectives. In practice, it lacks the culture or the willingness for achieving this position. From the interview with the director of Locatelli:

"We know that this consortium could be much more. We would like to further work together as a system and increase our power towards the province. But we are not prepared. This is the first time for all of us, we are delivering the service after a competitive tender. Still, we have to improve".

The approach was more reluctant in SAL, where the general director argued:

“No, no, it was not required by the contract and we do not even have the willingness to develop a unique tariff system. It means a reduction of revenues and of course we do not want it!”.

It results that data collected related to bus, demand, quality and quantity of the service are included in the annual and quarterly report and simply delivered to regulators. The level of analysis is both that of the consortium and of the single provider. The same data are also collected and included in the annual report delivered to citizens, but in this case the focus is on the consortium level only. Both these documents, report for local administration and users, represent a formal compliance and are used for external accountability only.

Furthermore, data about the quantity of the service (km of service provided) are adopted for motivational purposes: regulators apply bonuses and penalties depending on the level of achievement for each performance measure. Bonuses are set at the consortium level, but the consortium itself uses data about service quantity in order to share this reward between each service provider. The same approaches is adopted for grants. For example, in case of grants for buying new buses, these funding are then divided by each service provider depending on the number of bus-km. The effects of the approach adopted by regulators to target setting are visible in the internal dynamics of the consortium. Bonuses are proportionally divided between single providers depending on the number of km provided. Penalties instead are directly associated to the provider effectively responsible for that activity. This approach is possible because of the method for data collection: measures included in annual and quarterly reports delivered to regulators are disaggregated by single operators and allow therefore to track specific responsibilities.

Single service providers use network PMS to comply with contract requirement and for external accountability, while they use their own PMS to support their internal decision making process.

First of all, network PMS are used by single service provider to satisfy the contract requirement. This is related to the mandatory nature of the network. Single providers enter the network because that solution represented the only alternative of survival after the introduction of competitive tenders. It results that, in practice, they are still delivering service as a single organization finally summing the overall performance at the network level. Apart from bonus and penalties set by contracts, they do not have any other incentives for collecting and using performance measures.

On the contrary, organisational performance measures are used for decision making and external accountability. Detailed data about personnel, buses and quality provided are continuously monitored and aggregated every week and every month. Many of these measures are the same found in the annual report used by local administrations, but they differ in the level of analysis and

in the time frame. First of all, these data are accounted at the organisational level, but also detailed per single bus line and journey. For example, data about punctuality is monitored in real time and then included in the weekly report with details for each single bus-run, bus line and bus journey. Second, the time frame is higher: data are provided weekly, but they are disaggregated by day and by time slot (weekend and weekdays, peak hours and weak hours). Data about quality provided are used to eventually modify the service program defined in the contract, such as add a new bus-route or change the scheduling because of a new school. This activity can be done once a year and with the approval from the local administration. Data about the state of resources and KRIs are used for internal operational control. For example, in case of injuries, providers are interested in the causes or the time required before taking actions, or data about resource maintenance. Organisational performance measures are also used for external accountability to provide information to service users. Timetables or service quality information are made available to users through the provider's website.

Single service provider do not use data aggregated at the consortium level, but the issue of bonus and penalties do indirectly impact on their willingness to collaborate. According to single providers, this list of performance measures required by contract and used to assign bonus and penalties is not adequate for controlling the service provision:

“This is the menu of the eating house, where everything is required to be monitored following a subjective logic. It would have been better to use service reliability like we do to manage the metro service in Copenhagen. Also in there, there is a contract with the city council. But that relationship relies on one measure only: service reliability”

## **7.3 NETWORK PMS SUPPORT PROCESSES**

The analysis of network PMS support processes is useful to investigate how auditing procedures and information technology aid the use of the PMS by network actors. Following, each of these processes will be analysed.

### **7.3.1 Auditing systems in supporting policy and managerial relationships**

Auditing procedures influence data reliability in policy relationships and the processes of data collection in managerial relationships (see Table 47).

During policy relationships, in the policy game phase, users of the service are in charge on auditing the reliability of performance indicators about the network. In fact, managerial relationships regulated by the contract do not require the verification of data reliability. It results that there are no network actors in charge of verifying the meaningfulness of the performance measure included in a specific network document. Service providers, nor the organisation that represents the consortium

are in charge of verifying data they receive from each organisation. Local administration partially assess the validity of data through inspection, but it lacks a systematic auditing procedures. It derives that during policy discussions, service users highlighted the low reliability of the presented data. Associations of users, did not only criticised the existent data collected; rather, they supported their claims providing data they collected every day from users and from their internal analysis.

The analysis of managerial relationships instead emphasise the lack of auditing on the process of KPI selection and on the processes of data collection at both provider and consortium level. First of all, during the definition of service contracts the technical office of local administration was in charge of selecting performance measures to represent service standards. This process was not audited; rather it was entirely managed by the technical office. The result was a proliferation of performance indicators and the misspecification of methods and metrics for KPIs collection. The first problem was highlighted by interviews with service operator that criticised service contracts for the presence of too many performance indicators that create problems in achieving the target value given their subjectivity. The second problem emerged from interviews with service regulators and administrator: technical problems for data collection are the result of the absence of auditing procedures during the definition of KPIs.

Finally, also processes of data collection at the provider and at the consortium level are not associated with auditing procedures because this aspect was not regulated by the service contract. It derives that there are no guidelines on how to collect data at the single provider level; moreover, the lack of inspection, nor the verification about how this data are collected created problem for data comparability. In fact, as emerged from interviews, data were auto-certified by service providers and this situation created problem of trust between service operator and users. In fact, discussions with associations of users and spokesperson of commuters pointed out the scarce relevance they give to formal document published by service operator.

<b>Network relationship</b>	<b>Type of audit</b>	<b>Who exert the activity</b>	<b>Effect</b>
Policy relationships	Auditing on data reliability (meaningfulness of the number)	Local administration (through inspection) Users (through direct observations)	Potential penalties Suggestions or complaints to local administration or service providers
Managerial relationships	Auditing on the process of KPI selection	Technical office at local administration level	Difficulties in selective a few appropriate measures (lack of competences) Misspecification of KPIs and methods
	Auditing on the process of data collection at the provider level	Single provider	Self-certification of data Problems of trust in the relationships with users
	Auditing on the process of data collection at the consortium level	Users, in a informal way	Self-certification of data Problems of trust in the relationships with users Problems with data reliability (different methodologies for data collection can be adopted)

**Table 47: Auditing – empirical evidence-**

### **7.3.2 Information technology**

IT systems were found to support both policy and managerial relationships. With respect to policy relationships, the IT system is represented by the regional database that is used by the Region to collect data from service regulators. This data base, called MuoverSig, was introduced with the Regional Law 01/02 with the purpose to facilitate the process of data collection. This system was intended to support data storage and the subsequent data analysis. In practice, from interviews several technical difficulties were identified. Problems were related to the complexity of the platform, to the lack of IT competences of managers in Provinces and City Councils and to technical PMS problems. First of all, the platform was complex in terms of interface; as underlined by the Director of the Tariffs Unit, several problems were found in filling data in the system and reorganise this data with respect to the regional internal uses. Second, there were problems in terms of lack of IT competences by managers in Provinces and City Councils. While some regulators, especially larger entities, found no difficulties in inserting data in the platform, some other did not respect the fixed deadline and provided very often empty values. The third problem was related to the technical PMS, namely data availability. In some cases, data at the regional level were not available because of different metrics for data collection because of differences in service contracts.

IT was found providing a limited support to managerial relationships. As expected each single service provider has its own IT system that is used for data storage and analysis. This system is used to support internal activities only, and it is not shared with other provider in the consortium or with



service regulators. The reason behind the lack of data sharing with other provider in the consortium lies in the limited trust between single service providers; they work together in the limited space to fulfil contracts' requirements, which do not include IT systems. This last aspect of no IT requirements in the service contract instead justifies the reason behind the lack of data sharing with the service regulator. The unique exception was found in the relationships between Milan City Council and the local service provider. In this case, the contract requires the provider to share the operative system to track buses in real time with the service regulator. The reason behind this specification in the contract relies in the need of the regulator to control provider's activities. Finally, I found no consortium IT systems. While consortiums developed their websites to provide information to users, they do not introduce IT platforms for data collection. On the contrary, the process of data collection to define the consortium value to be delivered to service regulator is managed through the exchange of excel files, which increase the time required to exploit the procedure.

<b>Network relationship</b>	<b>IT tool</b>	<b>Description</b>	<b>Type of support</b>	<b>Relationship supported</b>	<b>Problems</b>
Policy relationships	IT at the regional level	MuoverSig (db)	Data storage and analysis	Region-Local Administration	Complexity of the platform Lack of competences Data unavailability
Managerial relationships	IT of the single provider	Individual db or IT platform	Data storage and analysis	Internal only	Not integrated with the other providers in the consortium
		Geo-referentiated system	Bus tracking in real time	ATM-Milano City Council	
	IT of the consortium	It lacks a web platform for the consortium			Excel as exchanged tool (higher possibility of mistakes)

**Table 48: Information technology – empirical evidence**

# CHAPTER 8 CONCLUSION

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This chapter has the objective to draw some conclusions about this research project.

This study was focused on public networks and their associated managerial problems (McGuire and Agranoff, 2011). Managing networks has long been recognised as a complex issue (Chrisholm, 2008) for several reasons: decision making difficulties in defining the network objective and aligning actor's objectives toward the common network goal (Koppoerjan and Klijn, 2004); motivational difficulties in aligning actors' strategies and actions (Dekker, 2004; Keast et al., 2004) and measurement issues in defining criteria for evaluating networks (Kenis and Provan, 2009) and the accountable network actor (McGuire and Agranoff, 2011). New managerial skills, strategies and governance tools have emerged to be necessary requirements for the network success (Agranoff, 2006; Crosby and Bryson, 2010; Silva and McGuire, 2010).

Within the public sector field, the PMS has received less attention, albeit claimed as potentially beneficial to make results visible, give directions and create a common frame of reference (de Bruijin, 2007; Koppoerjan, 2008; Barretta and Busco, 2011; McGuire and Agranoff, 2011). Moreover, contributions from the more general literature on accounting in IOR provide contrasting viewpoints about the support provided by the PMS, some authors acknowledging PMS benefits in coordinating activities (e.g. Dekker, 2004) and others (e.g. Fernandez, 2009) suggesting substitutive approaches to performance measurement based on trust and reputation. Given the limited attention PMS has received in public sector studies (Barretta and Busco, 2011) and the contrasting results provided by IOR literature, the objective of this research was to investigate the role of the PMS in supporting network managerial problems. A longitudinal explorative case study in the Lombardy Regional network for the provision of the local public transport was developed from October 2008 to November 2011. Regulatory documents, observations, interviews, archival and media commentaries were useful data sources to shed light on the problem at issue. Next paragraph highlights academic and managerial contributions emerged from the empirical analysis, concluding with limitations and further research.

## 8.1 ACADEMIC AND MANAGERIAL CONTRIBUTIONS

This study provides contributions at both academic and managerial level. At the academic level, this research provides insights to different areas of research.

First, it contributes to extant literature on accounting in public networks by identifying technical problems for implementing a network PMS. This aspect is related to the network measurement

problem of identifying evaluation criteria for the public network. In this respect, research to date has mainly focused on predicting performance of public networks. Driven by the question “Do networks really work?” (Provan and Milward, 2001), public management scholars have been catalysed by the problem of measuring network performance and identifying predictors of this network results (Turrini et al., 2010). For what concern the first issue, it is well established the importance of assessing performance at multiple levels in order to account for the interests of multiple actors with different, sometimes conflicting, objectives (Provan and Milward, 2001). The concern of determinants of network performance is receiving continuous attention: network structure, coordination strategies, governance, type of inception, evolution stage have been identified as factors influencing network results (Kenis and Provan, 2009). This research, analysing KPIs collected by each network actor, provides evidence on technical problems in shifting from the organisational value to the KPI at the network level. Public sector studies have explored technical problems of implementing performance systems in public sector organisations (e.g. de Bruijn, 2007), neglecting the implementation issue in networks. A possible reason is given by the prevalence of conceptual studies about network issues, even though there are calls for empirical public network studies (McGuire and Agranoff, 2011). A notable exception is the study by Koppenjan (2008) in the field of policy networks, that recognised the importance of paying attention not only to the kind of performance measure, but also to the process by which assessment takes place. The identification of these technical problems- data integration, auditing and completeness- complements the extant public sector literature by linking two streams of research: network evaluation and implementation of performance in public sector organisation.

Second, and directly associated with the previous finding, this study extends theory on network managerial behaviours and leadership (McGuire, 2002; 2006; Silva and McGuire, 2010) by adding a further dimension to the portfolio of network managerial competences. Starting from the recognition that networks required to be managed differently from what has been accustomed to over the past 100 years (Goldsmith and Eggers, 2004), public sector scholars started investigating the new array of managerial skills and behaviours. McGuire (2002; 2004) identified four distinctive behaviours of the network manager, namely activating, framing, mobilising and synthesizing. Silva and McGuire (2010) complemented this finding with integrative leadership behaviours – people oriented, task oriented and organisational oriented– while Weber and Khademian (2008) underlined the importance of the mind-set of network manager. These contributions are characterised by the same premise that interpersonal and relational skills do matter when managing inter-organisational relationships (Goldsmith and Eggers, 2004). This research adds a further skills to network managerial behaviours: technical competences in managing numbers. Problems of public

administrations in dealing with numbers are widely acknowledged by literature (Leeuw, 1996; deBruijn, 2007), but the relevance of technical competences is not tackled for public networks. When the network leader is a public administration, technical skills are as relevant as relational skills. Moreover, results provide evidence of the importance of abilities in dealing with numbers in supporting all the three network problems of decision making, motivational and measurement issues. In fact, the lack of expertise by public network managers was associated with difficulties in understanding and interpreting performance measures to support decision making activities, difficulties in setting target values to enhance the alignment of actors' actions and difficulties in identifying a few relevant KPIs to measure network activities. These findings thus add to theory about managerial behaviours and leadership in networks (McGuire, 2002; 2006; Silva and McGuire, 2010) by recognising the importance of technical expertise and dysfunctional effects associated with the lack of this requirement.

Third, this research contributes to literature about coordination in integrating public service delivery. Specifically, the role of targets in influencing the organisation's motivation to be part of the network, finally fostering actions' coordination in managerial relationships. The problem of how to facilitate the alignment of actions in networks is widely recognised in the literature (e.g. Dekker, 2004) and it has been in this study defined as a behavioural network problem. To date, the attention of accounting scholars has been mainly directed towards the role of the PMS in supporting network coordination, providing controversial results (see § 3.2). A first controversy is about the need of having or not a PMS to facilitate coordination. According to some authors (Fernandez, 2009), PMS is not adequate for networks and trust and reputation are proposed as substitute. Some other scholars instead underlined the importance of the PMS and recognised the need to complement this system with behavioural controls (Dekker, 2004). Analysing more in detail contributions on the importance of PMS in networks, findings diverge. In some cases ex-ante outcome control can provide specific network goals that facilitate action alignment (Dekker, 2004). Other scholar instead stated that "the use of ex ante formulated objectives is usually untenable because actors adapt their perceptions and objectives interactively" (McGuire and Agranoff, 2011). Ex post performance control is instead suggested as a preferred action (Mahama, 2005). My research findings support the idea that "measures direct attention and shape behaviours" (Moynihan et al., 2011). Specifically, they contribute to extant literature about the importance of numbers in network, identifying the impact of targets on network actor motivation in supporting managerial relationships. By setting targets for performance measures in the contract, public administrations have forced service providers sitting together to decide how to achieve results, fostering service coordination. While this approach supported the action alignment, the unique objective of the consortium was

represented by how to achieve that specific target, rather than working collaboratively to improve service integration. For example, the alignment of tariffs among different service providers in the same consortium was not included among the objectives in the contract and therefore it was not an issue of discussion, albeit widely claimed by users. These specific results allow to conclude that targets are useful to align actors' actions, but not actors' objectives.

Directly associated with to this aspect, there is the relationship between trust and PMS . While some authors argued that trust drives the development of the PMS (Cooper and Slagmulder, 2004), others recognised the opposite: PMS produces trust (e.g. Vélez et al., 2008). Others again (Meer-Koistra and Vosselman, 2009) considers trust as substitute for the PMS. My findings, found the PMS being in contrast with trust. In fact, the inclusion of a high numbers of KPIs in the service contract was perceived by providers as a lack of trust from service regulators. The issue of the relationship between trust and the PMS has also emerged from consortium activities, where the introduction of targets was useful for facilitating coordination, but not for enhancing trust. These findings, are therefore aligned with former studies on trust in dyadic relationships, arguing that the PMS does not support trust building. Rather, the higher the control through KPIs, the lower the perception of trust by network actors.

Fourth, this research contributes to theory about the distribution of power in public networks recognising the constitutive role of the PMS in empowering receivers of the public service. Users of the public transport system, in the figures of commuters' spokesperson and associations of users, increase their importance in policy relationships thanks to numbers included in their ad hoc researches. Their technical expertise associated with data in their unofficial reports gave them the possibility to better support their objectives and opinion, finally having recognised a formal role.

Power is acknowledged as a relevant network element, albeit under investigated (Agranoff and McGuire, 2001; McGuire and Agranoff, 2011). Research about power in networks has been mainly interested in understanding the source of power and effects associated with the use of power. Considering the first aspect, the position of the actor in the network and resource dependence are considered the main determinants of power distribution (Rhodes, 1981). There is not an explicit reference to numbers, but it is widely accepted that information provide power (McGuire and Agranoff, 2011). The second aspect is related to the effects of using power in the networks: promotion of self interests through the instrumental use of the networks is considered the main controversial consequence (Clegg and Hardy, 1996; Klijn and Schelcker, 2007; McGuire and Agranoff, 2011). Starting from the recognition that power can evolve overtime (Huxham, 2003) and it can be modified by interactions (McGuire and Agranoff, 2011), this research contributes to extant theory on power in networks giving evidence that numbers are an empowering force of users'

interests in public networks, where the presence of some actors or the activation of some IOR is mandated by the law. This is quite controversial with respect to the extant literature that is grounded in the idea that “a municipality or a project developer usually have more resources and have more power. Citizens lack the knowhow and organisational capacity to be present throughout the process and provide input” (Klijn and Koppenjan, 2000:13). This research finds the opposite to be true: organised associations of users have more technical capabilities than public administrations and use their knowhow to increase their importance within the network. By showing numbers during network meetings, they are able to provide fruitful comments about network problems and opportunities finally obtaining a permanent formal role in the network: they are designed as the auditors of consortiums’ performance. Moreover, findings demonstrate that the use of information is a greater source of power than simply having information: public administrations and large transport providers have a huge amount of data and potentially represent the more powerful actors in the network. In practice, the former do not use their data because of the lack of technical skills while the latter limited their use of PMS because of their strong position given by the law (unique service provider in the local area). The ability of users in dealing with numbers underlines the constitutive role of PMS: it activates a new link between users and the Region altering the power distribution in network policy relationships. Literature on the constitutive role of numbers is not new. After the seminal contribution by Latour (1987) that uses the word “actant” to define both human and non human as powerful actor in a technological system, also accounting scholars started adopting this perspective recognising the social role of numbers in shaping actions, organisations and institutions (Chua, 1995; Chapman et al., 2009). Focusing specifically on networks and IORs, the empirical evidence is still limited. Some authors (Mouritsen and Thrane, 2006; Chenhall, Hall and Smith , 2010) explored the constitutive role of PMS in shaping IOR defining accounting as an actor helping to interconnect human actors and constructing IOR. Other authors (Thrane, 2007) instead linked accounting with the change process and presented evidence of the active role of numbers in providing trajectories for change. To conclude, this research analyses the constitutive function of numbers in networks, adding the extant contributions a further role: the ability to change power dynamics in network policy relationships giving voice to less louder actors.

Finally, this study suggests a different approach for analysing networks, which is based on the distinction between policy and managerial relationships. Traditional network studies use to distinguish between policy networks, in charge of implementing a public policy (e.g. Kickert et al., 1997) and collaborative networks in charge of managing the operative service provision (e.g. Provan and Milward, 1995). Some public sector scholars (e.g. Agranoff and McGuire, 2003; Rethemeyer and Hatmaker, 2008) identified the limitations of adopting this approach that does not

allow to account for the overlapping between these two different networks. Following these claims, I focused here on relationships, distinguishing between policy relationships, activated around the policy implementation activities of activation, gaming and decisions, and managerial relationships activated around the managerial activities of planning, measuring and reporting the operative service delivery. This distinction has been useful in order to investigate a single public service network, characterised by an overlapping between policy and managerial activities. Accordingly, also results obtained are related to this single network conceptualisation, and distinguished on the basis of the type of relationship. This approach could be useful to analyse public networks as a whole system where policy implementation and service delivery take place at multiple and interconnected levels (Osborne, 2010).

Results also provides managerial contribution, suggesting public network managers a set of guidelines when in charge of measuring performance for the network as a whole.

The first suggestion is the measurement integration. The shift from the performance of the single organisation to the performance of the network as a whole has emerged as far from being straightforward. The process of data aggregation can be exploited in different ways: the sum of data of each unit, an average of the single data or a weighted average. Consortium and service administrators sum data from each single actor within the network, without considering the relative weight of each actor within the network. This approach has two implications: it gives the possibility to track responsibilities of each single organisation, but at the same time it does not account for integration effects that are considered a distinctive element of network performance (Kiss, 2005).

The second suggestion is the implementation of an auditing procedure on the process for data collection. The implementation of network PMS implies to define, not only the measurement requirements for data integration, but also the approach each organization has to follow to collect data about its service. For example, transport companies in consortiums do not define the methodology for measuring the number of passenger transported. It results that some organisations compute this data through an estimation, while some others through a geo-referentiated information system giving rise to a final network value that mixes both the approaches. The problem is twofold. It lacks the definition of a uniform and shared methodology for data collection and it lacks an auditing procedure on the process. Public sector studies acknowledge the importance of auditing performance measures and the process of data collection (Leeuw, 1996; Sanderson, 2002), but they are silent in addressing the relevance of auditing performance in networks. This is quite surprisingly given that network PMS is obtained by integrating data of different organisations.

The third suggestion is to develop a measurement system able to detect the whole network activity. For a network PMS to provide managers or regulators with the relevant information to support decision making, it needs to account for all the aspects of the service provided through the network. Network KPIs in the hand of the Region were plenty of useful indicators for signalling the existence of a problem, but these were not enough to support the decision making process. It resulted that network KPIs were complemented with benchmark data from European networks and informal data from users in order to have a broader picture of the transport system

## **8.2 LIMITATION AND FURTHER RESEARCH**

The strength and weakness of this research are related to the type of methodology used. The research was carried out with a longitudinal case study in the Lombardy transport system which implied an overall and documentary analysis of multiple data sources. This methodology was the most appropriate to move forward from previous contributions, which did not enter in the detail of the micro-dynamics of the network and PMS, endorsing different perspectives. Furthermore, by adopting this methodology it was possible to answer the recent calls by accounting and public network researchers about the role of PMS in public networks (Barretta and Busco, 2011; McGuire and Agranoff, 2011). On the other hand, using a qualitative methodology the results cannot be generalised elsewhere although the methodological rigour guarantee the trustworthiness required to qualitative works. However it is important to highlight that the best qualitative papers in top management journals (e.g. Academy of Management Journal) very often use single longitudinal case studies (preferred to multiple).

Empirical findings also suggest avenues for further research. First of all, to replicate the study on a voluntary network for service provision. Many PMS characteristics and uses, such as the specific KPI or the target level, or the reporting system, were imposed by the service contract can therefore forced network actors adopting a certain behavior. It would be interesting to explore whether the PMS role changes for a voluntary network. Second, to explore the relationship between PMS uses and managerial skills and behaviours. Several network management studies pointed out the importance of network managerial competences to successfully lead the network; issues about integrative leadership (Silva and McGuire, 2010) has become widely adopted. This study provides evidence of the multiple roles of network PMS and their relevance in addressing network problems, further research can explore whether integrative leadership behaviours are associated with specific PMS uses. Finally, additional studies can further investigate auditing procedures exerted by users. This study provided evidence about the importance of auditing process to increase data reliability towards users of the service. This is importance given the greater attention the public engagement



literature is receiving. Further studies, can enter into the detail of auditing procedures and the potentialities offered by the PMS to enact citizens' involvement.

# REFERENCES

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- Addicott, R., Ferlie, E. and McGivern, G. (2006), “Networks, Organizational Learning and Knowledge Management: NHS Cancer Networks”, *Public Money and Management*, April, pp. 87–94;
- Agranoff, R. and McGuire, M. (2001), “Big Questions in Public Network Management Research”, *Journal of Public Administration Research and Theory*, Vol.11 N.3, pp. 295-326.
- Agranoff, R., and McGuire, R. (2003), “Inside the matrix: Integrating the paradigms of intergovernmental and network management”, *International Journal of Public Administration*, Vol. 26 No.12 , pp. 1401–1422;
- Agranoff, R. (2006), “Inside Collaborative Networks: Ten Lessons for Public Managers”, *Public Administration Review*, Vol. 66 Issue s1, pp. 56-65;
- Agranoff, R. (2007), *Managing Within Networks. Adding Value to Public Organizations*. Washington, DC: Georgetown Univ. Press, 2007.
- Ahuja, G. (2000), “Collaboration Networks, Structural Holes, and Innovation: A Longitudinal Study”, *Administrative Science Quarterly*, Vol. 45, No. 3, pp. 425-455;
- Alderighi, M. and Sparacino, G. (2008), Le gare e i contratti di servizio nel Trasporto Pubblico Locale, *Economia dei servizi, Mercati, Istituzioni, Management*, Vol. 1 (Gennaio/Aprile), pp.99-114;
- Alter, C and Hage, J (1993), *Organizations working together*, Newbury Park, CA: Sage;
- Ammons, D.N. (1995), “Overcoming the inadequacies of performance measurement in local government: the case of libraries and leisure services”, *Public Administration Review*, Vol. 55 No. 1, pp. 37-47.
- Arino, A. and Smith Ring, P. (2010), “The role of fairness in alliance formation”, *Strategic Management Journal*, Vol. 31 No. 10, pp. 1054-1087;
- Argyris, C., Schön, D. (1978), *Organizational Learning: A Theory of Action Perspective*. Addison Wesley, Reading, MA.
- Argyris, M., Schön, D. (1974), *Theory in Practice: Increasing Professional Effectiveness*. Jossey-Bass, San Francisco.
- Arnaboldi, M. and Azzone, G. (2010), “Constructing performance measurement in the public sector”, *Critical Perspectives on Accounting*, Vol. 21, pp. 266-282;
- Banister, F. (2001), “Dismantling the silos: extracting new value from IT investments in public administration”, *Information System Journal*, Vol. 11, pp.65-84;

- Baraldi, E. and Strömsten, T. (2009), “Controlling and combining resources in networks — from Uppsala to Stanford, and back again: The case of a biotech innovation”, *Industrial Marketing Management*, Vol. 38, pp.541-542;
- Bardach, E. (1994), “Can Network Theory Illuminate Interagency Collaboration?”, *Paper prepared for the Workshop on Network Analysis and Innovations in Public Programs*, Sept. 29–Oct.1, LaFollette Institute of Public Affairs, University of Wisconsin Madison.
- Bardach, E. (1998), *Getting Agencies to Work Together*. Washington, DC: Brookings Institution Press
- Bardy, R. (2006), “Management control in a business network: new challenges for accounting”, *Qualitative research in Accounting and Management*, Vol. 3 No.2, pp.161-181;
- Barley, S. R. (1986), “Technology as an occasion for structuring: Evidence from observation of ct scanners and the social order of radiology departments”, *Administrative Science Quarterly*, Vol. 31 No.1, pp.78–108;
- Barretta, A., and Busco, C. (2011), “Technologies of government in public sector’s networks: In search of cooperation through management control innovations”, *Management Accounting Research*, Vol. 22, pp. 211-219;
- Barzelay, N. (1997), “Central Audit Institutions and Performance Auditing: A Comparative Analysis of Organizational Strategies in the OECD”, *Governance: An International Journal of Policy and Administration*, Vol. 10 No. 3, pp. 235-260;
- Behn, R. (2001), *Rethinking Democratic Accountability*. Washington, DC: Brookings Institution Press.
- Behn, R. (2003), “Why measure performance? Different purposes require different measures”, *Public Administration Review*, Vol. 63 No. 5, pp. 586-606;
- Berry, F.S., Brower, R.S., Choi, S.O., Goa, W.X., Jang, H., Kwon, M. and Word, J. (2004), “Three Traditions of Network Research: What the Public Management Research Agenda Can Learn from Other Research Communities”, *Public Management Review*, Vol. 64 No.5, pp.539-552;
- Borgatti, S.P. and Algin, D.S. (2011), “On network theory”, *Organization Science*, Vol. 22 No.5, pp.1168-1181;
- Bowerman, M. (1995), “Auditing performance indicators: the role of the audit commission in the citizen’s charter initiative”, *Financial Accountability and Management*, Vol. 11 No.2, pp.171-183;
- Bovaird, T. and Loffler, E. (2002), “Moving from excellence models of local service delivery to benchmarking ‘good local governance’”, *International Review of Administrative Sciences*, Vol. 68 No. 1, pp. 9-24.

- Brans, M. (1997), "Challenges to the Practice and Theory of Public Administration in Europe", *Journal of Theoretical Politics*, Vol. 9 No. 3 pp 389–415;
- Bryson, J.M., Crosby, B.C. and Stone, M.M. (2006), "The Design and Implementation of Cross-Sector Collaborations: Propositions from the Literature", *Public Administration Review*, Vol. 66 Issue s1, pp. 44-55;
- De Bruijn, J. A. and Ringeling, A. B. (1997), "Normative Notes Perspectives on Networks", in W. J. M. Kickert, E. H. Klijn and J. F. M. Koppenjan (eds) *Managing Complex Networks*. London: Sage;
- De Bruijn, H. (2002), "Performance measurement in the public sector: strategies to cope with the risks of performance measurement", *International Journal of Public Sector Management*, Vol.15 No.7, pp.578 – 594;
- De Bruijn, J. A. (2007) *Managing Performance in the Public Sector*, London & New York: Routledge.
- ter Bogt, H.J. (2004), "Politicians in search of performance information? Survey research on Dutch aldermen's use of performance information", *Financial Accountability and Management*, Vol. 20 No.3, pp. 221-252.
- ter Bogt, H.J., Budding, T., Groot, T., and van Helden, J. (2010), "Current NPM research: digging deeper and looking further", *Financial Accountability and Management*, Vol.26 No.3, pp.241-245;
- Bouckaert, G. and Van Dooren, W. (2003), *Performance management in public sector organisations*. In: E. Löffler – T. Boivard (ed.): *Public Management and Governance*, London: Routledge, pp. 127-136;
- Buzzo Margari, B. and Piacenza, M. (2005), "I sussidi al trasporto pubblico locale: esperienze di regolamentazione a confronto e implicazioni di efficienza produttiva", *Hermes studies*, Working paper, 2005 (10).
- Caglio, A. and Ditillo, A. (2008), "A review and discussion of management control in inter-organizational relationships: Achievements and future directions", *Accounting Organizations and Society*, Vol. 33, pp. 865-898;
- Callon, M. (1998), *The laws of the markets*, Blackwell Publishers, Oxford (1998);
- Carlsson Walle, M., Kraus, K. and Lind, J. (2011) "The interdependencies of intra- and inter-organisational controls and work practices—The case of domestic care of the elderly", *Management Accounting Research*, Vol.22 No.4, pp.313-329;
- Carter, N. (1988), "Performance indicators: "Backseat Driving" or "Hands Off" Control?" *Policy and Politics* 17;
- Castells. M. (1996), *The Rise of the Network Society*, Blackwell, Malden, MA.

- Cepiku, D, Conte, A., D'Adamo, A. and Piovi, M. (2009), "La valutazione multi-livello delle performance dei network di interesse generale. Analisi di due casi di studio in sanità", *Rapporto Sanità 2009 CEIS*, Fondazione Economica Tor Vergata;
- Chapman, C.S. (2005), "Not because they are new: developing the contribution of enterprise resource planning systems to management control research", *Accounting, Organizations and Society*, Vol. 30, 685.
- Chapman, C.S., Cooper, D.J. and Miller, P. (2009), "Linking accounting, Organizations, and Institutions" in *Accounting Organizations, and Institutions* edited by Chapman, C.S., Cooper, D.J. and Miller, P., pp. 1-30;
- Chisholm, R. F. (2008), "Developing Interorganizational networks" in *Handbok of Organizational Development* (Cummings, T.G.), Sage Publication
- Christensen, T., Lægreid, P., 2007. Introduction – Theoretical Approach and Research Questions. In: Christensen, Lægreid (Eds.), *Transcending New Public Management*. Ashgate, Aldershot, Burlington.
- Chua, W.F. (1995), "Experts, networks and inscriptions in the fabrication of accounting images: a story of the representation of three public hospitals", *Accounting Organizations and Society*, Vol. 20, pp. 111-145;
- Clark, S.M., Gioia, D.A., Ketchen, D.J. and Thomas, J.B. (2011), "Transitional Identity as a Facilitator of Organizational Identity Change during a Merger", *Administrative Science Quarterly*, Vol. 55 No.3, pp.397-438;
- Cooper, D. (1993), "The Citizen's Charter and Radical Democracy: Empowerment and Exclusion Within Citizenship Discourse", *Social Legal Studies*, Vol. 2 No. 2, pp. 149-171;
- Cooper, R., and Slagmulder, R. (2004), " Interorganizational cost management and relational context", *Accounting Organizations and Society*, Vol. 29 No.1, pp. 1–26;
- Conteh, C. (2010), "Transcending New Public Management: The Transformation of Public Sector Reforms", *Public Management Review*, Vol. 12, No. 5, pp. 751-754;
- Cristofoli, D., Maccio, L. And Pedrazzi, L. (2011), "Managing successful networks: a "managerial style" for each season? The case of intermunicipality collaboration in Switzerland", paper presented at the IRSPM Conference, Dublin, 11-13 April.
- Crosby, B. and Bryson, J.M. (2010), "Integrative leadership and the creation and maintenance of cross-sector collaboration", *The Leadership Quarterly*, Vol. 21 pp. 211-230;
- Czarniawska, B. (2002) *A Tale of Three Cities*. Oxford University Press: Oxford.
- Davis, P. and West, K. (2009), "What do public values mean for Public Action? Putting Public Values in their plural places", *The American Review of Public Administration*, Vol. 39 No.6, pp. 602-618;

- Dechow, N., Granlund, M., Mouritsen, J., 2007. Management control of the complex organization: relationships between management accounting and information technology. In: Chapman, C.S., Hopwood, A.G., Shields, M.D. (Eds.), *Handbook of Management Accounting Research*, vol. 1. Elsevier, Oxford, UK, pp. 625–640.
- Dekker, H. (2003), “Value chain analysis in interfirm relationships: a field study”, *Management Accounting Research*, Vol.14, pp. 1-23;
- Dekker, H. (2004), “Control of inter-organizational relationships: Evidence on appropriation concerns and coordination requirements”, *Accounting, Organizations and Society*, Vol. 29, pp.27-49;
- Denzin, N. K. (1978). *The research act: A theoretical introduction to sociological methods*. New York: McGraw-Hill.
- Dixit, A. (2002), “Incentives and Organizations in the public sector: An interpretive review”, *Journal of Human Resources*, Vol. 37 No. 4, pp.696-727;
- Docherty, I., Shaw, J. and Gather, M. (2004), “State intervention in contemporary transport”, *Journal of Transport Geography*, Vol. 12 No.4, pp. 257-264;
- Dockery, G. (1996), “Rhetoric or Reality? Participatory Research in the NHS”, in K. De Koning and M. Martin (eds), *Participatory Research in Health*, pp. 164–76.
- Dunleavy, P., Margetts, H., Bastow, S. and Tinkler, J. (2006), “New Public Management Is Dead—Long Live Digital-Era Governance”, *Journal of Public Administration Research and Theory*, Vol. 16 No.3, pp. 467-494;
- Dunleavy, P. and Hood, C. (1994), “From old public administration to new public management”, *Public Money and Management*, Vol. 14 No.3, pp.9-16;
- Eisenhardt, K.M., and Graebner, M.E. (2007), “Theory building from cases: opportunities and challenges”, *Academy of Management Journal*, Vol. 50 No. 1, pp. 25-32;
- Feit, D. (2003), “Measuring performance in the public sector”, *Cost Management*, Vol. 17 No. 2, pp. 39-45;
- Ferreira, A. and Otley, D. (2009), “The design and use of performance management systems: an extended framework of analysis”, *Management Accounting Research*, Vol. 20, pp. 263-282;
- Flamholtz, E. (1996), “Effective organizational control: a framework, implications and application”, *European Management Journal*, Vol. 14 No.6, pp.596-611;
- Flynn, N. (2007), *Public Sector Management*. London: Sage.

- Fredericks, K.A. and Durland, M. M. (2005) “The Historical Evolution and Basic Concepts of Social Network Analysis”, *New Directions for Evaluation*, Vol. 107, pp. 15-23;
- Freeman, L. C. (1979), “Centrality in social networks: Conceptual clarification”, *Social Networks*, Vol. 1 No. 3, pp. 215–239;
- Fryer, K., Antony, J. and Ogden, S. (2009), “Performance management in the public sector”, *International Journal of Public Sector Management*, Vol. 22 No.6, pp. 478-498;
- Fujimoto, K., Valente, T.W. and Pentz, M.A. (2009), “Network structural influences on the adoption of evidence based prevention in communities”, *Journal of Community Psychology*, Vol. 37 No. 7, pp.830-845;
- Fyall, A. Oakley, B. and Weiss, A. (2000), “Theoretical Perspectives Applied to Inter-Organisational Collaboration on Britain's Inland Waterways”, *International Journal of Hospitality & Tourism Administration*, Vol. 1 No. 1, pp.89-112;
- Glynn, J.J. and Murphy, (1996), “Public management. Failing accountabilities and failing performance review ”, *International Journal of Public Sector Management*”, Vol.9 No. 5/6, pp.125-137;
- Gore, A. (1997), “ Access America: Reengineering Through Information Technology. Report of the National Performance Review and the Government Information Technology Services Board”, The Vice President of the United States.
- Goss, S. (2001), *Making Local Governance Work – Networks, Relationships and Management of Change*, Basingstoke: Palgrave.
- Grafton, J., Abernethy, M.A., and Lillis, A.M. (2011), “Organisational design choices in response to public sector reforms: A case study of mandated hospital networks”, *Management Accounting Research*, Vol. 22 No.12, pp.242-268;
- Grandori, A. and Soda, G. (1995), “Inter-firms networks: antecedents, mechanisms and forms”, *Organization Studies*, Vol. 16 No.2, pp. 183-214;
- Granlund, M., Mouritsen, J. (2003), “Introduction: problematizing the relationship between management control and information technology”, *European Accounting Review* 12, 77–83.
- Granovetter, M. (1973), “The strength of Weak Ties”, *American Journal of Sociology*, Vol. 78, pp. 1360-1380.
- Greatbanks, R. and Tapp, D. (2007), “The impact of balanced scorecards in a public sector environment: empirical evidence from Dunedin City Council, New Zealand”, *International Journal of Operations & Production Management*, Vol. 27 No. 8, pp. 846-73.

- Guthrie, J. E. and Parker, L.D. (1999), "A Quarter of a Century of Performance Auditing in the Australian Federal Public Sector: A Malleable Masque", *Abacus*, Vol. 35 No.3, pp. 302-332;
- Haˆkansson, H., and Lind, J. (2004), "Accounting and network coordination", *Accounting, Organizations and Society*, Vol. 29, pp. 51–72;
- Hall, M. (2010), "Accounting information and managerial work", *Accounting Organizations and Society*, Vol. 35, pp.301-315;
- Harland, C.M., Lamming, R.C., Zheng, J. and Johnsen, T.E. (2001), "A Taxonomy of Supply Chains", *The Journal of Supply Chain Management* (November), pp. 21-31;
- Herranz, J. (2010), "Multilevel performance indicators for multisectoral networks and management", *The American Review of Public Administration*, Vol. 40 No.4, pp.445-460.
- Heath, A.W. (1997), "The proposal in qualitative research", *The Qualitative Report*, Vol. 3 No.1, Retrieved December 27, 2011, from <http://www.nova.edu/ssss/QR/index.html>
- Hoge, A.M. and Howenstine, R.A. (1997), "Organizational Development Strategies for Integrating Mental Health Services", *Community Mental Health Journal*, Vol. 33 No.3, pp. 175-187;
- Hood C. (1991), "A public management for all seasons?" *Public Administration*, Vol. 69 No.1, pp. 3–19;
- Hood C. (1995), "The 'New Public Management' in the 1980s: variations on a theme." *Accounting, Organizations and Society*, Vol. 20 No.2/3, pp. 93–109;
- Hopwood, A.G. (1972), "An empirical study of the role of accounting data in performance evaluation", *Journal of Accounting Research* Vol. 10, pp.156–182;
- Hopwood, A.G. (1983), "On trying to study accounting in the contexts in which it operates", *Accounting, Organizations and Society*, Vol. 8 No. 2/3, pp. 287-305.
- Hopwood, A. (1984), 'Accounting and the Pursuit of Efficiency', in A. Hopwood and C. Tomkins (eds.), *Issues in Public Sector Accounting* (Philip Allen).
- Hopwood, A. (1996), "Looking across rather than up and down: on the need to explore the lateral processing of information", *Accounting Organizations and Society*, Vol. 21 No. 6, pp.589-590.
- Human, S.E. and Provan, K.G. (1997), "An emergent theory of structure and outcomes in small firm strategic manufacturing networks", *Academy of Management Journal*, Vol. 40, N.2 368-403;
- Humphrey, C. and Scapens, R.W. (1999), "Methodological themes. Theories and case studies of organizational accounting practices: limitation or liberation?", *Accounting Auditing and Accountability Journal*, Vol. 9 No.4, pp.86-106;



- Huxham, C. (2002), *The New Public Management: An Action Research Approach*. In *The New Public Management: Current Trends and Future Prospects*. K McLaughlin, Stephen Osborne, and E Ferlie, 295–310. London: Routledge.
- Huxham, C. (2003), “Theorizing collaboration practice”, *Public Management Review*, Vol. 5 No.3, pp. 401-423;
- Huxham, C. and Vangen, S. (2005), *Managing to Collaborate: Theory and Practice of Collaborative Advantage*, New York : Routledge
- van Helden, G.J., and Northcott, D. (2010), “Examining the practical relevance of public sector management accounting research”, *Financial Accountability and Management*, Vol. 26 No. 2, pp. 213-240.
- Irvin, R.A., Stansbury, J. (2004), “Citizen Participation in Decision Making: Is It Worth the Effort?”, *Public Administration Review*, Vol. 64, N. 1, pp.55-65;
- Isett, K. R., Mergel, I. A., LeRoux, K., Michen, P.A. and Rethemeyer, R.K. (2011), “Networks in Public Administration Scholarship: Understanding Where We Are and Where We Need to Go”, *Journal of Public Administration Research and Theory*, Vol. 21 (S1), pp. 157-173;
- Isfort (2008), “La riforma del trasporto pubblico locale nelle regioni: lo stato di attuazione e le prospettive”, downloaded as December 28, 2011, <http://www.isfort.it/sito/ricerca/TrasportoPubblico/trasportopubblico.htm>
- Jackson, P.M. and Palmer, B. (1992), “Developing performance monitoring in public sector organizations”, The Management Centre, University of Leicester, pp. 1-35;
- Jansen, E.P. (2008), “New public management: perspectives on performance and the use of performance information”, *Financial Accountability and Management*, Vol. 24 No.2, pp. 169-191.
- Johansson, T. and Siverbo, S. (2011), “Governing cooperation hazards of outsourced municipal low contractibility transactions: An exploratory configuration approach”, *Management Accounting Research*, Vol. 22 No.4, pp.292-312;
- Johnsen, J. (2005), “What Does 25 Years of Experience Tell Us About the State of Performance Measurement in Public Policy and Management?”, *Public Money and Management*, Vol. 25 No. 1, pp.9-17;
- Johnston, R. Fitzgerald, R., Markou, E. and Brignall, S. (2001), “Target setting for evolutionary and revolutionary process change”, *International Journal of Operations and Production Management*, Vol. 21 No.11, pp.1387-1403;
- Kajuter, P., and Kulmala, H. (2005), “Open-book accounting in networks. Potential achievements and reasons for failures”, *Management Accounting Research*, Vol. 16, pp. 179–204;

- Keast, R., Mandell, M.P., Brown, K. And Woolcock, G. (2004), “Network Structures: Working Differently and Changing Expectations”, *Public Administration Review*, Vol. 64 No.3, pp. 363-371;
- Kenis, P. And Provan, K.G. (2006), “The control of public networks”, *International Public Management Journal*, Vol. 9 No.3, pp.227-247;
- Kenis, P. And Provan, K.G. (2009), “Towards an exogenous theory of public network performance”, *Public Administration*, Vol. 87 No. 3, pp. 440-456;
- Kerr, S. (1975), “On the folly of rewarding A, while hoping for B”, *Academy of Management Journal*, pp. 769–783.
- Kickert, W. J. M., Klijn, E. H. and Koppenjan, J. F. M. eds (1997), *Managing Complex Networks*, London: Sage
- Klijn, E. H. and Koppenjan, J. F. M. (2000), “Public Management and Policy Networks: Foundations of a Network Approach to Governance”, *Public Management.* , Vol. 2 No.2, pp.135 – 58;
- Klijn, E. H. and Koppenjan, J. F. M. (2006), “Institutional design. Changing institutional features of networks”, *Public Management Review*, Vol. 8 No1, pp.141-160;
- Klijn, E.-H. and Skelcher, C. (2007), “Democracy and Governance Networks: Compatible or Not?”, *Public Administration*, Vol. 85 No. 3, pp.587–608;
- Klijn, E.H., Steijn, B. and Edelenbos, J. (2010), “The impact of network management on outcomes in governance networks”, *Public Administration*, Vol. 88 No.4, pp.1063-1082;
- Kolb, D.G. (2008), “Exploring the Metaphor of Connectivity: Attributes, Dimensions and Duality”, *Organization Studies*, Vol. 29 No. 1, pp. 127-144;
- Koppenjan, J. and Klijn, E.H. (2004), *Managing uncertainties in networks, A Network Approach to Problem Solving and Decision-Making*, London: Routledge.
- Koppenjian, J. (2008), “Creating a playing field for assessing the effectiveness of network collaboration by performance measures”, *Public Management Review*, Vol. 10 No.6, pp.699-714;
- Kloot, L. and Martin, J. (2000), “Strategic performance management: a balanced approach to performance management issues in local government”, *Management Accounting Research*, Vol. 11 No. 2, pp. 231-51.
- Krein, S.L. and Klamerous, M.L. (2000), “Michigan Diabetes Outreach Networks: A Public Health Approach to Strengthening Diabetes Care”, *Journal of Community Health*, Vol. 25 No.6, pp. 495-511;
- Langfield-Smith, K. and Smith, D. (2003), “Management control systems and trust in outsourcing relationships”, *Management Accounting Research*, Vol. 14, pp. 281-307;

- Lapsley, I. (1996), “ Reflections on Performance Measurement in the Public Sector”, in I. Lapsley and F. Mitchell (eds.), *Accounting and Performance Measurement. Issues in the Private and Public Sectors* (London: Paul Chapman Publishing).
- Lapsley, I. (2008), “The NPM agenda: back to the future”, *Financial Accountability and Management*, Vol. 24 No. 1, pp. 77-96.
- Lapsley, I. and F. Giordano (2010), “ Congestion Charging: A Tale of Two Cities”, *Accounting Auditing and Accountability Journal*, Vol. 23 No.5, pp671-698.
- Lapsley, I., Miller, P. and Panozzo, F. (2010), “Accounting for the city”, *Accounting Auditing and Accountability Journal*, Vol.23 No.3, pp305-324.
- Latour, B. (1987), *Science in Action: how to follow scientists and engineers through society*, Cambridge, MA: Harvard University Press;
- Laumann, E. O., and Knoke, D. (1987), *The organizational state*. Madison: Univ. of Wisconsin Press.
- Lawless, M.W., and Moore, R.A. (1989), “ Interorganizational Systems in Public Service Delivery: A New Application of the Dynamic Network Framework”, *Human Relations*, Vol.42 No.12, pp.1167–84;
- Leeuw, F. (1996), “Performance auditing, new public management and performance improvement: questions and answers”, *Accounting Auditing and Accountability Journal*, Vol. 9 No. 2, pp. 92-102.
- Lemieux-Charles, L., McGuire, W., Champagne, F., Barnsley, J., Cole, D. and Sicotee, C. (2003), “The use of multilevel performance indicators in managing performance in health care organizations”, *Management Decision*, Vol. 41 No. 8, pp. 760-70.
- Lonti, Z. and Gregory, R. (2007), “Accountability of countability? Performance measurement in the New Zealand public service, 1992-2002”, *The Australian Journal of Public Administration*, Vol. 66 No. 4, pp. 468-84.
- Lowe, A. (2001), “Accounting information systems as knowledge-objects: some effects of objectualisation”, *Management Accounting Research*, Vol. 12, pp. 75–100;
- MacKenzie, D., and Wajcman, J. (1999), *The social shaping of technology*. Buckingham: Open University Press.
- Maguire, S. and Hardy, C. (2006), “The Emergence of New Global Institutions: A Discursive Perspective”, *Organization Studies*, Vol. 27 No. 1, pp.7-29;
- Mahama, H. (2006), “Management control systems, cooperation and performance in strategic supply relationships: A survey in the mines”, *Management Accounting Research*, Vol. 17, pp. 315–339;

- Mandell, Myrna P. (1984), "Application of Network Analysis to the Implementation of a Complex Project", *Human Relations*, Vol. 37 No.6, pp.659–79;
- Marshall, C. and Rossman, G.B. (1995), *Designing Qualitative Research*. Thousand Oaks, CA: SAGE
- Martin, S. (2010), "From new public management to networked community governance? Strategic local public service networks in England", in Osborne, S.P., *The New Public Governance? Emerging perspectives on theory and practice of public governance*, New York: Routledge;
- Massey, A. (1999), "Editorial", *Public Policy and Administration*, Vol. 14 No. 3, Special Issue: "Quality issues in the public service", pp. 1-14.
- Mayne, J. and Zapico-Goni, E. (1997), "Effective performance monitoring: a necessary condition for public sector reform", in Mayne, J. and Zapico-Goni, E. (Eds), *Monitoring Performance in the Public Sector: Future Directions from International Experience*, Transaction Publishers, New Brunswick, NJ, pp. 3-29.
- McAdam, R., Hazlett, S.A., and Casey, C. (2005), "Performance management in the UK public sector. Addressing multiple stakeholder complexity", *International Journal of Public Sector Management*, Vol. 18 No. 3, pp. 256-273.
- McDermott, G.A. (2007), "Politics and the Evolution of Inter-firm Networks: A Post-Communist Lesson", *Organization Studies*, Vol. 28 no.6, pp. 885-908;
- McGuire, R. and Agranoff, R. (2011), "The limitations of public management networks", *Public Administration*, Vol. 89 No.2, pp.265-284;
- McGuire, M. (2002), "Managing networks: propositions on what managers do and why they do it", *Public Administration Review*, Vol. 62 N.5, pp.599-609;
- Meier, K.J. and O'Toole, L.J. (2001), "Managerial strategies and behaviors in networks. A model with evidence from US Public Education", *Journal of Public Administration Research and Theory*, Vol.11, pp.271-294;
- Meyer, J.W. and Rowan, B. (1977), "Institutionalized organizations: formal structure as myth and ceremony", *The American Journal of Sociology*, Vol. 83 No. 2, pp. 340-63.
- Mizruchi 2005. "Network theory" in George Ritzer (ed.), *Encyclopedia of Social Theory*, pp. 534-540  
Thousand Oaks, CA: Sage Publications.
- Modell, S. (2004), "Performance measurement myths in the public sector: a research note", *Financial Accountability and Management*, Vol. 20 No.1, pp.39-55.

- Moller, K. K., and Svahn, S. (2009), “How to influence the birth of new business fields”, *Industrial Marketing Management*, Vol. 38, pp. 450–458;
- Morin, E. (1999). *La Tête bien faite. Repenser la Réforme – Réformer la Pensée*. Paris: Ed. du Seuil.
- Moynihan, D.P. and Pandey, S.K. (2010), “The Big Question for Performance Management: Why Do Managers Use Performance Information?”, *Journal of Public Administration Research and Theory*, Vol. 20 No.4, pp.849-866;
- Moynihan, D.P., Fernandez, S., Kim, S., LeRoux, M., Piotrowski, S.J. Bradley, E. W., and Yang, K. (2011), “Performance Regimes Amidst Governance Complexity”, *Journal of Public Administration Research*, Vol.21 Supp.1, pp. i141-i155;
- Mouritsen, J., Hansen, A., and Hansen, C. O. (2001) “ Interorganizational controls and organizational competences: Episodes around target cost management/functional analysis and open book accounting”, *Management Accounting Research*, Vol.12, pp.221–244.
- Mouritsen, J. and Thrane, S. (2006), “Accounting, network complementarities and the development of inter-organizational relations”, *Accounting Organizations and Society*, Vol. 31, pp. 241-275;
- Nasi, G., Frosini, F. and Cristofoli, D. (2011), “On line service provision: are municipalities really innovative? The case of larger municipalities in Italy”, *Public Administration*, Vol. 89 No.3, pp.821-839;
- Neuman, W.L. (2000), *Social Research Methods: Qualitative and Quantitative Approaches*, 4th ed. Boston: Allyn & Bacon.
- OECD (2003), *The e-Government Imperative*. Paris:OECD
- Osborne, S.P. (2006), “The New Public Governance?”, *Public Management Review*, Vol.8 No.3, pp. 377-387;
- Osborne, S.P. (2010a), “Delivering Public Services: Time for a new theory?”, *Public Management Review*, Vol. 12 No.1, pp1-10;
- Osborne, S.P. (2010b), *The New Public Governance? Emerging perspectives on theory and practice of public governance*, New York: Routledge;
- Otley, D. T. (1994), “Management Control in Contemporary Organizations: Towards a Wider Framework”, *Management Accounting Research*, Vol. 5, pp. 289–99.
- Otley, D. (1999), “Performance management: a framework for management control system research”, *Management Accounting Research*, Vol. 10, pp. 363-382;

- O'Sullivan, P.J., and Patel, T. (2004), "Fragmentation in transport operations and the case for system integrity", *Transport Policy*, Vol. 11 No. 3, pp. 215-225;
- O'Toole, L.J. (1997), "Strategies for intergovernmental management: implementing programs in interorganizational networks", *International Journal of Public Administration*, Vol. 11 No.4, pp.417-441;
- O'Toole, L.J.(1997), "Treating networks seriously: practical and research based agendas in public administration", *Public Administration Review*, Vol.57 No. 1, pp.45-52;
- O'Toole, L.J. and Meyer, K.J. (2004), "Public management in intergovernmental networks: Matching structural and behavioral networks", *Journal of Public Administration Research and Theory*, Vol. 14, pp. 469–494;
- Peters, B.G. (2006), "Concepts and theories of horizontal policy management", In: Peters, B.G., Pierre, J (Eds.), *Handbook of Public Policy*. Sage Publications, London, Thousand Oaks, New Delhi, pp. 115–138.
- Pettigrew, A.W. (1990), "Longitudinal field research on change: theory and practice", *Organization Science*, Vol. 1 No.3, pp. 267-292;
- Pidd, M. (2005), "Perversity in public service performance measurement", *International Journal of Productivity and Performance Management*, Vol. 54 No. 5/6, pp. 482-93.
- Pfeffer, J. and Salancik, G.R. (1978), *The external control of organizations: A resource dependence perspective*, New York: Harper and Row
- Podolny, J.M. and Page, K.M. (1998), "Network forms of organization", *Annual Review of Sociology*, Vol. 24, pp. 57-76;
- Pollanen, R.M. (2005), "Performance measurement in municipalities Empirical evidence in Canadian context", *International Journal of Public Sector Management*, Vol. 18 No.1, pp.4-24;
- Pollitt, C. (1994), "The citizen's charter: A preliminary analysis", *Public Money and Management*, Vol. 14 No.2, pp.9-14;
- Pollitt, C. and Bouckaert, G. (2000), *Public Management Reform: A Comparative Analysis*, Oxford University Press, Oxford.
- Popoli, P. Batti, A. (2007). La concorrenza per il mercato nel trasporto pubblico locale: criticità di un approccio ad assetto variabile. *Azienda pubblica*
- Popper C, Wilson D. (2003), "The use and usefulness of performance measures in the public sector", *Oxford Review of Economic Policy*, Vol.19 No.2, pp.250–67;

- Powell, W.W. (1990), "Neither market nor hierarchy: network forms of organization", in *Research in organizational behavior*, Vol. 12 L.L. Cummings and B. Staw (eds), 295-336, Greenwich, CT: JAI Press.
- Power, M. (1994), *The audit explosion*. London: Demos.
- Power, M. (1997), *The Audit Society: Rituals of Verification* (Oxford University Press).
- Power, M. (2003), "Evaluating the audit explosion", *Law and Policy*, Vol. 25 No.3, pp.185-202;
- Prior, L. (2003), *Using Documents in Social Research*, Sage: London.
- Prior, L. (2008), "Repositioning documents in social research", *Sociology*, Vol. 42 No.5, pp821-836.
- Provan, K.G., and Milward, H.B. (1995), "A preliminary theory of network effectiveness: a comparative study of four community mental health systems", *Administrative Science Quarterly*, Vol. 40, pp.1-33;
- Provan, K.G., and Sebastian, J. (1998), "Networks within networks: service link overlap, organizational cliques, and network effectiveness", *Academy of Management Journal*, Vol, 41 No.4, pp. 453-462;
- Provan, K.G. and Milward, H.B. (2001), "Do networks really work? A framework for evaluating public-sector organizational networks", *Public Administration Review*, Vol. 61, pp.413-423;
- Provan, K.G., Fish, M.A. and Sydow, J. (2007), "Interorganizational networks at the network Level: a review of the empirical literature on the whole networks", *Journal of Management*, Vol. 33 No. 3, pp.479-516;
- Provan, K.G. and Kenis, P. (2008), "Modes of network governance: Structure, management and effectiveness", *Journal of Public Administration Research and Theory*, Vol. 18 No.2, pp.229-252;
- Provan, K.G. & Sydow, J. (2008), "Evaluating Inter-organizational Relationships" in *The Oxford Handbook of Inter-organizational Relations*, eds. S. Cropper, M. Ebers, C. Huxham & P. Smith Ring, pp. 691-710.
- Raab, J. and Kenis, P. (2009), "Heading Toward a Society of Networks: Empirical Developments and Theoretical Challenge", *Journal of Management Inquiry*, Vol. 18 No.3, pp.198-210;
- Rampersard, G., Quester, P., and Troshani, I. (2010), "Managing innovation networks: Exploratory evidence from ICT, biotechnology and nanotechnology networks", *Industrial Marketing Management*, Vol. 39 No.5, pp.793-805;
- Rethemeyer, R.K., and Hatmaker, D.M. (2008), "Network management reconsidered: an inquiry into management of network structures in public sector service provision", *Journal of Public Administration Research and Theory*, Vol. 18 No. 4, pp. 617-646.

- Richardson, A.J. and Kilfoyle, (2009), “Accounting in markets, hierarchies and networks: The role of accounting in the transnational governance of postal transactions”, *Accounting Organizations and Society*, Vol. 34 No.8, pp.
- Ring, P.S. and van de Ven, A.H. (1994), “Developmental Processes of Cooperative Interorganizational Relationships”, *The Academy of Management Review*, Vol. 19, No. 1, pp. 90-118;
- Roberts, N. (2000), “Wicked Problems and Network Approaches to Resolution.” *International Public Management Review*, Vol. 1 No.1, pp. 1-18; accessed at [www.willamette.org/ipmn/test/ejournal/issue1/ejchapter1.htm](http://www.willamette.org/ipmn/test/ejournal/issue1/ejchapter1.htm)
- Rowe, G. and Frewer, L.J. (2005), “A typology of public engagement mechanisms”, *Science, Technology, & Human Values*, Vol. 30 No.2, pp. 251-290;
- Sanderson, I. (2002), “Performance management, evaluation and learning in model local government”, *Public Administration*, Vol. 79 No.2, pp. 297-313.
- Saz Carranza, A. and Ospina, S.M. (2010), “The Behavioral Dimension of Governing Interorganizational Goal-Directed Networks—Managing the Unity-Diversity Tension”, *Journal of Public Administration Research and Theory*, Vol. 21, pp. 327-365;
- Shy, Y. And Gregory, M. (1998), “International manufacturing networks—to develop global competitive capabilities”, *Journal of Operations Management*, Vol. 16, N.2-3, pp. 195-214;
- Scharpf, F.W. (1978), “Interorganizational policy studies: issues, concepts and perspectives”, In K.I. Hanf, and F.W. Scharpf (eds) pp.345-370;
- Saz-Carranza, A. and Vernis, A. (2006), “The dynamics of public networks. A critique of linear process models”, *International Journal of Public Sector Management*, Vol.19 No.5, pp.416-427;
- Seal, W., Berry, A., and Cullen, J. (2004), “Disembedding the supply chain: Institutionalized reflexivity and inter-firm accounting”, *Accounting, Organizations and Society*, Vol. 29 No.1, 73–92;
- Selsky, J.W. and Parker, B. (2005), “Cross-sector Partnerships to Address Social Issues: Challenges to Theory and Practice”, *Journal of Management*, Vol. 31, pp. 849–73;
- Silva, C. and McGuire, M. (2010), “Leading public sector networks: an empirical examination of integrative leadership behaviours”, *The leadership Quarterly*, Vol. 21, pp. 264-277;
- Simmel, G. (1950), “The Isolated Individual and the Dyad.” Pp. 118–44 in *The Sociology of Georg Simmel*, edited by Kurt Wolff. New York: Free Press.



- Smith, P. (1993), "Outcome-related performance indicators and organizational control in the public sector", *British Journal of Management*, Vol. 4 No. 3, pp. 135-51.
- Sørensen, C.H. and Longva, F. (2011), "Increased coordination in public transport—which mechanisms are available?", *Transport Policy*, Vol. 18 No.1, pp. 117-125;
- Stern, R.N. (1979), "The Development of An Interorganizational Control Network: The Case of Intercollegiate Athletics", *Administrative Science Quarterly*, Vol. 24, No. 2, pp. 242-266;
- Stewart, J.D. (1984), "The role of information in public accountability", in Hopwood, A. and Tomkins, C. (Eds), *Issues in Public Sector Accounting*, Phillip Allan Publishers, Oxford, pp. 13-34.
- Stewart, J. and K. Walsh. 1992. 'Change in the management of public services', *Public Administration*, Vol. 70, Winter, 499–518.
- Sullivan, H. and Schelcher, C.N. (2002), *Working across boundaries: collaboration in public services*. Basingstoke: Palgrave Macmillan.
- Sydow, J. And Windeler, A. (1998), "Organizing and Evaluating Interfirm Networks: A Structurationist Perspective on Network Processes and Effectiveness", *Organization Science*, Vol.9 No. 3, pp. 265-284;
- Sydow, J., Milward, H.B. (2003), Reviewing the Evaluation Perspective: On Criteria, Occasions, Procedures, and Practices, Paper presented at the Special Interest Group (SIG) on Interorganizational Partnerships (IOR) within the 10th International Conference on Multi-Organisational Partner-ships, Alliances and Networks (MOPAN), University of Strathclyde, Glasgow, June 27, 2003
- Thompson, A.M. and Perry, J.L. (2006), "Collaboration Processes: Inside the Black Box", *Public Administration Review*, Vol. 66 Issue s1, pp. 20-32;
- Thorelli, H.B. (1986), "Networks: between markets and hierarchies", *Strategic Management Journal*, Vol.7, pp.37-51;
- Thrane, S., and Hald, K. S. (2006), "The emergence of boundaries and accounting in supply fields: The dynamics of integration and fragmentation", *Management Accounting Research*, Vol.17, pp.288–314.
- Thrane, S. (2007), "The complexity of management accounting change: Bifurcation and oscillation in schizophrenic inter-organisational systems", *Management Accounting Research*, Vol. 18, pp.248-272;
- Tomkins, C. (2001), "Interdependencies, trust and information in relationships, alliances and networks", *Accounting Organizations and Society*, Vol. 26, pp. 161-191;
- Turrini, A., Cristofoli, D, Frosini, F. and Nasi, G. (2010), "Networking literature about determinants of network effectiveness", *Public Administration*, Vol. 88, pp. 528-550;

- UITP (2009a), “Integrating public transport and urban planning: a virtuous cycle”, International Association of Public Transport, January 2009, available at <http://www.uitp.org/publications/positions.cfm>
- UITP (2009b), “Assessing the benefits of public transport”, International Association of Public Transport, January 2009, available at <http://www.uitp.org/publications/positions.cfm>
- UITP (2011), “Linking the business community and public transport - Progressing together in the right direction”, April 2011, available at <http://www.uitp.org/publications/positions.cfm>
- van de Velde, D.M. (1999), “Organisational forms and entrepreneurship in public transport Part 1: classifying organisational forms”, *Transport Policy*, Vol. 6 No. 3, pp. 147-157;
- van de Ven, A.H. (1976), “On the Nature, Formation, and Maintenance of Relations among Organizations”, *The Academy of Management Review*, Vol. 1, No. 4, pp. 24-36;
- Van Raaij, D. (2006), “Norms Network Members Use: An Alternative Perspective for Indicating Network Success or Failure”, *International Public Management Journal*, Vol. 9 No.3, pp.249–70;
- Vèlez, M. , Sanchez, J.M. and Alvarez-Dardet, C. (2008), “Management control systems as inter-organizational trust builders in evolving relationships: Evidence from a longitudinal case study”, *Accounting Organizations and Society*, Vol. 33, pp.968-994;
- Vlaar, P., Van de Bosch, F. and Volberda, H. (2007), “On the evolution of trust, distrust, and formal coordination and control in interorganizational relationships”, *Group and Organization Management*, Vol. 32 No.1, pp. 407-429;
- Vosselman, E. and van der Meer-Koistra, J. (2009), “Accounting for control and trust building in interfirm transactional relationships”, *Accounting Organizations and Society*, Vol. 34, pp.267-283;
- Warner, M.E. and Hefetz, A. (2008), “Managing Markets for Public Service: The Role of Mixed Public – Private Delivery of City Services”, *Public Administration Review*, Vol. 68 No.1, pp. 155-166;
- Waterhouse, J.H. and Tiessen, P. (1978), “A contingency framework for management accounting systems research”, *Accounting, Organizations and Society*, Vol. 3 No. 1, pp. 65-76.
- Weber, E.P. and Khademian, A.M.(2008), “Wicked Problems, Knowledge Challenges, and Collaborative Capacity Builders in Network Settings”, *Public Administration Review*, Vol. 68 No.2, pp.334-349;
- White, D. R. and Reitz, K.P. (1983), “Graph and semigroup homomorphisms on networks of relations”, *Social Networks*, Vol. 5 No.2, pp.193–234;
- Widener, S.K. (2006), “Human Capital Pay Structure and the Use of Performance Measures in Bonus Compensation”, *Management Accounting Research*, Vol. 17, No. 2, pp. 198–221.

Williamson, O.E. (1981), "The economics of organization: the transaction cost approach", *American Journal of Sociology*, Vol. 87, pp.548-577;

Wisniewska, M. and Stewart, D. (2004), "Performance measurement for stakeholders: the case of Scottish local authorities", *International Journal of Public Sector Management*, Vol. 17 No. 3, pp. 222-33

Wouters, M. and Wilderom, C. (2008), "Developing performance-measurement systems as enabling formalization: A longitudinal field study of a logistics department ", *Accounting Organizations and Society*, Vol. 33, No.4-5, pp.488-516;

Zairi, M. (1996), *Benchmarking for best practices*. Butterworth Heinemann, Oxford.

# Annex

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## **PART 1: ACTUAL NETWORK STRUCTURE**

- Which role do you (public organization or private company) have in the transportation service provision? (e.g. service provider, planning and control...)
- Who are the other actors you are interacting with in order to perform your role?
- Why do you interact with them?
- How often?
- How does this interaction take place? (e.g. informal meetings, indirect document exchange, face to face contact ...)
- Do you exchange documents with these other actors/organizations?
- What is their content?

## **PART2: PMS**

- Do you collect data (Performance Measures) about the activities you are performing? In affirmative case, could you describe them?
- Who is the organization in charge of defining these measures?
- Are there target set for each of them? Who is in charge of setting targets?
- How often are Performance Measures collected?
- What are the reports generated and who is receiving them? How are these measures used?

## **PART 3: NETWORK EVOLUTION**

Before the Agreement for the Local Public Transportation (LPT)

- Did your organization exist before the Agreement for the LPT? In affirmative case, how have your role changed after signing it?

- Who was the organizational role involved in the meetings for the network creation?
- How were you involved in the process of network creation?
- Did you use performance measures during meetings with the other actors? How were they used? Did you use your own PMS during these meetings? If yes, how did you use it?

After the Agreement for the LPT

- Have your PMS changed after signing the Act for the LPT?
- Do you have to collect other data?
- Do you prepare other reports?
- Who do you send these information to?