The complementary use of network and bilateral management control mechanisms by a network coordinator: the case of the Aveiro Port Authority

Marques, L. a, Ribeiro, J. A. b and Scapens, R. c†

Corresponding author. Faculty of Economics, University of Porto and ISCA, University of Aveiro, Campus Universitário de Santiago, 3810-953 Aveiro, Portugal. E-mail adress: luis.marques@ua.pt, Tel.: 00351966118637. Fax: 00351234393399.

Faculty of Economics, University of Porto and EDGE – Centro de Estudos de Gestão, Rua Dr. Roberto Frias, 4200-464 Porto, Portugal.

University of Groningen, P.O. Box 800, 9700 AV Groningen, The Netherlands and Manchester Business School, Booth Street West, Manchester M15 6PB, UK

Abstract

The paper objective is to contribute to the understanding of the use of network management control mechanisms by a network coordinator, so as to influence cooperative behaviour in the network as a whole, or specific groups within it; and also to understand the connections established between those mechanisms and the bilateral management control mechanisms used to influence the behaviour of specific organizations in dyadic, one-to-one, relationships.

We analyse a case study of the relationships established between a port authority – a public organization that acts as network coordinator – and various port organizations – private and public – operating in Port of Aveiro, Portugal. The case study findings allowed us to explore the role of network management control mechanisms within the theoretical framework proposed in Marques et al (2009). We found that: (i) in the mixed type network the network coordinator uses various types of management control mechanisms together, in complementary fashion, in order to create a control package for the whole network; (ii) the use of network management control mechanisms, or combinations of such mechanisms, is related to, and evolves in accordance to, the network coordinator’s assessments of network organizations’ motivations to cooperate and contribution to the network performance. Specifically, (iii) when contribution to network performance is assessed as low, our evidence points to a reliance on the functioning of the network “market”. This leads to the use of a minimal and general structure of formal and social network management control mechanisms, of a ‘Market Governance Type’; (iv) when contribution to network performance is assessed as high and motivation to cooperate is also assessed as high, we found evidence of a more intense use of bilateral management control mechanisms, albeit this use may be complemented by formal and social network management control mechanisms on a ‘as needed’ basis’, i.e., when the sole use of bilateral management control mechanisms proves insufficient; (v) when contribution to network performance is assessed as high and motivation to cooperate is assessed as low, network management control mechanisms seem to to be preferred to bilateral ones, they tend to be of a social rather than formal type, and they are focused on specific parts of the network: this we labelled a ‘preferred and selective deployment of social network management control mechanisms’.

* We would like to thank the comments from the discussants Martine Cools and Paolo Quattrone and also other participants in a early version presented at the 5th Doctoral Summer School in Management Accounting (ENROAC – European Network for Research on Organizational and Accounting Change), Siena, 2010; and from the participants in the 8th International Management Control Research Conference, Management Control Association, London, 2010.

† Robert W Scapens also has visiting positions at University of Birmingham, UK; University of Jyväskylä, Finland; University of Siena, Italy; and he is the Swedbank visiting professor at Lund University, Sweden.
Keywords: management control mechanisms, cooperation and performance, interorganizational relationships, networks, network coordinator, ports.

1. Introduction

Interorganizational relationships (IORs) have become very relevant in strategies where organizations try to gain advantage through cooperation with external resources (Pfeffer and Salancik, 1978; Child et al, 2005). Cooperation between organizations can reduce the transactional costs of IORs (Jarillo, 1988) and maximize benefits (Smith et al, 1995). However, often in IORs there is tension between cooperation and conflict of interest (Nooteboom, 2004). Failure of cooperation is one important reason why IORs do not succeed (Das and Teng, 1998; Williams, 2005).

IORs have been mainly object of study at a one-to one, dyadic level. However, IORs can go beyond dyads. Cooperation can have multiple participants and indirect linkages in networks that have implications for network performance and governance of relations. Further studies on triads and on integrated models with network effects on governance are needed (Nooteboom, 2009; Provan et al, 2007).

Management control mechanisms (MCMs) can be used to influence interorganizational cooperation (Mahama, 2006). However, management control literature has also tended to focus on dyadic IORs, like alliances, joint-ventures and supply-chains. As recent literature points, few studies have focused in a network perspective that addresses the consequences of organizations’ multiple interactions in the use of MCMs and even fewer have studies that have tackled such use in the context of mixed-type networks (Caglio and Ditillo, 2008; Berry et al, 2009).

In this paper, we analyse the use of management control mechanisms in a network context, and specifically in networks of a mixed type where a network coordinator takes responsibility for some key governance activities, while leaving other activities to the network members.

The aim of this paper is to understand the use of management control mechanisms by a network coordinator in order to influence the network cooperative behaviour, as a whole or of a specific part in the whole, and its connection with the ones directly used to influence other organizations’ cooperative behaviour under dyadic relationship.

The paper is structured as follows: we start by presenting the functions of network coordinators and its relation with cooperation and performance in networks. In section 3 we explore the literature on the use of MCMs in IORs. In order to better understand the differences between the use of MCMs in dyads and networks, we propose a conceptualization and definitions of bilateral and network MCMs. A case study in the port sector, involving an exploration of the use of MCMs at a network level by a network coordinator – Port Authority – in the period of 1999 to 2009, is then presented and analysed in section 4. The case study discussion allows us to develop the theoretical framework proposed in Marques et al (2009) on the use of MCMs at the network level and their relation with cooperation and network performance.
2. Networks and network coordinators

Interorganizational relationships can occur at different levels. Nooteboom (2004), for instance, uses two levels: bilateral or dyadic relationships (dyadic level) and network relationships (network level).

Networks can be seen as “modes of organizing economic activities through inter-firm coordination and cooperation” (Grandori and Soda, 1995, p. 183), where more than two organizations are involved and establish multiple relationships in multiple directions (Nooteboom, 2004). They include IORs at different levels, from the more simple – dyadic – to more complex levels – with three or more organizations involved. At a dyadic level, relationships involve the formal structural arrangements as well as various informal (unstructured) means of ensuring that there is cooperation between all pairs of organizations within the network (Nooteboom, 2004; Van de Ven and Walker, 1984). According to Ring and Van de Ven, “cooperative IORs are socially contrived mechanisms for collective action, which are continually shaped and restructured by actions and symbolic interpretations of the parties involved” (1994, p. 96). Furthermore, cooperation implies interaction and interdependency between organizations (Dekker, 2004), and this requires some form of coordination. Malone and Crowston (1994, p. 90) define coordination as “managing dependencies between activities”. Consequently, coordination in networks is needed when an organization’s action is connected to and dependent on the action of another network organization (Nooteboom, 2004).

Network coordination has been associated, in the both private and public sectors, with increasing performance in terms of the efficient use of resources, competitiveness and customer service (Child et al, 2005; Provan and Kenis, 2008). Such coordination could be achieved through the governance structure (Grandori, 1997). However, network governance is complex, due to several factors. There is usually no hierarchy or ownership structure (Williamson, 1985), there may be different degrees of commitment to network goals (Ring and Van de Ven, 1994), and there may be issues related to the voluntary compliance with rules and procedures (Grandori, 1997). A number of different modes of network governance can be distinguished:

- self-organized – this is a shared governance model in which all network organizations interact with every other in governing the network;
- mandated or contracted – this is where an internal or external organization governs the network; and
- mixed or mid-range – this is where an organization acts as a network coordinator and is responsible for some key governance activities, leaving the more operational activities to other organizations within the network (Provan and Kenis, 2008).

In this paper we will study a network of this last type; specifically where the network coordinator is a public organization which takes responsibility for key governance activities, while leaving operational activities to the network members. This type of network has become quite common in public management in recent decades; a tendency which reflects their growing importance in the provision of public services (Hood, 1995; Provan and Kenis, 2008).

In networks, where a public organization plays the role of network coordinator, services are mainly provided by private organizations. Typically, the public organization has to cope with social concerns and pressures, while the private organizations will be more concerned with market pressures (Klijn, 2003). The network coordinator is generally
responsible for the network’s economic development, by facilitating the activities of the network organizations (Provan and Kenis, 2008) and using coordination mechanisms to govern the network (Grandori, 1997). The public organization can obtain its resources from the network organizations or through governmental funding. The role of the public organization is usually mandated by the government (Provan and Kenis, 2008), although mixed-type networks can also emerge in certain horizontal networks, where the public organization has sufficient resources and legitimacy to act as the network coordinator (Provan and Kenis, 2008). In recent years many public services have gradually been transferred to private organizations, but nevertheless network coordinators may still be needed to occupy structural holes in the network (Burt, 1992). These structural holes can create economic bottlenecks where parts of the network are not sufficiently developed to operate under market conditions and, consequently, need to be provided by the government, either directly or through external organizations, including public, private and non-profit organizations (Brown and Potoski, 2003).

Several studies have identified other functions and roles of network coordinators, including public ones. For instance, network coordinators may be regarded by the network organizations as mutually trusted information intermediaries, which can bridge informational asymmetries, establish a common set of expectations and align diverse goals (Ebers, 1997). Other network coordinator’s functions include coordinating activities, resolving conflicts, regulating access to the network and applying sanctions. Network coordinators can also act as intermediaries between network organizations, by becoming involved in things like: arbitration or mediation; assessing the value of information before it is traded; creating mutual understanding; monitoring information flows; building trust; helping in a timely way to sort out of relationships issues; and providing reputational mechanisms (Nooteboom, 2009).

In relationships between a public organization, acting as network coordinator, and the other network organizations, there is likely to be a formal context defined by the legal framework which applies to the public organization, but this does not necessarily mean that the network coordinator has the legal capacity to impose or to dictate the actions taken by those other network organizations (Torfing, 2005). Where the legal framework mandates some or all of the roles of the public organization, the other network organizations will have to comply. However, in the absence of such a legal framework, network coordination means influencing other network organizations to take actions which enhance the performance of the network (Phillips et al., 2000). Here political issues may play a role (Nutt, 2000). For example, in a political context where there is a heavy reliance on state regulation, the emphasis will be on the enforcement of state regulations. In contrast, in a more liberal, competitive market-oriented political environment – as in “New Public Management” (Rethemeyer and Hatmaker, 2008) – the emphasis will be on rules and procedures which stimulate free competition (Torfing, 2005). Nevertheless, as Teisman and Klijn (2002, p. 191) argue, governments, although gradually engaged in more and more public-private partnerships, “still seem to be dedicated to their own procedures, rules and principles of control; for this reason, they try to fit partnerships into the mold of traditional policy-making procedures”.

In general, the objective of the network coordinator is to ensure that the actions of the various network organizations are consistent with the network’s goals. To achieve such an objective clearly involves issues of control. Thus, a question emerges at this point: what are the mechanisms that can be deployed by a network coordinator (whatever its orientation –
“traditional” or “liberal”) to control the network? This topic will be tackled in the next section where we provide a definition of MCMs and explore their use by network coordinators.

3. Network coordinator use of MCMs

As we saw above, in the context of mixed-type networks, the network coordinator has several functions which together aim to achieve the desired or predetermined level of network performance. For the purpose of this paper, network performance is considered to be the network coordinators’ view of the desired or predetermined objectives of the network (cf. Child et al, 2005). However, while network performance depends on the contribution of each organization that is involved in the network (Brignall and Modell, 2000), each organization is likely to make a different contribution to that performance (Child et al, 2005). Thus, to control network performance, the network coordinator must, first of all, recognise the necessary contributions of each network organization (Nooteboom, 2009).

Network coordination then comprises the actions taken by the network coordinator to ensure that each organization realizes its expected contribution to the network. As cooperation is necessary to achieve network performance (Smith, et al, 1995; Child et al, 2005), the network coordinator will seek to influence cooperative behaviour to achieve the desired or predetermined network performance. However, “motivational factors are (…) prerequisites of cooperation” (Smith, et al, 1995, p. 8), and each organization has its own motivations to (or not to) cooperate with the network coordinator and/or with the other organizations in the network. It is these motivations which influence the level of cooperation in the network performance. It thus seems reasonable to expect that, in a mixed-type network, the public organization acting as network coordinator will exercise its coordinating function taking into account its assessment of each network organization’s motivation to cooperate, and the potential contribution to the network performance of each network organization. We now turn to these two concepts.

**Assessment of the motivation to cooperate:** This is the assessment, made by the network coordinator, of each network organization’s motivation to undertake the expected level of cooperative behaviour (Smith et al, 1995). Such motivation is a prerequisite for cooperation and it determines the cooperative behaviour which is actually undertaken (Ring and Van de Ven, 1994; Smith et al, 1995). Drawing on Ring and Van de Ven’s (1994, p. 96) definition of cooperative IORs, the assessment of the motivation to cooperate will be higher or lower depending on the likelihood that the network organization will engage in future “collective actions”; that is, engage in future joint actions (involving two or more network organizations) that contribute to the network’s objectives. Therefore, the network coordinator’s assessment of each organization’s motivation to cooperate indicates the extent to which it expects the organization to cooperate with the other organizations in the network. As such, it is likely to affect how the network coordinator attempts to influence the behaviour of that organization and the extent to which it (the network coordinator) involves the organization in the various activities of the network.

As suggested by Nooteboom (1996), motivations to cooperate can be divided into four types: material interest, coercion or fear, bonds, and ethics. The network coordinator’s view of the importance of each of these four types of motivation will influence its assessment of the motivations to cooperate (see Williams, 1988), thereby allowing the network
coordinator to assess whether a particular organization’s motivation to cooperate is higher or lower than others in the network.

Assessment of contribution to network performance: This is the network coordinator's assessment of the extent to which a network organization's actions will contribute to the achievement of the desired or predetermined objectives of the network (Child et al., 2005). These objectives “...may include many dimensions such as: efficiency, development capability, flexibility, adherence to specifications, network position, value as a source of learning, international presence, continuity” (Nooteboom, 1996, p. 995). Although network organizations may benefit individually, network performance is assessed by the network coordinator at the network level (Provan and Kenis, 2008). However, when the network coordinator is a public organization, the contribution of the various network organizations may be measured in different dimensions (Brignall and Modell, 2000). For instance, funding bodies have a financial and resource allocation dimension, whereas service providers have a quality dimension.

The contribution to network performance will be assessed by the network coordinator as lower or higher according to the relative contribution of each network organization to the performance of the network as a whole. Thus, when the provision of public services is allocated to a private network organization, by means of a concession contract, the network coordinator will probably assess its contribution to network performance as higher than when that provision is performed under a public service licence (Brown and Potoski, 2003). This is because licences are usually issued on a relatively short-term basis, while concessions imply a long-term commitment, and furthermore concessions tend to be exclusive, whereas several licences can be issued simultaneously. Here, it is important to recognise that the concept of “contribution to network performance”, relates to the contribution of organizations individually. When a group of organizations operate under a licence, they could have an important role in the network, and consequently their contribution to network performance, as a group, might be assessed as “high”. However, the contribution of each individual organization in that group might be assessed as “low”, given that any one organization could be replaceable by another organization in the group or by a new organization to which a licence could be granted.

MCMs are the means deployed by a public organization acting as network coordinator to exercise its coordinating function. The exercise of this coordinating function is likely to be shaped by the network coordinator’s assessment of the motivation to cooperate and the contribution to network performance of the various organizations involved in the network (Marques et al., 2009).

In previous research we studied the use of MCMs at a dyadic level: bilateral MCMs (Marques et al., 2009). Bilateral MCMs are instruments or processes which are used by a network coordinator in a dyadic inter-organizational relationship to influence the other network organizations to cooperate in achieving the desired or predetermined network performance (Das and Teng, 1998; Dekker, 2004; Marques et al., 2009).

Bilateral MCMs, as one-to-one instruments or processes, can be tailored, in the sense that they can be used directly to influence a specific organization’s cooperative behaviour. The nature of bilateral MCMs in IORs can be of one of three types: outcome control, behaviour control and social control. Outcome and behaviour MCMs can be also classified as formal MCMs, and social MCMs as informal MCMs. Examples of bilateral MCMs are
goal-setting, incentive systems, performance monitoring, structural specifications and interaction, all established at a dyadic level (Dekker, 2004).

In Marques et al (2009), based on existing literature and assuming the perspective of the network coordinator in dyadic relationships, we have presented a theoretical framework (which we named ‘Coordination Framework’) which is reproduced in Table 1. This framework shows possible relationships between two levels of assessment of motivations to cooperate, organizations’ individual assessment of contribution to network performance and the use of bilateral MCMs by a network coordinator. Summing up, the model expresses the assessment made by the Network coordinator on the relative position of each organization in the network. We identify the assessment of contribution to network performance as “high” or “low”, although it could also be possible to use “higher” and “lower” which recognise that the assessment made by the coordinator is probably made in relative terms. The same can be said of the vertical axis: the assessment of motivation to cooperation as “high” and “low” and it is likely that some kind of relative assessment is also at stake in this axis.

<table>
<thead>
<tr>
<th>Assessment of motivation to cooperate</th>
<th>Bilateral Management Control Mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High</strong></td>
<td>BOXES 1 and 2 “low-low” and “low-high”</td>
</tr>
<tr>
<td></td>
<td>Social and Network Controls</td>
</tr>
<tr>
<td></td>
<td>Assessment of high motivation</td>
</tr>
<tr>
<td></td>
<td><strong>BOX 4 – “high-high”</strong></td>
</tr>
<tr>
<td></td>
<td>Based solely on material self-interest</td>
</tr>
<tr>
<td></td>
<td>Package of MCMs:</td>
</tr>
<tr>
<td></td>
<td>Outcome and Behaviour (High);</td>
</tr>
<tr>
<td></td>
<td>Social (Low);</td>
</tr>
<tr>
<td></td>
<td>Assessment of high motivation</td>
</tr>
<tr>
<td></td>
<td><strong>BOX 3 – “high-low”</strong></td>
</tr>
<tr>
<td></td>
<td>Not based solely on material self-interest</td>
</tr>
<tr>
<td></td>
<td>Package of MCMs:</td>
</tr>
<tr>
<td></td>
<td>Outcome and Behaviour (High);</td>
</tr>
<tr>
<td></td>
<td>Social (High);</td>
</tr>
<tr>
<td><strong>Low</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Low</strong></td>
<td></td>
</tr>
<tr>
<td><strong>High</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: ‘Coordination Framework’
The framework implies a different use of bilateral MCMs according to the level of both assessments: therefore, each box expresses the expected use of bilateral MCMs given the decision by the network coordinator on the box occupied by the other organisation involved in the IOR. The balance will be achieved with the scope - a higher or lower intensity of use - of each type of MCMs.

When the (assessed) contribution to network performance is (relatively) low (boxes 1 and 2), social and network controls are seen as adequate. However, when the (assessed) contribution to network performance is high, the control package is, in a sense, more intensive, in both its nature and use. Where possible, (i.e., when the (assessed) motivation to cooperate is high – as in box 4) formal controls – including outcome controls – will be present in the control package. In those situations where the (assessed) high motivation to cooperate is based on the material self-interest of the network organization, the control package will be composed of almost entirely of formal controls. But when the (assessed) high motivation to cooperate is based on bonds and/or ethics (probably arising from a long standing relationship), the use of formal controls will be supplemented and reinforced by, and also will reinforce, social controls. Finally, when the (assessed) motivation to cooperate is low (box 3), formal controls will be difficult to use, and instead there will be a more intensive and proactive use of social controls.

However, since in mixed-type networks the network coordinator is responsible for the economic development of the whole network, it will not always be in a position to establish dyadic IORs with all organizations that contribute to network performance. Therefore, it can be expected that network coordinators will also take actions to influence the cooperative behaviour of other network organizations that are not at a dyadic level (Nootenboom, 2009). In Marques et al (2009), although acknowledging the use of some kind of ‘network controls’ for IORs with a assessed lower contribution to network performance, we were focused on understanding the use of bilateral MCMs and, consequently, did not further develop the study of network MCMs. Nevertheless, the study of the use of MCMs at a network level – network MCMs – and also its relation with the ones used at a dyadic level – bilateral MCMs – seems to be needed, as recent literature also seems to suggest (Caglio and Ditillo, 2008; Berry et al, 2009).

For the purpose of this paper, network MCMs are structural instruments or processes deployed by a network coordinator in triads, third level and more complex network relationships with the purpose of influencing the network cooperative behaviour as a whole or of specific parts in the whole, so as to achieve a desirable or predetermined contribution to network performance.

The structural characteristic of network MCMs, in comparison with bilateral MCMs, is considered as it is expected that they are more related to network structure, in the sense that they are instruments and processes embedded in the network structure. By using instruments and processes embedded in the network structure the network coordinator influences cooperation in the network (Williams, 2005). Instead of being directed to a specific dyadic IOR, network MCMs are used to influence cooperative behaviour of organizations in the whole network, not only including dyads but also triads, third level and more complex relationships. Triads (in this paper also referred as triadic relationships) are IORs established between the network coordinator and two network organizations, when each organization also has a dyadic relationship with the others (exemplifying: network coordinator has dyadic relationships with organization A and also with organization B; and
organization A has a dyadic relationship with organization B). Third level relationships refer to network organizations that do not have any dyadic relationships with the network coordinator, but have it with other network organizations that in its turn has a dyadic relationship with the network coordinator (exemplifying: network coordinator has dyadic relationship with organization A; organization A has a dyadic relationship with organization B; network coordinator does not have a dyadic relationship with organization B). More complex relationships cover forth and higher level of network coordinators’ relationships.

Examples of network MCMs are restricting access to exchanges, macro culture, collective sanctions and reputation (Jones et al., 1997). But also formal mechanisms like network rules and regulations, network behaviour monitoring, network goal setting and network performance monitoring.

Few studies have addressed the use of MCMs taking the perspective of a “wider network of interconnections” (Berry et al., 2009, p. 9). Mouritsen and Thrane (2006) present a classification of management controls in horizontal networks, distinguishing self-regulation and orchestration mechanisms that establish coherence and complementarity in the network. “Self-regulating mechanisms allow interaction and exchange to occur unobtrusively, while orchestration mechanisms involve structuring these interactions” (Mouritsen and Thrane, 2006, p. 241). Examples given of self-regulating mechanisms are transfer prices and fees to the network centre. Orchestration mechanisms are exemplified as segmentations of network organizations into groups to smooth away internal competition and social events, like fairs and bazaars.

Another study, from Håkanson and Lind (2004), analyses the relation between the use of MCMs and three different coordination forms of inter-organizational cooperation (“hierarchy”, “market” and “business relationship or cooperation”) in an extensive relationship between Ericsson and Telia mobile. It is argued that coordination forms are not alternatives but can be used in combination and further research is proposed to study of “how the forms of coordination can be combined” (Håkanson and Lind, 2004, p. 68).

More recently, also Lind and Thrane (2010) acknowledge the need for further research in control when seeking to “comprehend the systemic characteristics of complex systems/networks”. These are networks characterized by “handling multiple relations between buyers and sellers (…) as it takes third parties, such as the competitors of the focal firm, customers’ other suppliers, suppliers’ other customers, regulators and trade unions into account” (Lind and Thrane, 2010, p. 72).

Although not addressed to networks of a mixed type, the papers reinforce the opportunity to research in networks of a mixed type that is addressed in this paper.

Based on the reviewed literature, table 2 presents a list of examples of network MCMs (Jones et al., 1997; Dekker, 2004; Mouritsen and Thrane, 2006):
Examples of network MCMs

<table>
<thead>
<tr>
<th>Nature of network MCMs</th>
<th>Examples of network MCMs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome</strong>:</td>
<td>prices, network coordinator fees, network quality standards, joint network strategic objectives, network incentives and network sanctions.</td>
</tr>
<tr>
<td><strong>Behaviour</strong>:</td>
<td>network access rules, network procedures, general network rules and regulations, monitoring network competences and network communication rules.</td>
</tr>
<tr>
<td><strong>Social</strong>:</td>
<td>macro culture, collective sanctions, reputation, social network events, joint network associations, joint network decision making and joint network task groups.</td>
</tr>
</tbody>
</table>

Table 2: Examples of network MCMs

As we pointed out earlier, in this context, MCMs are the means deployed by a public organization acting as network coordinator to exercise its coordinating function. This coordinating function is likely to be shaped by the network coordinator’s assessment of the motivation to cooperate and the contribution to network performance of the various organizations involved in the network. The nature and use of bilateral MCMs in mixed-type networks is influenced by these two types of assessment by the network coordinator (see Table 1) (Marques et al., 2009).

However the above discussion suggests that in the exercise of its coordinating function the network coordinator may also need to use instruments or processes directed to a more broad part of the network or even to the whole network. Previous research in mixed type networks has as also highlighted the use of network MCMs although not developing how and why they were used and its connection with the use of bilateral MCMs in the context of the ‘Coordination Framework’. (Marques et al., 2009). Research on network MCMs seems, therefore, to be need.

At this point we need to identify the nature of network MCMs, and to understand how and why they are used by a public organization acting as a network coordinator.

Therefore, the aim of developing our understanding in the use of network MCMs by network coordinators and also the objective of developing the ‘Coordination Framework’ as lead to the specific questions which shaped our case research:

(i) Are the nature and use of network MCMs by a public organization acting as a network coordinator related to its assessment of the motivation to cooperate and the contribution to network performance of the organizations involved in the network? If the answer to the first question is positive,

(ii) How is the nature and use of network MCMs by a public organization acting as a network coordinator shaped by those two types of assessment?
We attempted to find answers to these questions through a case study in the Port of Aveiro in Portugal. As will be discussed in the next section, this is a setting with characteristics that are typical of a mixed-type network.

4. The Case Study

In this section we start by presenting some methodological issues, and then proceed with the discussion of the case study of the port of Aveiro. The key findings of the study are finally outlined.

4.1 Case Study Methodology

The case study research method was selected due to the research focus on “how things work in a particular context” (Manson, 2002, p.1). Also, this research method is consistent with the holistic – network – perspective adopted in the research. Although our study of MCMs in mixed-type networks requires an understanding of the relationships between the network coordinator and each organization, as such involving a study of dyadic relationships, we have to recognise that these dyadic relationships are part of the larger network and consequently a network approach is adopted in this paper. Furthermore, although we examine the IORs from the network coordinator’s viewpoint, our analysis extends beyond dyadic relationships with specific organizations. Our approach combines network analysis and governance perspectives, as proposed by Provan and Kenis (2008). That is, we combine our analysis of the network as a set of actors, with a governance perspective that takes the network as our unit of analysis; in other words, we study the relationships beyond the dyadic level – analytical perspective on triads, third level and more complex relationships– in terms of the network coordinator’s view of the network – governance perspective.

Prior to this study we had conducted an earlier research project in the Port of Aveiro and this had given us access to preliminary information from which we could identify the characteristics of a mixed-type network. Importantly, it also gave us virtually unlimited access for this study of the relationships between the Port Authority – which is a public organization that acts as network coordinator – and the various port organizations – both private and public – operating in Port of Aveiro. Based on this information we studied the use of bilateral MCMs by a network coordinator – the port authority – in mixed type network – the port (Marques et al, 2009). Therefore the use of the same case study allows us to compare findings – mainly compare the use of bilateral with network MCMs – and also develop the ‘Coordination Framework’.

This case study, which covers the period from 1999 to 2009, was based primarily on data collected from the Port Authority. In the case study, the Port is regarded as a network (cf. van der Lugt and de Langen, 2008; de Langen, 2003) and we explore the role of the Port Authority as the network coordinator of the port organizations (see also de Langen, 2003; Olson, 1971). Port organizations are seen lato sensu including, not only organizations that provide port services, but also organizations that contribute to the overall port performance. We start by presenting the port characteristics and its evolution during the period of analysis. Then some aspects of the case study research method are discussed, before we proceed to the data analysis and discussion.
The port sector

Changes in the port industry in recent decades seem to be in line with the trends in public management more generally. Many governments have left the “business” of port operations and are now focusing on more general functions, such as providing a level playing field for commercial activities (Brooks and Cullinane, 2007; Baltazar and Brooks, 2007). In Continental Europe, for instance, we now witness a predominance of the landlord port model (Notteboom and Winkelmans, 2001). Landlord ports have a mixed character and aim to strike a balance between public (port authority) and private (port industry) interests. Port authorities provide the port infrastructure (e.g. maritime access, intra-rail and road connections) and the private sector is responsible for the port services (e.g. transhipment, storage and warehousing) including investments in superstructure (e.g. equipments and pavements). In this landlord model the port authority is responsible for the safe, sustainable and competitive development of the port (see van der Lugt and de Langen, 2008).

Also, most port authorities have recently lost the enforcement role that had previously supported their authority to determine the behaviour of the other port organizations. The legal changes have created a new situation in which port authorities must act in a more persuasive and market-oriented way – based on “consensus-oriented decision making” (Ansell and Gash, 2009) – and use a wide variety of mechanisms to influence the behaviour of the port organizations (van der Horst and de Langen, 2008). Nevertheless, the port authority usually retains the position of the network leader, principally because of its central role in the management of certain key resources (Teisman and Klijn, 2002). Consequently, ports can be viewed as sets of IORs, in which the port authority acts as the network coordinator (Teisman and Klijn, 2002).

Port authorities play an important role in the creation of core competencies and thus in the development of the port network (Notteboom and Winkelmans, 2001; Notteboom, 2007; van der Lugt and de Langen, 2007), including the entire logistic value chain (Robinson, 2002; Notteboom, 2007). As network coordinators, port authorities are in the best position to solve problems arising from collective action (Olson, 1971; de Langen, 2003). In ports collective action can give rise to problems surrounding innovation, training and education, internationalisation, marketing and promotion, and hinterland access – including co-investment, between the port authority and port organizations in the port (de Langen, 2003). All port organizations both contribute to, and benefit from, a competitive port service, which comprises the various services of many different organizations (Nijdam and de Langen, 2003).

The Port Authority in the Port of Aveiro is a public organization that, in 1998, was legally transformed from a public body into a state owned company. This change implied a new strategy for the Port, the implementation of which required new private investment and the award of concessions for the port various services to private organizations. As a result, the Port Authority adopted a new role. Previously, it was a traditional public body and its main legal functions were to regulate the port organizations; specifically it was responsible for such issues as security, access to operations, environment and infrastructural investments. But now the Port Authority has been transformed into an organization responsible for all aspects of the economic development of the Port. Nevertheless, public law still applies to procedures concerning the granting of licences and the signing of contracts, and the Port Authority must reconcile its legal obligations with the
commercial prerequisites that are necessary for its interactions with the port organizations. This has led to a process of change within the Port Authority in an attempt to achieve a balance between complying with public law and responding to the demands of port organizations. Some of the issues which have arisen in this process will be outlined below, after we have described our research methods.

Research methods

The transformation of the Port Authority, which took place in 1998, was a change from a service port to a landlord port model, and this required the Port Authority to become more actively involved in coordinating the port’s activities. Consequently, our research studied the Port Authority over the period since then; specifically, 1999 to 2009. We started with a detailed analysis of various aspects the network governance model, including the Port Authority’s legal competences, the different types of port organizations involved in the Port, and the IORs between the Port Authority and the other port organizations. Two objectives were pursued at this stage. The first was to understand the formal context and the consequent use of licences and contracts in certain IORs. The second was to explore the functions and the network position of each type of organization, and to try to identify the Port Authority’s assessments of the motivation to cooperate and the contribution to network performance of each organization involved in the Port. The ultimate objective was to fill the boxes Table 1 (see above); i.e., turning it into Table 2 (see below) by positioning each of the network organizations within this framework.

To identify the Port Authority’s assessments of the motivation to cooperate and the contribution to network performance of each network organization, we gathered information from documents, interviews and informal discussions with Port Authority members. We also observed meetings, both internal and external (i.e. between the Port Authority and other port organizations). Various types of “hard data” were collected from the Port Authority: contracts, licences, internal memos, reports, communications between organizations and other agreements. These are all public documents that can be consulted on request. Due to its legal status as a state owned company, every decision of the Port Authority must be supported with an internal memo (‘Informação’) or a report prepared by a Port Authority manager and approved by the Board. These documents became a crucial source of data for our study as they contain assessments of the other port organizations and proposals for the structure of the IORs, including the MCMs to be used.

We start by reviewing interviews conducted in previous research (Marques et al, 2009) As the focus of our research was the use of network MCMs by the network coordinator, two open-end interviews and five informal discussions were held between August 2008 and July 2009, with two Port Authority Board Presidents (period of board membership: 1999-2002 and 2005-present) and with one Port Authority manager (period of managerial activity: 1994-present).

Additional interviews were held between January and April 2010. We re-interviewed one Port Authority board member (period of board membership: 1999-2002 and 2005-present), one Port Authority manager (period of management activity, 1994-present) and conducted new open interviews with two Port Authority managers (period of management activity, respectively: 1988-present and 1996-2009).
These interviewees were selected due to their direct involvement in Port Authority decisions and in the relationships with other port organizations. The main purpose of these interviews and discussions was to confirm our analysis and interpretations of the various documents. The interviews also contributed to a deeper understanding of the reasons for diversity in the nature and use of network MCMs in IORs. The informal discussions with the Port Authority manager included a detailed discussion of specific clauses in the contracts and arrangements made with port organizations, as he had designed them.

Supplementary and open conversations were held, between March and May 2010, with three port organizations managers. Port organizations managers work in one Industrial Costumer, one Shipping Agent and one Port Operator. Conversations were made openly and participants freely expressed their opinions on port issues. Two additional sources of information were specifically used on our case study: information gathered from one of the authors’ notes on a previous conversation held in 2006 by him with one National Regulator manager; and notes from assistance to a public seminar intervention made by an Industrial Costumer manager, in May 2010. Both sources of information were used to complement interpretation of data previously gathered in interviews and conversations.

Our field work started with the identification of possible network MCMs – based on the previous definition - used by the Port Authority and followed by an exploration of the reasons that have lead to their use. In this process we focused on the identification of patterns of Port Authority behaviour in the network, along time. Not focused in one particular relationship – although we had to focus in particular relationships to understand the use of network MCMs in triads, third level and more complex relationships – but comparing the use of the same type of network MCMs in different relationships. Reasons of use were explored that allowed to discuss possible theoretical explanations and develop the ‘Coordination Framework’.

A key issue in our research was the absence of an objective way of locating the Port Authority’s assessments in the typology set out in Table 1. In some instances, however, this was relatively straightforward as formal assessments are necessary for the approval of, for example, a contract or a licence. Other examples are where there is a direct connection between a port organization’s business and the achievement of the port objectives (assessment of contribution to network performance); where the cargos that a port organization will bring to the port can be easily estimated (assessment of contribution to network performance); where the environmental norms followed by a port organization conform to the Port Authority’s environmental policy (ethical motivation to cooperate); and where a port organization’s managers are subject to legal regulation (coercive motivation to cooperate). In other instances, however, we had to use proxies for the Port Authority’s assessments, based on the specific circumstances and the available evidence. For instance, a long-standing relationship with no (or few) recorded problems was interpreted as indicating a tight bond between the Port Authority and the port organization concerned. We subsequently used our discussions with the interviewees (mentioned above) to test our positioning of network organizations in the framework set out in Table 1.

The Port Authority’s Strategic Plan (drawn up April 2006) was a particularly important source of evidence to support our interpretation of the Port Authority’s assessments of the various port organizations. This Strategic Plan documented planned actions in a table which, where relevant, set out the contributions of each port organization. It also contained a figure which indicated the importance of each type of port organization for the Port’s
strategic objectives. When questioned about this document in August 2008, the Board President explained that all port organizations had contributed to, and agreed with, the strategic objectives. In addition, the Port Authority produces on a monthly basis a table which analyses, for each port organization, information on the type of service provided, the cargo services in tonnes and the relative position in the total cargo handled by the port. The information contained in the Strategic Plan and these monthly tables allowed us to estimate the Port Authority’s assessment of the contributions to network performance of the various port organization in the light of the Port’s strategic objectives.

One final methodological note is in order. One of the authors was appointed as the Chief Financial Officer of the Port Authority in April 2005. In our view this does not constitute a crucial problem, as much of the analysis was based on documents which were produced before that date and which relate to activities and decisions outside that author’s areas of responsibility. Furthermore, we attempted to support our analysis and interpretations through comparisons of the various documents and by comparing the documents and the interviewees’ explanations. It should also be noted that the author’s position in the Port Authority had some very real advantages: for instance, it allowed him to be present in a number of the meetings between representatives of the various organizations under study, during the period April 2005 to May 2009. At these meetings notes were taken which contributed to our interpretations and supported our conclusions.

Case study addresses lateral, triads, third level and more complex relationships with network organizations (Industrial Costumers, Customs, Shipping Agents, National Regulator, Dockers Pool, and Stevedores Union). Additionally one of network coordinators’ functions is also analysed (access to the network).

Every illustration starts with a description in order to allow the identification of network organizations, their role in the network, network coordinators’ assessments and events taken place. This is done also to clarify the characteristics of a port and of port organizations that may not be of general knowledge. After each description we elaborate on interpretation and case study discussion.

4.2 Network MCMs in Port of Aveiro

Third level relationships with Industrial Costumers and the use of Port Community Association (as a network MCM)

Description

Port Community Association is a port organization, with the legal form of an Association that has the objective of external representation and lobbying. As a port association all the port organizations have the right to become members and its management is of the responsibility of a Board that has executive functions.

The Port Community Association of Aveiro was formed in 1996 and till 2006 was seen by the Port Authority as an organization where some institutional issues were discussed and eventually solved among their members. An example, in the period of 2000 to 2002, was the project of railway access to Port of Aveiro, where differences of opinion existed between two municipalities. The meetings of the Port Community Association of Aveiro acted as places for discussion of the issue, mainly because the two municipality presidents were, at the time, Board members.
In 2006, as a consequence of the new Port of Aveiro Strategic Plan, it was decided that the Port Community Association of Aveiro had to have more lobby and external representation orientated actions, directed to support the port development objectives.

In accordance with the Strategic Plan, the Aveiro Port Authority proposed new rules and also new objectives, which were approved in 2008. Following this change, the Board was restructured and assumed a position of discussing issues like port prices and business opportunities. One of the consequences was the increase in the number of network organizations that become members in 2008, from 12 network organizations (1999-2007) to 34 in 2008 and 35 in 2009.

One of the objectives of this change – in the words of the President of the Board “the main goal” – was to have a deeper involvement of Industrial Costumers. Industrial Costumers or Cargo Owners are some times are designated, are import and export companies. Although the word Industrial refers to raw material importers and product exporters, trading companies are also included in the group of Industrial Costumers. In the operational management of the port, the Port Authority was not satisfied with the level of involvement of Industrial Costumers. Although the Port Authority assessed that industrial costumers have a higher contribution to network performance, as measured in the total of cargo that they owned, their individual motivations to cooperate were assessed as lower (Marques et al., 2009). This is because they are loyal only to the extent that their material interests are protected (i.e., the Port has competitive prices), and the majority use the port through intermediaries, such as logistic organizations. Consequently, their interest is limited to receiving general information and communicating with the Port only when necessary. For instance, in responses to a survey in 2003, which the Port Authority sent to 200 Industrial Customers, 72% indicated that they had no knowledge of the new terminals that were being built (some almost finished) at that time. Industrial Costumers have third level relationships with the Port Authority. They have dyadic relationships with shipping agents and port operators that are their port services providers and it are these port organizations that have dyadic relations with the Port Authority. By creating direct relationships with Industrial Costumers, the Port Authority was trying to improve operations and, in order to sustain development plans, to create new partnerships that could bring investments to the port. Port Authority decided to invite directly the most important Industrial Costumers to become members of the Port Community Association. The President of the Board intended to bring Industrial Costumers to meetings were port strategic objectives could be shared, joint commercial action could be decided and Port Authority investments could be supported throughout external lobby.

This process has result in an increase of number of members of Port Community Association, as already stated. Direct relations by Industrial Costumers with Shipping Agents and Port Operators still apply, but the Port Authority has now the possibility to establish direct relationships.

One of the Port Community Association of Aveiro most active members, L Company (a Industrial Costumer that represents 10% of the total port cargos) in an 2009 meeting with a Port Authority board member, said that “… in the actual context it is very important to schedule Port Community meetings with more frequency, were the members can discuss new business opportunities for the port, plan and act together in a collaborative way to achieve them. Cooperate among each other is very important... Share information in those meetings is very important for my business. Information is one of the most important resources.”

‡ These objectives were stated in the 2006 Port of Aveiro Strategic Plan
One example of the new use was related to price increases. In the period of analysis Port Authority started to use Port Community of Aveiro Association meetings to announce its price increases and to explain the reasons of those increases. Till 2008 announcements were made exclusively through formal communications. Meetings, between 1999 and 2008 were held individually and only with shipping agents and port operators. A Port Authority manager has comment that meetings with all the members of the Port Community of Aveiro Association became important in situations of extraordinary price changes, like the ones in 2009 and 2010: “… by explaining in a meeting the reasons of price increases or changes in the rules is good for not having formal and violent positions expressed by port companies that only contribute to an environment of conflict. Also by having the opportunity to explain the bad news to Cargo Owners we have the opportunity to give them our reasons. In previous years it was Shipping Agents or Port Operators that provided the bad news. Any complain was answered with the traditional: “that is a Port Authority decision and you must complain to her.” By that time the level of potential conflict was in a level that affected any attempt to mitigate problems”. In a 2010 public event one Industrial Costumer gave his reasons for motivations to engage in the described cooperative process: “Ports services represent 40% of our total cost of maritime transportation. To know the real cost of all port operations is fundamental. Only with this knowledge it will be possible to influence the cost and improve maritime transport competitiveness”. Formal communications still apply, but Port Community Association meetings are events where problems can be openly discussed.

Interpretation/Description

Port Community Association is open to all network organizations as membership is voluntary. In this way Port Community actions affect the whole network, or at least all the network organizations members of the Port Community Association. Actions result from members periodic meetings which allow social inter-action among network organizations. Meeting issues are usually proposed by network coordinator. Price policy discussions are one example. Port Community Association can therefore be considered a social network MCM that is used by the network coordinator to influence all network.

The network coordinator was not satisfied with the cooperative behaviour of Industrial Costumers. Although network coordinator assessed they have a high contribution to network performance, the assessed level of motivations to cooperate was lower. New strategic objectives for the network implied a change of action. Not being able to use more intensively bilateral MCMs – that in the case were confined to some social events (Marques et al, 2009) – the network coordinator used an organization in the network – Port Community Association – to influence the cooperative behaviour of a particular group of network organizations – Industrial Costumers. By using a social network MCM the network coordinator intended to influence Industrial Costumers to increase their expected level of cooperation (by a more active participation in network issues, like network commercial and lobby actions).

Also in the theme of network coordinator price policy – price increases -, the change from a bilateral MCM use only – formal communication and individual meetings – to a network MCM complementary use – network general meeting and formal communication –, occur in a period where network coordinator was trying to incentive a more direct involvement of network organizations. Historically they where – in the words of the President of the Board - “to far” – and again an assessed lower level of motivations to cooperate. By involving organizations positioned in a third network level the network coordinator also intended to influence organizations in a dyadic network level - shipping agents and port operators - not to present formal – “and violent” - complains about price increases.
So, by changing the scope of issues and increasing membership participations in a network association, the network coordinator uses network MCMs to influence general - network cooperative behaviour or, in other words, a network cooperative environment. The network MCM stimulated inter-action between network organizations.

Also when not being able to use more intensively bilateral MCMs, the network coordinator uses network MCMs in selective way that is target at a specific group in the network. In this situation, network MCMs complement bilateral MCMs.

In the same case that contribution to network performance was assessed as high and the motivations to cooperate as low, social network MCMs were preferred to social bilateral MCMs. Bilateral MCMs are still used but in a less intense way.

A lateral network relationship: Customs and the use of network IT system (as a network MCM

Description)

IT Gespor is the Network IT System where operations are planned and operational information is exchanged. It is mandatory to some network organizations – shipping agents, port operators and tugs – but not to others – Customs Services.

Port organizations must use IT Gespor to register ships and operations, require services and other actions. All port users have access to the system and must introduce data to proceed with their services. The Port Authority main IT Gespor official objective is to increase port global efficiency and information transparency.

The system involves the use by 9 public organizations and 35 private organizations.

When it started functioning, in 1997, IT Gespor was intended to facilitate ship dispatch, through a better communication of information between port organizations.

In the period from 1999 to 2009 the IT Gespor was object of developments. Especially between 2004 and 2009 a main change occurred.

In 2004, Aveiro Port Authority and other port authorities in Portugal decided to improve the port procedures through the development in port applications, like IT Gespor. The work started with an internal work from port authorities that, together with external consultants, designed the new procedures to be implemented in the IT application systems. One of the major developments was the electronic cargo manifest that included the need for an electronic approval by Customs Service.

Customs are responsible for approving the cargo manifest, a document necessary for the dispatch of cargo from the port. Historically port organizations and port users complained about the excess time of Customs administrative decisions. Port Authority tried to communicate these complains to Customs, but improvements were not identified by port organizations and port users. An explanation to the maintenance of the situation, according to a Port Authority manager, was “...the fact that Customs are a public authority at the same level that Port Authority. They are not obliged to fulfil our instructions and they have their own procedures and their own administrative culture. Even that we have a very good local relationship, it all depends on a central decision.” No further action was taken in the period from 1997 to 2004. The participation of Customs in IT Gespor although contested in terms of efficiency was considered sufficient to guarantee the – at the time – objectives.

In 2005, due to the need of an electronic approval, that if not granted would block port services provision - Customs contribution to network performance increased. The objective of this new procedure was the decrease of the number of documents in the circuit and the average time of cargo manifest approval. Second stage was to agree the introduction of new procedures with the IT users, where Customs were also included. In the first stage, direct conversations between Port Authority and Customs, both at local and central levels, were made in the years of 2008 and 2009, and with the support of a network task group a
final agreement was settled. These conversations resulted in several adjustments to the IT Gespor upgrade in order to guarantee Customs participation. According to a Port Authority Board member: “I think Customs realise that electronic cargo manifest was also an advantage for them. Less paper and a quicker authorization. Their initial resistance was due to their willingness in using their own system to do precisely that. We wanted an integrated system, which could be used by every company and entity in the port. To us a good functioning of the system was synonym of a good functioning of the port”.

The second stage required the participation of all port organizations. Port Authority wanted to change procedures and one of the objectives was to have an electronic chain of services planning and provision. In this way gap in port services provision would be immediately identified, not only by the network coordinator but in many circumstances by other port organizations that have inter-dependence with the one originating the gap. Also processes should be accomplished with more celerity.

The adoption of IT Gespor for these port organizations was an obligation that can be imposed by Port Authority. Although all these port organizations already worked, since 1997, with the previous version of IT Gespor and, according to the Port Authority IT Gespor project coordinator, “in 2004 every entity was satisfied with the use of IT Gespor. Mainly it was a reliable operations planning system”, a process of resistance occurred. The same project coordinator tried to explain: “they did not believe in the level of commitment of Customs. They were not willing to invest in hardware”. Meetings were held with groups of port organizations and after assurance and some adjustments to IT Gespor, the process received port organizations agreement.

In 2010 the IT Gespor upgrade started to work. In October 2010, Port Authority and Customs signed a “Protocolo” that establishes formal rules of behaviour when using IT Gespor. One of the rules, for instance, is the maximum time to Customs dispatch cargo manifests.

Interpretation/Description

The existence of ['latent'] bilateral MCMs that network coordinator, as a public authority, could use to oblige some network organizations to adapt to IT Gespor upgrade did not motivate network coordinators’ main actions. Although we can argue that the obligation was always present in port organizations behaviour, from the perspective of the network coordinator – that is the one under study in this paper – social actions were preferred to influence those organizations cooperative behaviour. Further more, the network task group that has reached a solution with Customs was composed also by collaborators of network organizations.

The most important organizations among the task group were shipping agents, mainly because they have the responsibility to input all information about ships arrivals and requests for services from port operators and tugs. Contribution to network performance of shipping agents is of a lower level, when assessed individually (Marques et al, 2009) – mainly because there are 24 shipping agents in the network and any can take the position of another. However, when assessed collectively, as a network group with a “single voice”, their contribution to network performance is higher. That was the situation in the case study as stated by the Port Authority President of the Board: “AGEPOR [Shipping agents national association that represents 95% of Port of Aveiro shipping agents] is a very important association that has to be involved in IT Gespor project”. Also collectively the motivations of shipping agents to cooperate in building IT Gespor were assessed as lower by Port Authority. One Port Authority manager told us that “shipping agents were not willing to share information that was previously only of their individual knowledge. For instance, they resisted to input data of ships destiny because they were afraid that other shipping agents may stile the costumers [ship owners] for their own”. Nevertheless, Port
Authority still is the public organization in charge of granting shipping agents licences to perform activities in the port. Although licences can be unilaterally changed, to include specific responsibilities and actions to be taken by shipping agents, the Port Authority did not opt to use them in the case of IT Gespor. In fact, shipping agents licences were not changed during the period of analysis (1999-2009).

In a situation of change from an individual assessed lower contribution to network performance to a collective assessed higher contribution to network performance but with a lower level of assessed motivations to cooperate, the decision of the network coordinator was not to use (mandatory) bilateral MCMs but to a preferred use of social network MCMs. This seems to mean that not only the same network organization can be assessed, by the network coordinator, both in its individual and group (collectively) contribution to network performance and motivations to cooperate, but also that both dyadic and network perspective imply a different use of MCMs. When assessed individually the network coordinator rely on the normal functioning of the network (Marques et al., 2009). When assessed collectively the network coordinator is more pro-active, using structured instruments – task group – to influence the cooperative behaviour of that part of the network (shipping agents as a whole).

On the other hand, Customs were not obliged to accept IT Gespor upgrade. Both Customs and network coordinator are public organizations with horizontal relations. Usually this organizational public nature supports an assessed high level of motivations to cooperate. In 2005 the assessed contribution to network performance changed. From an assessed low to a higher level - due to authorization of electronic cargo manifesto. At the same time assessment of the level of motivations to cooperate was assessed as lower, based on the above Port Authority manager statement and further conversation about Customs preferred use of their own procedures and the resistance to change to IT Gespor that it implied. The network coordinator decision was to use meetings and a network task group to influence a higher level of cooperative behaviour.

Is this phase of the relationship with Customs, no bilateral MCMs was effective and network coordinator used social network MCMs. We can argue that the ineffectiveness of bilateral MCMs reinforces the conclusion of a preferred use of social network MCMs.

Another note on the case of Customs is the assessment of motivations to cooperate being formed in a holistic way, by the network coordinator. Not only of Customs but also of shipping agents, both motivations to cooperate and contribution to network performance, and the use of the same network MCM – IT Gespor and network task group – to influence a more broad (a part of the network) cooperative behaviour. The study of the use of network MCMs, by a network coordinator, enlarges their scope of influence of cooperative behaviour from the individual to the network level. Bilateral MCMs are more focused in direct inter-action, “one-to-one”, between network coordinator and the network organization. Network MCMs enlarge the scope by including inter-actions with third parties – with no restricted number - in order to reach cooperative behaviour objectives.

IT Gespor also remains a system where all network organizations plan operations and exchange operational information. In this way it serves to align processes, share information and form joint goals. It does not require a permanent intervention from network coordinator to assure an adequate level of provision of services by all network organization, although network coordinator can use it also as a bilateral MCM to have information about or to act in order to influence the cooperative behaviour of a specific network organization. IT Gespor is also an element of network design, allowing for each network organization to explicitly know its position and function in the network and for network coordinator to monitor each organization contribution to network performance. Due to its design, network organizations inter-dependency motivates them to network self-
enforcement. So, as in the previous case network coordinator uses network MCMs to influence - general - network cooperative behaviour and findings reinforce our proposed definition of network MCMs.

In sum, IT Gespor is an example of a network MCM that apply for all network organizations but that, at a particular period of time, was used specifically to influence the direct participation – by increasing the level of cooperation – of a particular network organization - Customs. In the final, Customs motivations to cooperate were assessed as higher – mainly do to Customs agreement on using IT Gespor - and a bilateral MCM, of a formal type (“Protocolo”), started to be used.

**More complex network relationships: Dockers Pool and Stevedores Union**

**Description**

Dockers Pools are organizations used in ports to manage stevedores’ work force. Port operators are the usual owners of Dockers Pools. At Port of Aveiro, the Dockers Pool (ETP) is a legal association with 4 partners: 3 port operators (private companies) and the Stevedores Union (Dockers union). Dockers Pool concentrates 85% of the total stevedores’ work force. Each day or week port operators request a number of stevedores to perform port operations. There is a price paid by port operators.

Port Authority does not have any authority in Dockers Pool issues. Maximum prices are yearly approved by the National Regulator (IPTM). Work organization is of the responsibility of a general manager, nominated by ETP partners. The National Regulator also has competences to approve the number of stevedores in each Dockers Pool. Quantity of services is of port operators’ decision. In these relationships, Port Authority does not have any direct formal contact.

Nevertheless, as ETP assessed contribution to network performance is high Port Authority is usually concerned with its management, as a Port Authority manager stated: “it is not only the price impact on the port competitiveness. It is also the image of the port to our costumers. Dockers are associated with labour problems and any news about a Dockers Pool labour problem can create a bad opinion about the port and cargos will go to other ports.”

From 1999 to 2006 the relationship between Port Authority and Dockers Pool was made through intermediaries, namely through port operators. Port Authority managers were not certain of the best way to create a direct cooperative relationship with Dockers Pool. The main reason was, according to the board member, “The leader of the local stevedores union had a high influence in the management of Dockers Pool and was historically a reserved person in what concerns open discussion about their issues.” This has formed a network coordinators’ assessment of low motivations to cooperate.

Nevertheless, in 2001 a labour conflict arouse in the port between the Stevedores Union and port operators. Port Authority was call only to be present in meetings that were coordinated by the National Regulator. A final agreement was established between the parties, but the port was threatened of strike during some weeks. This process created awareness in the Port Authority that a more cooperative relationship with Dockers Pool was desirable.

From time to time, notices of disagreement between port operators and the Stevedores Union reached informally the Port Authority. Also some port costumers presented complains about problems with stevedores. Both increased the awareness state and formed a conviction in Port Authority managers that some form of direct relationship should be taken in order to better understand problems and even have the capacity to influence conflict solutions.
In 2006 the process of preparation of the Port Strategic Plan created an opportunity to an open discussion about the future port strategic objectives. The leader of the Stevedores Union§ was invited to have a direct conversation with the Port Authority managers, where opinions were given. In this event, both parties agreed that conversations had advantages and should continue in future opportunities. Like other port organizations members, the leader of the Stevedores Union was invited to the public presentation of the Port Strategic Plan.

This created a direct relationship and an opportunity to Port Authority start to exchange information with Dockers Pool.

But still risk of Dockers prices increases remained and Port Authority decided to take additional measures. For instance, in 2006 by Port Authority request, the National Regulator started to send Dockers Pool price information. This procedure was supported by a request from the National Regulator for an opinion from Port Authority about the proposed prices. According to a National Regulator manager at the time: “we are sending information because we have the opinion that prices are very important for port competitiveness and also because we feel that by involving Aveiro Port Authority in the approval process our own decision will be taken with a more solid support. Let me say that it is also our vision that a problem with prices will benefit from a more local intervention from Aveiro Port Authority”. In 2007 an extraordinary price increase request led Port Authority to establish direct contact with Dockers Pool management. During this process both parties became aware that a coordination in price policy could result in mutual benefits – essentially, as the Port Authority President of the Board stated “because we would have the chance to influence any extraordinary increase, although the chances were minimal, and they would have the guarantee that we would not give any negative opinion to the National Regulator that could result delays or even in the request been reproved”. After that, it is the Dockers Pool management that requested a yearly meeting to present their proposal previously to be sent to National Regulator. In these meetings the main issue discussed is the impact of price increases in the port competitiveness, but other issues were discussed like port investments. Cost evolution, financial statements and year budgets were shared, orally.

Still problems between port organizations have remained.

In 2009 another labour problem occurred. Dockers Pool was not generating sufficient revenues to support labour costs. Dockers Pool management proposed some wage decreases. Dockers Union contested Dockers Pool management and pressed for a different solution. Both National Regulator and Dockers Pool asked the direct help of Port Authority, not as an observer but taking part actively in the process of finding solutions. Meetings and contacts were held. Each meeting had a meeting summary, prepared by the National Regulator and Port Authority that, after signed, would become a list of actions to be taken. At the end a final agreement was not reached, and Stevedores Union got into a strike that closed the port for 3 weeks. Even during the strike, as opposed to 2001 event, direct communication was maintained between Port Authority and the Stevedores Union leader.

Interpretation/Discussion

The case of Dockers Pool/Stevedores Union reinforces preliminary conclusions. This network organization had no direct relationship with the network coordinator – Stevedores Union was in the forth level of relationship. The assessed level of contribution to performance was high, and did not change during the period of analysis. But the network coordinator wanted to influence cooperative behaviour. In the first phase one network

§ Note that Stevedores Union is in a forth level from the Port Authority (Port Authority – Port operators – Dockers Poll – Stevedores Union).
event – Strategic Plan formation – allowed a base for opinion and information direct exchange. In a second phase, a triad between network coordinator, National Regulator and Dockers Pool allowed a further intensity of direct relationship. Finally it was Dockers Pool that had motivations and asked for a direct participation of network coordinator in some issues, like prices and labour problems. We can also argue that this last phase signifies an increase in the assessed level of motivations to cooperate, and that the request – yearly meeting - for network coordinators’ actions as a process in a one-to-one relationship can be interpreted as a bilateral MCM of a social type. Effectively, budgets, financial and cost information started to be exchanged directly.

In the first and second phases, as no bilateral MCMs exist, network MCMs were used by network coordinator to influence the cooperative behaviour of the network organization in a way that seems, again, a preferred use of social network MCMs. In the third phase an increase in the level of motivations to cooperate as lead to the use of a new bilateral MCM, of a social type.

The different use of network MCMs in a specific network coordinators’ function: access to the network

Description

Some network organizations when interested in performing any activity in the port must ask for Port Authority permission. The contracts and licences used are legally mandatory, although the granting processes are of Port Authority competence. The nature and limits of the activity to be performed is one of contract or licence main clauses and each time an organization wants to perform a different activity it must ask for Port Authority formal approval.

Still, network access is not applied to all port organizations that have an assessed higher level of contribution to network performance. Table 3 presents the decision that must be taken by Port Authority in each network organization type, the title granted and the Port Authority assessment of contribution to network performance. Although we do not present the justification for all assessment, the methodology used is coherent with the previous presented cases.

Interpretation/Discussion

<table>
<thead>
<tr>
<th>Organizations</th>
<th>Decision about access to the network</th>
<th>Title granted</th>
<th>Assessed (by Port Authority) level of contribution to network performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Operators</td>
<td>Authorization</td>
<td>Licence</td>
<td>Lower</td>
</tr>
<tr>
<td>Shipping Agents</td>
<td>Authorization</td>
<td>Licence</td>
<td>Lower (individually)</td>
</tr>
<tr>
<td>Tugs Concessionaire</td>
<td>Authorization</td>
<td>Contract</td>
<td>Higher</td>
</tr>
<tr>
<td>Public Service Concessionaires</td>
<td>Authorization</td>
<td>Contract</td>
<td>Higher</td>
</tr>
<tr>
<td>Land Users</td>
<td>Authorization</td>
<td>Contract</td>
<td>Higher</td>
</tr>
<tr>
<td>Dockers Pool</td>
<td>Opinion</td>
<td>None</td>
<td>Higher</td>
</tr>
<tr>
<td>Industrial Costumers</td>
<td>None</td>
<td>None</td>
<td>Higher</td>
</tr>
<tr>
<td>Customs</td>
<td>None</td>
<td>None</td>
<td>Higher</td>
</tr>
</tbody>
</table>

Table 3: Network coordinator competence in network access
Access to the network allows exemplifying the more systemic view of the complementary use of network MCMs. Three network organizations assessed as having high levels of contribution to network performance do not have to ask network coordinator authorization to access to the network. These were precisely the network organizations where we found a more intense use of network MCMs (e.g. Industrial Costumers, Dockers Pool and Customs). Although network access is only a phase among others in the network relationships, it seems to reinforce that in face of an IOR with ineffective bilateral MCMs, network coordinator uses network MCMs. More, if we consider that all three network organizations had a situation of assessed low level of motivations to cooperate, we can also conclude that, for these IORs, network coordinator will use more network MCMs of a social type.

It also to be remarkable that in relationships with both assessed higher motivations to cooperate and contribution to performance (Tugs Concessionaire, Public Service Concessionaires and Land Users) no preferred use of network MCMs was identified, what seems to be supported by a more intense use of bilateral MCMs as stated in Marques et al (2009). The introduction of a more intense use of bilateral MCMs was also noted in situations of change to an assessed higher level of motivations to cooperate. That was the case with the adoption of a formal bilateral MCM with Customs (“Protocolo”) and of regular meetings to exchange financial and price information (social bilateral MCM) with Dockers Poll/ Stevedores Union.

A resume of network MCMs identified in the case study is present in table 4:

<table>
<thead>
<tr>
<th>Network Organization</th>
<th>Level of relationship</th>
<th>Assessment of motivation to cooperate</th>
<th>Assessment of contribution to network performance</th>
<th>Network MCMs identified</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Industrial Costumers</strong></td>
<td>Third level</td>
<td>Low</td>
<td>High</td>
<td>Port Community Association, regular meetings, periodic network events, price policy communication and information exchange.</td>
</tr>
<tr>
<td><strong>Costums</strong></td>
<td>Horizontal (lateral)</td>
<td>From high to lower (first phase) and from low to higher (second phase)</td>
<td>From low to higher</td>
<td>IT Gespor and team group of network organizations.</td>
</tr>
<tr>
<td><strong>Shipping Agents</strong></td>
<td>Dyadic and Triadic (with Costums)</td>
<td>High (individually)</td>
<td>Low (individually)</td>
<td>IT Gespor and team group of network organizations.</td>
</tr>
</tbody>
</table>
Having discussed the case study findings we now turn to a comparison with literature. Both case study findings and theoretical discussion allow us to conclude with a development of a previous theoretical framework (Marques et al., 2009).

5. An interpretation of findings through a theoretical framework development

Previous research as suggested that the use of bilateral MCMs is related to network coordinators’ assessments of another network organization motivations to cooperate and contribution to network performance (Marques et al., 2009). This basis was used and also observed in the study of network MCMs done in this paper. Therefore, it is considered to be a suitable theoretical framework to develop paper conclusions.

Bilateral MCMs can be considered to be more tailored for dyadic relationships. But, as already stated, network relationships could have a more complex level and not only be based on the dyadic level (Nootbeoom, 2009). On the other hand, bilateral MCMs could not be efficient or effective, in face of a particular dyad or in face of a particular event in the lifetime of the dyad (van der Meer-Kooistra and Scapens, 2008; Caglio and Ditillo, 2008; Berry et al., 2009). Therefore, recovering the proposed definition of network MCMs and case study findings, there is an expected use by network coordinators of network MCMs.

In some relationships even bilateral MCMs did not exist due to horizontal ties (e.g. Customs), third (e.g. Industrial Costumers) and forth level relationships (e.g. Dockers Pool/Stevedores Union).

Case study findings seem to support our expectation that network MCMs are used, by the network coordinator, together with bilateral MCMs use, but the extent of its use will depend on the assessed levels of motivations to cooperate and contribution to network performance. Network MCMs are used to influence network cooperative behaviour (an environment of network cooperative behaviour).

For network organizations with an assessed lower level of contribution to network performance (e.g. Shipping agents and port operators under licence in access to the

<table>
<thead>
<tr>
<th>Network Organization</th>
<th>Level of relationship</th>
<th>Assessment of motivation to cooperate</th>
<th>Assessment of contribution to network performance</th>
<th>Network MCMs identified</th>
</tr>
</thead>
</table>
| Dockers Pool/Stevedores Union | Forth level and triad (with National Regulator) | Low (first and second phases) and increasing (in the third phase) | High | Price approval, Port Strategic Plan discussions, regular meetings and periodic network events.

Table 4: Network MCMs identified in the case study
network; shipping agents when assessed individually) no specific network MCMs were identified. This seems to be based in network coordinator assessment that the normal functioning of the network is enough to guarantee the desirable level of cooperation. Mainly, in these groups there is more than one organization (24 shipping and 3 port operators) that compete among them. Network intra-competition seems to be, therefore, one condition that guarantees the adequate level of cooperative behaviour in network organizations with an assessed lower level of contribution to performance. Licence is a precarious permission to operate at a maximum period of 1 year. But these network organizations remain with licences during all the period of analysis. This suggests that the network coordinator rely on the normal functioning of the network and further complexity of permissions is not necessary. On the other hand concession contracts are more complex agreements. What seems, coherently with previous research (Marques et al, 2009), related with an assessed higher level of contribution to network performance. Nevertheless, network MCMs still are used to assure that each network organizations knows its position and acts cooperatively in respect for network institutional procedures and rules. But this use is more of a general or broader scope – to all network organizations - that aims at influencing network cooperation. That is, cooperation that is embedded in the usual functioning of the network. In these situations of lower assessed level of contribution to performance it can be considered a general deployment of ‘Market Governance Type’ network MCMs to influence a minimal level of network cooperative behaviour.

It can also be argued that an assessed lower contribution to network performance implies that organizations can be replaced by the normal functioning of the network. Control can be derived from competition between organizations, in a similar form of market governance (Williamson, 1985, 1996). Self-regulation is a premise and relevant condition, especially in the situation of provision of public infrastructures. Network coordinator will be concerned with a minimal level of cooperative behaviour that addresses network objectives. This minimal environment of network cooperative behaviour among network organizations can be influenced, for instance, by general network rules, network communication rules, network social events, network public procedures and network social norms (e.g IT Gespor) (Crawford and Ostrom, 1995). Network MCMs can also result in a system of informal rules that can influence the cooperative behaviour of organizations (Schmid, 2004). ‘Market governance type’ network MCMs can be, therefore, considered to be more efficient and be used to influence expected cooperative behaviour.

‘Market governance type’ network MCMs can include formal general rules that constitute the structural conditions for network functioning. In this sense, formal network MCMs can be the base upon social bilateral MCMs act (Marques et al, 2009). However rules can be broken and a system of monitoring is thus needed (Olstrom, 2005) or transactions can be insufficiently substantial to deserve complex arrangements and simple rules and arbitration can be more efficient (Nooteboom, 2009). The need for monitoring is general in each relationship establish in the network. But in assessed lower contribution to network performance the network coordinator can rely on being informed by network organization members of any situation of conflict or any change in the level of contribution to network performance. In this sense the network organizations rely on the network coordinator to intervene whenever necessary in order to re-establish the expected network cooperative behaviour that maximizes outcomes – contribution to network performance - for network organizations (Olstrom, 2005). As already mentioned self-regulation and self-enforcement, creates the conditions for network coordinator use of network MCMs to
influence a minimal level of network cooperative behaviour. Further intensity in the use of MCMs is not needed as the assessment of contribution to network performance is lower.

This can be an additional example to add to Mouritsen and Thrane (2006) self-regulating mechanisms and an evidence of the existence of these network MCMs outside horizontal networks.

Consequently in assessment of lower contribution to network performance we expect a network coordinator general deployment of ‘Market governance type’ network MCMs to influence a minimal level of cooperative behaviour.

But self-regulation and self-enforcement can also occur in assessed higher level contribution to performance. However, in those relationships we found a different use of network MCMs. The network coordinator does not rely only on information provided by network organizations in order to take action (responsive position) but, instead, take initiatives in using network MCMs to influence cooperative behaviour.

Effectively case study suggests that network coordinator gives a more attention to network organizations with an assessed higher level of contribution to network performance. That was the situation with Customs and Dockers Pool. In these relationships network coordinator has used selective network MCMs, as instruments or processes that although and always applied to all network are directed to a specific group (Port Community Association in the case of Industrial Costumers) or lateral organization (IT Gespor in the case of Customs) in the network.

As some network organizations have a assessed lower motivation to cooperate but a assessed higher contribution to network performance, the network coordinator could be in a position where bilateral MCMs could not be sufficient to fulfil its objectives. For instance, in the case of Customs, when the network coordinator changed its assessed contribution to network performance from low to higher, and in face of ineffective bilateral MCMs, network MCMs started to be more used. We defined this use of network MCMs as a preferred use, in comparison with the use of bilateral MCMs.

Without prejudice of the use of social bilateral MCMs, whenever as effective (Marques et al., 2009), as the assessed contribution to network performance of organizations is higher, the network coordinator will use other MCMs – network MCMs – to assure its influence of expected cooperative behaviour. Still, assessed level of motivations to cooperate is lower and consequently we expect that the use of network MCMs will be based in processes and instruments of social type. In these relationships, it is the preferred use of social network MCMs that support a further use of bilateral social MCMs (e.g Dockers Pool/Stevedores Union).

Also taking into consideration the assessed low motivations of network organizations, the focus on social network MCMs is expected to be used in a selective way. That is, although the social network MCMs used are applied to the whole network it is selectively deployed by network coordinator to influence the cooperative behaviour of a network organization or groups of organizations (e.g Customs and Dockers Pool/Stevedores Union).

Consequently we expect that in assessment of lower motivations to cooperate and higher level of contribution to network performance, the network coordinator preferred
network MCMs in relation to bilateral ones. Network MCMs are used in a selective way, with more intervention by network coordinator and with preference to the ones of social type that support a complementary use of social bilateral MCMs.

In assessed higher motivations to cooperate, the use of bilateral MCMs, like incentives and performance monitoring, in dyadic relationships seems to be more effective (Marques et al., 2009). Taking into account the possibility of tailored bilateral MCMs, we expect no need for further intensity of network MCMs use, unless it is needed to complement disequilibrium in bilateral MCMs use. Disequilibrium can occur in the evolution of dyads that can introduce the need of changes to MCMs use. For instance in a specific situation of contract incompleteness (Williamson, 1985) bilateral MCMs can be revealed as insufficient and not adaptable. Consequently, if assessed contribution to network performance is high, network coordinator may use network MCMs in a complementary and selective way.

As network organizations have a assessed higher level of motivations to cooperate and contribution to network performance and a high intensity in the use of bilateral MCMs (Marques et al., 2009), we expect that network MCMs will be both of formal and social type (e.g. “Protocolo” in the case of Customs and regular meetings in the case of Dockers Pool/Stevedores Union).

Consequently we expect that in assessment of higher motivations to cooperate and higher level of contribution to network performance, the network coordinator uses more network MCMs in a complementary, selective and ‘as needed’ way to influence a higher level of cooperative behaviour.

Taking together, (in)efficiency and (in)efficacy in the use of bilateral MCMs reinforces the conclusion of the use of network MCMs together with bilateral ones.

Finally, the conclusions evidence that different coordination roles taken by the network coordinator are not alternatives but can be used in combination and contribute to the study of “how the forms of coordination can be combined” (Håkanson and Lind, 2004, p. 68).

The theoretical expectations about network MCMs use by a network coordinator can be illustrated in a developed ‘Coordination framework’ (Marques et al., 2009), as in Table 5:
Assessment of motivation to cooperate

| High          | Social and formal types; |
|              | General deployment: to all network organizations; |
|              | More structural in relation to bilateral MCMs use: a more ‘Market Governance Type’ network MCMs use to influence a minimal level of cooperative behaviour. |
| Low          | Of a more social type; |
|              | A more selective deployment: directed to a group of network organizations; |
|              | Preferred in relation to bilateral MCMs, the latter assuming a complementary use towards the former. |

Assessment of contribution to network performance

Table 5: Developed ‘Coordination framework’

Some opportunities for further research

Boundaries of MCMs consequences of use were not objectively assessed in the case study. As inter-actions between network organizations are dynamic, a MCM use can have more than one consequence in the network. For instance, the use of Port Community of Aveiro Association meetings can have consequences for all participants, independently from their position in the proposed theoretical framework. Although we tried to identify multiple consequences of MCMs use we must recognize that further research is needed to better understand the whole impact of network MCMs use by a network coordinator.

Risks of non-cooperative behaviour, like rent seeking or cost escalation in private-public partnerships, can be explained by the nature of assessed motivations to cooperate and, therefore, are an opportunity to further research in the specific influence of the four natures – material interest, bonds, ethics and coercion or fear – in the use of management control mechanisms by a network coordinator.

6. Conclusions

Public organizations have been the object of changes in consequence of the adoption of the new public management model. New interorganizational relationships with private organizations and a new approach to markets have resulted in the use of various MCMs. At the same time public organizations retain many of their public obligations, like acting with transparency, independency and conceding equal treatment to network organizations. But commercial objectives must now also be achieved and, in the new public management
model, relationships with private organizations must be undertaken that create a more market oriented behaviour. Combining public and private behaviours and responsibilities in a hybrid network environment have consequences for the use of MCMs by public organizations with a network coordination role.

We conducted a case study of the formation and implementation of relationships between a Port Authority – public organization - and port organizations – private and public organizations - operating in Port of Aveiro, in Portugal. This is a type of network setting in which a public organization operates with a coordination role: the Port Authority. Due to new public management model, in the past two decades relevant changes occur in the seaport industry, as port authorities have left the business of providing direct port services and are now focused on more general functions, like providing a network field for private activities.

Changes through time allow the development of a learning process of the public organization. Implications on the network coordination model followed by governments imply that the legal reliance in formal contracts, which are expected to sustain private-public partnerships, is complemented at the network level with the use of informal (social type) network MCMs.

Public-private partnership contracts incompleteness (Williamson, 1985), like concession contracts, implies the need of use of complementary network management control mechanisms by a network coordinator to achieve its objectives. When public-private partnership contracts are not enforceable, the network coordinator tries to use other instruments and processes to influence cooperative behaviour, like network MCMs.

The reliance in formal management control mechanisms, like high intensity contract incentives by a public organization acting as network coordinator, must be considered in function of assessed levels of motivations to cooperate and contribution to network performance. The general reliance in the appliance of the same incentives to all network organizations is not suitable in different assessed levels of motivations to cooperate, especially in relationships with a assessed higher level of contribution to performance. Where literature states that “relationships between organizations in a network are understood to be either informally maintained, through the structure of the network … and norms of reciprocity and trust… or formally maintained, through the existence of contracts, rules and regulations …” (Provan et al, 2007), we argue that is not a either use but used together.

The case study findings allowed us to explore the role of network MCMs within the theoretical framework proposed in Marques et al (2009). We found that: (i) in the mixed type network the network coordinator uses various types of management control mechanisms together, in complementary fashion, in order to create a control package for the whole network; (ii) the use of network management control mechanisms, or combinations of such mechanisms, is related to, and evolves in accordance to, the network coordinator’s assessments of network organizations’ motivations to cooperate and contribution to the network performance. Specifically, (iii) when contribution to network performance is assessed as low, our evidence points to a reliance on the functioning of the network “market”. This leads to the use of a minimal and general structure of formal and social network management control mechanisms, of a ‘Market Governance Type’; (iv) when contribution to network performance is assessed as high and motivation to cooperate
is also assessed as high, we found evidence of a more intense use of bilateral management control mechanisms, albeit this use may be complemented by formal and social network management control mechanisms on a ‘as needed’ basis’, i.e., when the sole use of bilateral management control mechanisms proves insufficient; (v) when contribution to network performance is assessed as high and motivation to cooperate is assessed as low, network management control mechanisms seem to be preferred to bilateral ones, they tend to be of a social rather than formal type, and they are focused on specific parts of the network: this we labelled a ‘preferred and selective deployment of social network management control mechanisms’.

7. References


de Langen, P. (2003), *The Performance of Seaport Clusters; a framework to analyse clusters performance and an application to the seaport clusters in Durban, Rotterdam and the lower Mississippi*, PhD dissertation, Erasmus Research Institute Management, Rotterdam School of Management, Erasmus University Rotterdam.


vан дер Лут, Л. и де Лангэн, П. (2008), Port Authority Strategy: beyond the landlord a conceptual approach, *IAME (International Association of Maritime Economics) Conference 2007*.