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# Disciplining Mechanisms of Interorganizational Costs and Transaction Cost Economics: a theoretical essay

## Abstract

This article aimed to verify whether the disciplining mechanisms present in the conceptual structure of the Interorganizational Cost Management (ICM) are related to the governance mechanisms established through the Transaction Cost Economics (TCE), as tools to safeguard contractual relationships. The research was developed through a theoretical essay, based on bibliographic research. Its main contribution to the literature is the identification of relationships between consolidated TCE mechanisms, which aims to verify the way the transactions occur and the recent ICM mechanisms, aimed at optimizing the return of the value chain beyond the limits of the company through cost management. In conclusion, it was verified that, despite the recent literature on ICM, the disciplining mechanisms used by this Strategic Cost Management artifact are in line with the governance mechanisms used by the TCE, in relation and synergy with the different mechanisms analyzed.

**Key words:** Interorganizational Cost Management; Disciplining Mechanisms; Transaction Cost Economics.

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## 1. Introduction

In the recent literature, some inquiries have emerged about the true limit of the firm, as questioned by Coase in 1937. Coase (1937) argues that the limits of the firm in the true world differ from the limits defined by the literature addressed in the classical economic theory.

Differently from the perspective of the classical economic theory, the firm can be defined as a set of coordinated contracts to execute the production function. The contractual relations between firms can take the form of franchises, strategic alliances and partnerships, expanding the traditional concept of the firm (Zylberzstajn, 2000). In addition, Souza and Rocha (2009) argue that the nexus of contracts that defines the firms regulates and coordinates the interactions between agents and assets, involved in the firm's different transactions and activities.

Hence, it can be verified that the limits of the firm go beyond the legal limits and that there are contractual relations between the companies and external agents or companies. Some authors (Coad & Cullen, 2006; Menard, 2004) have highlighted the increase of contractual relations between firms, being used to manage the same tools, such as strategic alliances, vertical integration, among others. In this context, interorganizational cost management (ICM) is appointed as an alternative for cost management in the contractual relations between companies (Souza & Rocha, 2008).

Therefore, ICM can be define as a structural approach to the coordination of activities in companies' contractual relationships, considering a supply network, leading to a lower total network cost (Souza & Rocha, 2009; Hoffjan & Kruse, 2006).

Some tools are required for the application of ICM, which are considered as organizational control mechanisms. These tools are used to conduct the organizations involved in ICM. Among these, the disciplining mechanisms are highlighted, whose function is to rule the contractual relations of two or more organizations in a value chain (Souza & Rocha, 2009), and thus transmit the cost reduction pressure along the chain by setting cost reduction targets (Bhimani, Souza & Rocha, 2011).

The different contracts the firms compose are incomplete though (Iudícibus & Lopes, 2004), requiring the maintenance costs and the costs of executing the companies' internal and external contracts, which can be defined as transaction costs (Rocha, Carvalheiro, Staduto, & Opazo, 2008).

According to Rocha *et al.* (2008), the analyses of the contracts involved in the companies' different relations have been the main focus of Transaction Cost Economics (TCE), given its functions to manage or govern the firms' different transactions. In addition, in view of this context of incomplete contracts, Sunder (1997) defines that Accounting has some functions for the coordination of the different existing contracts, such as: i) measuring the contributions of each of the stakeholders in the contracts; ii) measure the part of the company income each of the stakeholders is entitled to; iii) inform the participants about the degree of success of compliance with the contracts; and iv) distribute information as common knowledge to reduce the cost of contract negotiations.

In that sense, if the disciplining mechanisms ICM uses are related to the governance mechanisms of the contractual relations TCE uses, these may be used as control mechanisms of the contractual relations, required to apply ICM, as there is a lack of studies and specific conceptual models on mechanisms to be used for this purpose in the ICM structure (Souza, 2008). In addition, empirical evidence previously found in the literature on the governance structure of TCE can offer support or elements to help and solve problems involving the use of disciplining mechanisms of ICM.

In view of this context, this research rests on two premises: i) the need for control mechanisms in the exchange relations between firms, which are inherent in ICM; ii) there is a need for governance structures to control the firms' transactions, in view of incomplete contracts, which are addressed in TCE. Based on these premises, the research problem is the fact that there is no theoretical knowledge on whether the control mechanisms ICM proposed are related with the governance mechanisms of TC, so that this relation, if it exists, can attend to the needs established in the above premises and improve the interorganizational relationships. To investigate this problem, the following research question is raised: **Are the disciplining mechanisms present in Interorganizational Cost Management and the governance mechanisms established in Transaction Cost Economics related?**

Thus, the objective in this relation is to verify whether the disciplining mechanisms present in the conceptual structure of ICM are related with the governance mechanisms established in TCE, as well as the tools to safeguard contractual relations.

Therefore, first, the disciplining elements established in the conceptual structure of ICM are presented, followed by the governance mechanisms established by TCE. According to Xu (2011), ICM received strong influences from TCE and expanded its highlight through Strategic Management Accounting and Value Chain Analysis.

In that sense, this study contributes to the literature, presenting evidence on the existence of possible relationships between mechanisms of a theory that aims to verify how the transactions occur in a given environment; and the artifact structure used for cost management, considering different relations in a value chain. Another contribution of this study is the possibility to use structured TCE mechanisms for ICM, with a view to increasing the probability of success in the implementation of ICM, given the lack of existing tools to manage the relationships involved in a value chain. In addition, considering that ICM is an innovative contribution to encourage corporate competitiveness (Faria, Soares, Rocha & Rossi, 2013), studies that permit the identification of tools that could be used to increase the probability of success in the implementation of the tool could offer valuable contributions to the management literature.

Ultimately, if the relation is proven, besides advancing the theoretical knowledge, with a view to integrating two important elements focused on organizational management (TCE and ICM), companies can use these mechanisms in an integrated manner, aiming to increase the gains in the interorganizational relationships and to reduce the transaction costs linked to these relationships.

This article is structured in five sections, the first of which is this introduction; in the second, the theoretical framework on ICM and TCE is presented; in the third section, the methodological trajectory used in the research is described; in the fourth, the relation between the disciplining mechanisms established in ICM and the governance mechanisms previewed in TCE is discussed, considered as tools to safeguard contractual relationships; and in the final section, the final considerations and suggestions for future research are presented.

## 2. Theoretical framework

This section serves to discuss the theoretical elements that support the analyses developed in section 4. The main aspects of ICM are presented, particularly those related to the disciplining mechanisms of the relations among organizations. Next, besides the main conceptual elements that guide TCE, the governance mechanisms established in this theory are discussed.

### 2.1. Interorganizational Cost Management: general aspects

According to Cooper and Slagmulder (2003), in case any of the parts in the value chain can be managed more efficiently, the chain as a whole can be more profitable and, in addition, all companies in the chain can benefit.

The value chain can be defined as the set of activities the organization develops in the relation with suppliers, production and sales cycle until the final distribution (Porter, 1989). The definition by Porter (1989) considers the final distribution as the final stage of the chain, considering only the internal environment. The final distribution is not necessarily the end of the process though, which should go beyond the internal limits of the company itself (Rocha & Borinelli, 2007).

According to Shank and Govindarajan (1993), the value chain represents an interlinked set of all activities that create value for the productive chain as a whole, including all operations from the purchase of raw material until the delivery of the end product to the consumers. Shank and Govindarajan (1993), however, ignore the existence of possible post-sales activities as a part of the value chain, revealing a certain degree of weakness in the definition.

Rocha and Borinelli (2007) advance by defining the value chain as a logical sequence of activities that starts in the origin of the resources and ends in the disposal of the product by the consumer. For the authors, the analysis of the value chain offers support to the strategic management process of the equity, economic, financial and operational structures of its main activities, processes and entities. This definition does not explicitly contain the idea of relationships and, in addition, there is no clear definition of who performs the activities along the chain.

Hence, through a fundamental analysis of the definitions presented, one may infer that the value chain analysis refers to a logical sequence of interrelated activities in which, in each link, inputs, work and capital are transformed to create value, from the origin of the resources until the final destination provided by the end consumer.

In that sense, the function of ICM is considered as managing costs through a cooperative process along a productive chain or value chain, including objects beyond the limits of the firm itself into its scope of activity (Souza & Rocha, 2009).

ICM can be defined as a structured approach to the coordination of the activities of companies included in a value chain, resulting in a reduction of the costs involved along an entire supply chain (Cooper & Slagmulder, 1999; Hoffjan & Kruse, 2006). According to Souza and Rocha (2008), however, the scope of ICM goes beyond the supply network, as highlighted by Cooper and Slagmulder (1999) and Hoffjan and Kruse (2006). Thus, it can be inferred that ICM comprises a cooperative process that, through cost management, aims for the optimization of the total return of the value chain, besides the company's own return.

To implement the ICM, some mechanisms need to be used that offer support for the exchange of information among the members of the entire value chain, such as open-book accounting (Cooper & Slagmulder, 2003; Kajüter & Kumala, 2005; Souza & Rocha, 2009). Kajüter dan Kumala (2005) describe the concept of open-book accounting as a tool used to share information on the costs involved in the productive processes.

As the transparency of the cost structures can be an important element for the emergence of cost reduction opportunities, through the chain members' joint efforts, open-book accounting gains an important function in terms of support for the application of ICM (Cooper & Slagmulder, 1999; Dekker, 2003; Coad & Cullen, 2006; Agndal & Nilsson, 2010), as it can improve the cost efficiency in the chain and establish trust in the relation of partnership between buyer and supplier (Kajüter & Kumala, 2005).

On the one hand, Windolph and Möller (2012) argue about how open-book accounting has been used as a means to maintain the control of outsourced activity and to increase the efficiency in the supply chain. On the other hand, the authors found that open-book accounting can negatively affect the relationship with the supplier. The results also suggest that some tools can be used to safeguard opportunistic behaviors, reducing the negative effect of open-book accounting.

According to Souza and Rocha (2009), ICM is not a spontaneous process and its application involves some exogenous contingency aspects (environmental variables) exogenous or endogenous to the value chain (specific variables of the chain), or specific organizational aspects (aspects of the entity), which are called conditioning factors. In addition, besides the conditioning factors, the companies need to define what ICM control mechanisms will be used, which can be defined as training, encouraging and disciplining mechanisms (Souza & Rocha, 2009).

The training mechanisms aim to help the companies involved to find ways to harmonize skills together and coordinate the efforts involved in the production process, as a means to jointly achieve the optimization of costs, like activity-based management or interorganizational training, among others (Aguiar, Rezende & Rocha, 2008; Souza & Rocha, 2009).

In addition, the encouraging mechanisms can be defined as tools that "[...] gratify the stakeholders, later used to achieve the targets set, to reward and remunerate for the objective achieved; they can be monetary (bonus for reaching targets) or non-monetary (guarantee of relationships in the short term)" (Souza & Rocha, 2008, p. 98).

Finally, the disciplining mechanisms aim to inform the existing strengths focused on the optimization of costs throughout the entire chain (Aguiar, Rezende & Rocha, 2008; Cooper & Slagmulder, 1999), as described in the next topic.

## 2.2. Disciplining Mechanisms of Interorganizational Cost Mechanisms

To enhance the probability of success in the implementation of ICM, five factors need to be analyzed that are considered important elements of the process: (i) product; (ii) product components; (iii) relationship level; (iv) categories of the value chain; and (v) governance mechanisms. The existing governance mechanisms include the disciplining mechanisms, which not only create greater control when there is the need for governance, but also create rules to control actions and rewards among organizations, based on the obligations hired among the stakeholders (Bhimani *et al.*, 2011).

Although the disciplining mechanisms serve organizational control purposes, it should be highlighted that they are not only restricted to the application of penalties but have a broader scope, aiming to prevent, avoid or contain illegality, abuse, deviations of conduct and transgressions of the rules (Camacho, 2010).

According to Slagmulder (2002), one of the existing disciplining mechanisms is the target costing, as it favors the optimization of product costs and components between suppliers and clients. Besides the target costing, there are other mechanisms, such as network protocols and interorganizational budgets. In line with that vision, Mouritsen, Hansen and Hansen (2001) reinforce that target costing is a management control mechanism that focuses on the management of product development and design.

Souza (2008) observed the existence of two types of disciplining mechanisms in two distinct organizational chains, open-book accounting and service level contracts, both aimed at disciplining the relationship between the agents. In the opposite sense, for Camacho (2010), open-book accounting is classified as a training mechanism of ICM instead of a disciplining mechanism, as mentioned by Souza (2008). As to the goal of the disciplining mechanisms, Souza (2008), in accordance with the perspective of Cooper and Slagmulder (1999), defines that their function is to help companies to achieve the goal of achieving the target set. Thus, they also achieve the target established for the value chain.

Camacho (2010) found that formal agreements of information secrecy or confidentiality can be closed between supplier and clients, with a view to granting or promoting trust, strengthening that, when these disciplining mechanisms are absent, the adoption of ICM becomes hardly probable.

The adoption of disciplining mechanisms, like the formal adoption of contracts, information confidentiality agreements, interorganizational budgets and target costing, drives the ICM, as they reduce the possibilities of: i) being explored by the partner in case of cost structure information disclosure; ii) being abandoned by the partner in case of non-achievement of cost optimization targets iii) having their costs disclosed by the partner to the competitor; iv) non-occurrence of the division of the gains produced by ICM (Dekker, 2003; Kajüter & Kulmala, 2005).

Mouritsen *et al.* (2001) developed an analysis based on two companies that outsourced most of their process but which in the short term, experienced knowledge evasion, loss of transparency and control. To overcome this situation, both companies invested in the management of the organizational process, one of them focused on target costing and the other choosing open-book accounting. Based on the studies cited, it can be affirmed that, to increase the probability of adopting ICM, essential contracts are needed; if not, the cooperation process will not be achieved which, through cost management, aims for the optimization of the total return of the value chain, moving beyond the company limits.

According to Vosselman and Merr-Kooitra (2009), trust is always associated with control and both share an expectation: the establishment and maintenance of positive expectations of behavior. Nevertheless, effective control practices can result from a governance structure that negotiates agreements between the parties. These practices can imply instrumental forms of accountability, which can be performance measuring systems, target costing, cost management systems and financial incentive systems.

In that sense, target costing figures as a disciplining mechanism, as it is, in the first place, a profitability management technique, permitting the identification of how much the cost of a product should be, even before being produced and, in addition, through the micro-view o the target cost, ranging until the component level. In addition, these objectives can be used to put pressure on the suppliers, with a view to reducing the cost of hiring target costs along the value chain (Cooper & Slagmulder, 1997).

However, given the relevance of the disciplining mechanisms for the application of ICM and the existence of a limited number of disciplining mechanisms to be used, as well as results of its effects on the relationships involved in ICM, discussions are needed about other mechanisms that could be used for that function, deriving from other theoretical currents. In that sense, discussions on the governance mechanisms present in the TCE structure can be used to manage the relationships ICM targets.

## 2.3. Transaction cost economics

As part of the scientific area that analyzes the governance structures, TCE aims to analyze the institutions' transactions, considering elements of the environment they occur in. Hence, operations involving negotiations of property rights, goods and services, as well as the associated costs, which are considered as drivers of alternative governance modes, are examples of TCE elements (Zylbersztajn, 1995).

One of the precursors of Transaction Cost Theory was Ronald Coase, who published the work "*The Nature of the Firm*" in 1937. Coase (1937) aimed to verify the limits and the origin of companies' growth, affirming that companies intend to grow by weighing the transaction costs of the production internally, or of the acquisition through the market.

In addition, Coase (1959) called attention to the transaction cost present in the economic literature, defining it as the cost of using price mechanisms. Arrow (1969) expands that definition by considering the transaction cost as the cost of movements in the economic system. Later, Williamson (1985) evolved the existing concepts, defining the transaction costs as the costs related to the planning and monitoring of the governance structures.

In that interval, the Transaction Cost theory gained relevance through the studies by Williamson (1975; 1981; 1985), who highlighted the following existing organizational forms or governance structures: i) market structure, which occurs through price systems, implying greater incentives and lesser control levels; ii) hierarchical structure or firm, centering on the properties of the assets involved in the transactions and the internalizations of the activities; and iii) hybrid structure, also called contracts, which is based on the contractual relations and property arrangements in the production chain.

Hence, the governance mechanisms are formal or informal rules and standards used to obtain the efficacy of the transaction (Williamson, 1996). From the TCE perspective, the parties involved in the contractual relations may not be able to predict the behavior of all parties involved and, in addition, possible changes may occur in the institutional environment. In that sense, the stakeholders of the contractual relationship can use tools, such as governance mechanisms, to reduce the risks related to the stakeholders' opportunistic behavior.

In addition, the governance mechanisms or contractual arrangements are used to reduce the contractual risk involved in the transactions and, consequently, to reduce the transaction cost. In that sense, the risks involved vary according to the attributes and characteristics of the transactions, considering the premises of the agents' opportunism and limited rationality (Muniz, Aquino & Pagliarussi, 2007).

Nevertheless, according to Williamson (1985, 1996), to choose the governance mechanisms to be used, the nature of the relations needs to be considered. Williamson (1985) identified three main attributes inherent in the nature of the transactions, which are: i) frequency of the transaction; ii) uncertainty of the transaction; and iii) specificity of the assets involved in the transaction.

The frequency of the transaction is related to the recurrence of a certain transaction, in which the higher frequency of the transaction results in less mean fixed costs. Hence, the stakeholders could develop a reputation in the recurring transactions, limiting the agents' opportunistic behaviors to obtain short-term gains (Arruda, 2014, Farina, 1999).

The uncertainty is related to the agents' inability to prevent future events, resulting in room for renegotiations. Hence, greater possibilities of renegotiation would create a greater possibility of losses in function of the parties' opportunistic behavior and possible misunderstandings among them (Farina, 1999). In addition, the agents' limited rationality, the incompleteness of the contracts and the agents' opportunistic behavior are related to the level of uncertainty in the transactions (Arrow, 1974).

The specificity of the assets involved in the transactions refers to the possibility of using an alternative of a certain asset to the detriment of the main or original opinion, without losing the productive value of the asset (Britto, 1994). According to Farina (1999), the specificity of the asset is related to the level of dependence of a certain asset on the continuity of a specific transaction, considering that, the higher the level of specificity of the asset, the greater the possibility of losses in function of other agents' opportunistic behaviors, creating higher transaction costs.

In addition, in this context, two behavioral premises need to be taken into account: the limited rationality and opportunism of the agents, as they support the explanation of the transaction costs and the governance structures. The limited rationality refers to the fact that, despite the agents' optimizing behavior, they are unable to fully optimize it in the contractual relations in function of the incompleteness of the contracts. The opportunism is related to the fact that the agents act to promote the achievement of advantages in the transactions (Zylbersztajn, 1995).

The existence of opportunism and limited rationality can increase the level of uncertainty and, consequently, increase the risks and costs of the transactions (Miranda, Mendes, Souza & Zuccolotto, 2010). In addition, the opportunism may result in considerable losses for the agents, justifying the adoption of monitoring and control mechanisms and exemption clauses of the contracts involved in the transactions (Williamson, 1985).

## 3. Methodological aspects

The objective in this study is to verify whether the disciplining mechanisms present in the conceptual structure of ICM are related to the governance mechanisms established in TCE, as instruments used to safeguard the contractual relations.

To achieve the proposed objective, the method defined as a theoretical essay was used, based on a bibliographic research, as a proposal is developed about a given theme based on the analysis of previously developed studies (Santos, 1999). This method offers greater freedom to the author to defend a certain position, as it consists in a logical and reflexive presentation through strict argumentation, interpretation and personal judgment (Severino, 2007). In that perspective, a theoretical essay allows the authors to indicate contributions based on the studies analyzed and their findings.

As to the bibliographic research, this is based on references like books, theses, dissertations, articles, publications in journals, among other sources (Martins, 2000; Vergara, 2003).

Thus, the possible existence of relations between the definitions, characteristics, objectives and functions of the disciplining mechanisms present in the ICM structure is verified, evidenced in the literature on the theme, and the characteristics of the governance mechanisms present in the TCE structure. Therefore, content analysis is applied to the descriptions related to the disciplining mechanisms presents in the ICM, and of the governance mechanisms listed by the TCE, aiming to find similarities between the items, such as: definition, characteristics, objectives and functions of the items analyzed.

Regarding the types of governance for analysis, as well as their characteristics, the types of governance described in the literature and the main characteristics will be used, as surveyed by Peres (2007), according to Figure 1:

| Governance Structure | Characteristics |
|---|---|
| Market | In this type of governance structure, the incentives are strong and adjustments are made through the prices. There is little need for administrative controls and the contracts are complied with without risks of opportunistic behavior. |
| Hybrid | In this structure, the incentives are medium, as there are market flaws that make autonomous adjustments through the prices impossible. Then, individual coordination is needed within incentive and contract systems that inhibit opportunistic behavior and can reduce the transaction costs in an environment marked by information asymmetry. |
| Hierarchical | In the hierarchical structure, the incentives are weak and the market flaws exert a strong impact, to the extent of impairing the compliance of contracts that are always subject to the agents' opportunistic action. In this environment, the bargain can be inefficient and there is a need for coordination and imposition of political authority to seek efficient results. |

**Figure 1.** Governance Structures.

Obs: Peres (2007, p. 20).

As to the elements for analysis, related to the disciplining mechanisms of ICM, those mechanisms highlighted in the literature will be considered, as referenced throughout this study, as well as their main characteristics referred to in Figure 2 below:

| Authors | Mechanisms | Characteristics |
|---|---|---|
| Slagmulder (2002) | Target costing | Favor the optimization of product costs and components between suppliers and clients: put pressure on the suppliers. |
| | Network protocols | |
| | Interorganizational budgets | |
| Souza (2008) | Open-book accounting | Discipline the relationship between the agents; favor information sharing; produce the control of activities. |
| | Service level contracts | |
| Camacho (2010) | Formal agreements of secrecy between supplier and client | Grants or promotes trust. |
| Dekker (2003), Kajüter e Kulmala (2005) | Formal adoption of contracts | Reduce the possibility of (i) being explored by the partner in case of cost structure information disclosure; (ii) being abandoned by the partner in case of non-achievement of the cost optimization targets; (iii) having one's costs disseminated by the partner to the competitor; and (iv) no division of gains produced by ICM. |
| | Information confidentiality agreements | |
| | Interorganizational budgets | |
| | Target costing | |
| Vosselman e Merr-Kooitra (2009) | Performance measuring systems | Result from a governance structure that negotiates an agreement between the parties; constitute instrumental forms of accountability. |
| | Cost management systems | |
| | Financial incentive systems | |
| | Target costing | |

**Figure 2.** Disciplining mechanisms of ICM.

Source: elaborated by the authors.

Thus, the researchers expect to find a relation between the governance mechanisms used in TCE, which aim to verify the way the transactions take place, and the disciplining mechanisms present in ICM, which aim to optimize the total return of the value chain beyond the company through cost management.

## 4. Relationship between disciplining mechanisms of ICM and TCE governance mechanisms

Management mechanisms focused on planning and control mechanisms are used as the base to sustain ICM, that is, they permit the application of ICM, using some control, incentive and orientation tools (Mouritsen *et al.*, 2001; Souza & Rocha, 2009). Among these, the disciplining mechanisms aim to rule the contractual relationship among two or more organizations, setting behavioral targets and putting pressure on the relationships.

The application of ICM rests on the existence of some premises, such as: opening of books; search for improvement in cost management along the chain; and tools that permit building trust among the agents in the relationships and transactions (Aguiar, Rezende & Rocha, 2008).

Given that, to implement ICM, relationships among the stakeholders in the transactions are predicted, which may occur along the chain, mechanisms need to be used that can rule these relationships. In addition, as established in TCE, inherent in the transactions along the chain, the agents' opportunism and limited rationality can increase the risk and the transaction costs, justifying the adoption of mechanisms that may reduce the transaction costs (Miranda *et al.*, 2010; Zylbersztajn, 1995).

On the one hand, in the structure ICM uses, the function of the disciplining mechanisms is to "[...] prevent, avoid or contain the illegality, the deviations of conduct, the transgressions of the rules set and, consequently, avoid penalties" (Souza & Rocha, 2009, p. 97). On the other hand, from the perspective of TCE, the mechanisms used to reduce the transaction costs involved in the contractual relations are the governance mechanisms (Williamson, 1996).

Hence, in this section, the goal is to understand the possible aspects in which the mechanisms linked to these two conceptual elements (ICM and TCE) may be related. Therefore, and as a theoretical essay, the analysis is done by collating the mechanisms of one and the other, aiming to find similarities, complementary aspects and affinities in their objects. In that sense, in the analysis, the following aspects are considered: a) control levels; 2) incentive levels; and c) existence of opportunistic behavior.

To better understand the analysis, the presentation is structured per type of governance mechanism established in TCE.

**a) Market structure**

Concerning the governance mechanism described, as a market-based structure, it is know that its control on the agents' behavior is smaller and strong incentives are used to minimize the transaction costs (Peres, 2007; Williamson, 1985). In addition, there are lesser risks of opportunistic behavior.

In that sense, in the conceptual structure of ICM, the financial incentive, performance measuring and cost management systems are used as parts of a governance structure, which considers the confidence related to the control and aims to negotiate on an agreement among the agents, with a view to tightening the agents' relations, so as to minimize the costs of the relation by obtaining further control (Vosselman & Merr-Kooitra, 2009), as established in TCE.

In addition, these ICM mechanisms are formal accountability tools and can permit the governance structure called market structure.

Thus, it can be inferred that the disciplining mechanisms of ICM can be the tools needed for the functioning of the TCE market structure, with a possible relation between them.

**b) Hybrid structure**

The hybrid structure is related to the agents' search for coordination through incentives and contracts, which contain the agents' limited rationality and opportunism (Williamson, 1985). As evidenced in Figure 1, in this structure, the incentives are medium, given the existence of market flaws that inhibit autonomous adjustments through prices. Therefore, this is an environment with asymmetric information and greater need for coordination among individuals and contracts that inhibit the opportunistic behavior.

According to ICM, mechanisms like open-book accounting and service level contracts aim to coordinate or discipline the agents' relationship (Souza, 2008). One of the functions of open-book accounting is that agents develop mutual trusts, permitting information exchange. In addition, open-book accounting aims to cover opportunistic behavior by the parties, as it can destroy any type of joint action among the agents along the chain (Aguiar, Rezende & Rocha, 2008), that is, it can be used as a means to maintain control over outsourced activities to enhance the efficiency in the supply chain (Windolph & Moeller, 2012).

In addition, tools like formal agreements of secrecy between supplier and client, formal adoption of contracts, confidentiality agreements of information and interorganizational budgets aim to generate trust among the agents and, in addition, reduce the risk of expropriation by the other stakeholder (Camacho, 2010; Dekker, 2003; Kajüter & Kulmala, 2005), promoting the agents' coordination and reducing the possibility of dysfunctional behaviors, as established in TCE (Muniz *et al.*, 2007; Williamson, 1996).

According to Coad and Cullen (2006), in general, trust permits transactions that, to be concluded, demand hierarchical arrangements by a network of partner organizations. The advantages of market operations, such as efficiency incentives, are preserved, while the hierarchy benefits, such as knowledge sharing and lesser need for contractual controls, are also achieved. In their study, the authors concluded that the implementation of ICM is facilitated by the trust among the participants in the chain, clients and suppliers.

It is also highlighted that, as observed in section 2 (theoretical framework), besides producing further control where the need for governance exists (like in the case of TCE), the ICM mechanisms create rules to control the actions and forms of rewards between the participating organizations based on previously hired obligations.

Therefore, based on the above analysis, it can be inferred that the disciplining mechanisms of ICM described earlier, provided that they are appropriately implemented, can be the tools need for the hybrid TCE structure to function, as they tend to coordinate and control the relationships, reduce the information asymmetry and reduce the opportunistic behavior. Hence, in this aspect, a relation between the ICM and TCE mechanisms is also perceptible.

**c) Hierarchical structure**

In the structure known as hierarchy, there are market flaws capable of making compliance with contracts impossible and, differently from the market structure, commitments are institutionalized in the long term (Miller, 1992; Peres, 2007). As could be observed in Figure 1, in that structure, opportunistic behavior tends to be even more present; the bargain between the parties can be less efficient and, therefore, there is a need for coordination and imposition of authority with a view to the success of the relationships along the chain.

In that sense, the target costing, used as one of the disciplining mechanisms in ICM, among other purposes, aims to reduce the costs and establish how the cost reduction targets should be distributed among the companies in the chain, making commitments on the cost reduction over time (Cooper & Slagmulder, 1999). It is also a tool with characteristics of putting pressure on the chain members.

In addition, the interorganizational budget aims to establish commitments for the members of the chain, based on present targets, remitting to the institutionalization of commitments in the long term, described in the TCE structure. The setting of targets for the agents is therefore a way to coordinate objectives between the parties, contributing to the reduction of opportunistic behavior.

Hence, it can be inferred that the target costing and the interorganizational budget are disciplining mechanisms of ICM that are capable of complying with the structure characteristics named TCE hierarchy, once again showing the possibility of a relationship among the parties.

In sum, in general, the points listed in Figure 3 below can also evidence the relation between the disciplining mechanisms of ICM and the ICM governance structures:

| | |
|---|---|
| In Transaction Cost Economics, | The objective is to manage or govern the different transactions among organizations; |
| | The contracts rules the relations between firms are incomplete; |
| | Transaction costs are incurred in to enforce the contracts; |
| | The transaction costs derive from the choices between doing internally or purchasing in the market; |
| | The transaction costs are the costs of planning and monitoring the governance structures/ mechanisms of the relationships among organizations; |
| | The governance mechanisms are rules and formal or informal standards used to obtain the efficacy of the transaction among firms, (i) avoiding undesired (opportunistic) behaviors; (ii) preventing oneself in relation to environmental changes; (iii) reducing the contractual risks and, consequently, (iv) reducing the transaction costs. |
| In Interorganizational Cost Management, | The disciplining mechanisms aim to direct the contractual relationship among two or more organizations; |
| | The goal is to measure each participant's contribution to the contracts, as well as the share of the income each is entitled to; |
| | The goal is to inform the participants about the level of compliance with the contracts; |
| | The goal is to distribute information to reduce the information asymmetry and reduce the cost of negotiating the contracts and, consequently, the transaction costs; |
| | The disciplining mechanisms serve control purposes among the parties; |
| | The disciplining mechanisms are not restricted to the punitive nature, but also aim to prevent, avoid or contain illegalities, abuse and deviations of conduct. |

**Figure 3.** Points of convergence between disciplining mechanisms of ICM and TCE governance mechanisms.

Obs.: elaborated by the authors

Therefore, the transaction costs of the contracts among organizations, closed in the light of TCE, can be reduced through the use of mechanisms that discipline ICM.

Based on these discussions, in Figure 4, the main relations found between the disciplining mechanisms of ICM and the governance mechanisms of TCE are summarized. It should be highlighted, however, that also the analysis aimed to relate "groups of disciplining mechanisms" with each type of governance mechanism, this relation is not exhaustive. That means that, for example, target costing can be related to other forms of structure than the hierarchical. This relationship alternative was achieved in the attempt to verify where the relation tends to be stronger.

| Governance Mechanisms (TCE) | | Disciplining Mechanisms (ICM) | | Relation between TCE x ICM |
|---|---|---|---|---|
| Market | Lesser control on agents' behavior and use of incentives to minimize the transaction costs. | Incentive system | Are part of a governance structure that considers trust related to control. | Negotiations among the agents with a view to tightening the relations and minimizing the costs of the relation through further control, as established in TCE. |
| | | Performance measuring system | | |
| | | Cost management system | | |
| Hybrid | Established the agents' coordination through incentives and contracts that address issues like the agents' limited rationality and opportunism. | Open-book accounting | Coordinate and discipline the relationship among agents to grant or promote trust. | Maintenance of control over outsourced activities to increase the efficiency in the supply chain. Creation of trust among agents and reduction of risk of expropriation by other related party. Promotion of agents' coordination and reduction of possibility of dysfunctional behaviors, as established in TCE. |
| | | Service-level contracts | | |
| | | Formal agreements of secrecy between supplier and client | | |
| | | Formal adoption of contracts | | |
| | | Agreements of information confidentiality | | |
| | | Interorganizational budgets | | |
| Hierarchical | Correct the market flaws capable of making compliance with contracts unfeasible and, differently from the market structure, institutionalizes commitments in the long term. | Target costing | Focused on cost reduction. | Establishment of commitments for the agents in the chain, based on preset targets, remitting to the institutionalization of commitments in the long term, described in the TCE structure. |
| | | Interorganizational budgets | | |

**Figure 4.** Relation between disciplining mechanisms of ICM and governance mechanisms of TCE.

Obs.: elaborated by the authors.

Thus, a relation is perceived between the disciplining mechanisms of ICM and the governance mechanisms addressed in TCE, which shows that ICM, a relatively recent artifact of Strategic Cost Management, receives influence from Transaction Cost theory with regard to mechanisms to safeguard partnership relations in the value chain.

Finally, it should be highlighted that Donada and Nogatchewsky (2006) assesse dhow the buyers control the suppliers in situations of asymmetry in the interorganizational relations from the perspective of TCE. Within the TCE perspective, there is a need for understandable contracts to rule the transactions among the parties, which once again appoints its relation with ICM. In the opposite sense, however, one of the conclusions the authors reached was that dominant suppliers do not accept contracts that intervene directly in the relation and, consequently, there are no mechanisms to control their transactions.

After concluding the analysis and verifying the relation that motivated this research, further studies could advance from the theoretical essay to a field research in order to prove whether, in practice as well, the relation between the disciplining mechanisms of ICM and the governance mechanisms of TCE is confirmed. In this case, the analysis structure used thus far can support the field research.

Hence, if the existence of a relationship is proven in practice as well, an important step will be taken in the interorganizational relationships, through the integration of conceptual elements from different artifacts, as well as through improvements in the control levels of the contractual relationships and the reduction of the transaction costs.

## 5. Final considerations and suggestions for future research

The objective in this study was to verify whether the disciplining mechanisms present in the conceptual structure of ICM are related to the governance mechanisms established in TCE, as well as the tools to safeguard contractual relationships.

According to the conceptual structure in the TCE, there is no ideal governance structure for all transactions. The best governance structure to be used varies in function of the characteristics of the transaction involved, demanding different tools to coordinate these transactions (Peres, 2007). In addition, the contractual relations addressed in governance mechanisms include the possibility of agents' opportunistic behaviors, adding risk and further transaction costs, demanding mechanisms that aim to contain these dysfunctions.

ICM focuses on the coordination of the activities inherent in the existing contractual relations, among the companies in a value chain, aiming to reduce the costs along an entire chain (Hoffjan & Kruse, 2006). Therefore, however, the use of mechanisms is needed that aim to drive the relationships between the agents along the chain, such as the disciplining mechanisms established in ICM.

Thus, TCE uses governance mechanisms to reduce the transaction costs of the contractual relations (Williamson, 1996) and, accordingly, the disciplining mechanisms of ICM aim to rule the contractual relations along the chain, reducing the possibility of dysfunctional behaviors and transaction costs (Souza & Rocha, 2009). Hence, the results showed that the governance mechanisms used in TCE are related to the disciplining mechanisms of ICM, that is, the disciplining mechanisms used in ICM are in line with the governance mechanisms of TCE, in view of their relation in several of the mechanisms analyzed.

Among the implications of the results found, the function of ICM as a coordination mechanism of existing contracts is highlighted. According to Sunder (1997), the function of Accounting, through its different tools, is to offer contract coordination mechanisms. Thus, it is observed that ICM complies with its function as a mechanism for contractual coordination, as an element of Cost Accounting. In addition, as established in TCE, the opportunistic behaviors and the agents' limited rationality are inherent in the relations along the chain, demanding mechanisms to manage these relations and, consequently, reduce the transaction costs (Souza & Rocha, 2009; Zylberstajn, 1995). As the disciplining mechanisms of ICM are related to the elements of the TCE governance structures, they can be used to manage the contractual relations along the chain, reducing the transaction cost, attending to the demand for this kind of mechanisms (Miranda *et al.*, 2010; Souza & Rocha, 2009; Zylberstajn, 1995).

Hence, this study advances on the theoretical knowledge by discussing the existence of relationships between mechanisms of one theory that aims to check how the transactions take place in a given environment and the structure of an artifact used for cost management purposes in different relations along a chain. The identification of this relation evidences the possibility that ICM uses mechanisms already consolidated in TCE to increase the probability of success in its implementation and use.

Therefore, one concrete proposal to pursue with this research is to investigate in the field, that is, in the reality of interorganizational relationships, whether this relation is confirmed. Therefore, the analysis structure used here can be applied as the starting point for an empirical study. It is considered that, if this relation is also verified in practice, and if the reduction of the transaction costs is verified through the use of ICM mechanisms, this study will have reached its intended contributions. Finally, future studies should attempt to expand the conceptual structure underlying the analyses to check possible relations between TCE and other mechanisms used in ICM (encouraging and training mechanisms), or analyze the possible incorporation of other mechanisms established in TCE but which have not been addressed in ICM yet.

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