

Review

The identification of the methods of control in the network outsourcing and the associated contingency factors

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Abstract

This article presents the results of a study analyzing the methods of control between an outsourcer and its subcontractors. Four control methods are identified through a cluster analysis which is based on formal control and social control. The level of risk and the closeness are proved to be relevant in these methods of control.

Keywords: Methods of interorganizational control - level of risk - closeness - formal control - social control.

INTRODUCTION

The worldwide competition creates more pressure on the contractors who now require greater involvement from their subcontractors. Thus, the traditional forms of outsourcing are gradually in favor of a more balanced relationship in terms of partnership outsourcing or subcontracting network. Alternative to vertical integration, these structures are a new way to respond to a changing competitive environment (Christopher and Towill, 2002). The firm can then act as a contractor to coordinate different actors in the value chain and relies on external agreements rather than internal management of all the activities. In the context of network outsourcing, we are dealing with the vertical coordination of organizations that have specific goals, but share a common purpose in the value chain: the satisfaction of customer. However, the evolution of the outsourcing relationship involves many changes in the control of these new forms of interorganizational cooperation.

Ultimately, if an organization (prime contractor), cannot fully control the conditions for success of its action in calling a supplier (subcontractor) to deliver the necessary product or service, it aims to control this supplier. The control requires mutual commitment, not

only to fight against the opportunism of the other, but also to coordinate activities, give them an order, given the diverse interests, and potentially cope with stakeholder cooperation. The control is a contractual arrangement or an incentive mechanism decided *ex ante*. It fits throughout cooperation and aims to better understand each other influence and coordinate its activities by both formal and informal mechanisms.

Many authors have highlighted the low level of contributions related to the theme of the coordination of inter-organizational networks including the control. Indeed, Dekker (2004) notes that despite the increasing attention of inter-organizational networks and governance in the literature, these control structures are not well-studied. This observation justifies our interest in identifying patterns in the context of inter-organizational control, especially in the context of outsourcing relationships.

The purpose of this research is to set up a typology based on mechanisms of control. Therefore we will try to highlight the contingency factors that influence the implementation of a control strategy. What methods of control in networks of subcontracting can be identified and what are the factors that influence these choices? This is our research question.

This article is divided into three parts. The first part is a review of the literature on inter-organizational control and the presentation of our theoretical framework. The second part will be about the empirical study through the

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case of network outsourcing company LEONI Tunisia. Finally, we will introduce the scopes of this research.

Literature review

The design of the phenomenon of outsourcing has been developed in two main theoretical axes working for an explanation of the boundaries of the firm. The theory of transaction costs is primarily concerned with the problems of costs customer-supplier have. The current resource focused mainly on the potential gains to the partners involved in the outsourcing relationship (Donada and Garrette, 1996).

The relationship of subcontracting in the transactional approach

The transactional approach brings together authors analyze the trade as economic transactions. Within this approach, the theory of transaction costs developed by Williamson (1985) occupies a dominant position. According to the theory of transaction costs, any transaction generates a cost directly from the confrontation of economic agents which only adds to the cost of the product exchanged. This cost depends on the characteristics of transactions, the uncertainty that surrounds them, their frequency and specific assets needed to achieve them. It is also influenced by the human factors—the bounded rationality and the opportunism of actors. Therefore, you should choose the governance structure that will allow the most efficient management of these transactions. Williamson (1985) offers three forms of governance which are associated with different types of contract:

- The market adapted non-specific transactions and situations where adaptation problems are negligible
- The hybrid form, suitable for mixed transactions and situations where contingencies cannot be known at the outset, which requires the neoclassical contract where each party accepts the assistance of a third party in conflict resolution and evaluation execution.
- The hierarchy, adapted to recurring transactions and idiosyncratic, requires a custom contract and mechanisms such as hierarchical authority.

The theory of transaction costs has emerged in strategic management in the study of inter-organizational forms, including vertical relationships buyer-seller type such as sub-contracting or special shapes such as franchises and joint ventures. According to Williamson (1985), asset specificity is the essential attribute of the transaction and has an important role in the implementation of a customer-supplier relationship. Thus, being linked to a hybrid (between the market and the organization), outsourcing is the most effective form of organization when the degree of asset

specificity is intermediate. Indeed, the level of transaction costs influence the choice of organization in terms of internalization or outsourcing (Williamson, 1996).

In addition, the application of the theory of transaction costs to specific vertical forms are subcontracting seems appropriate to explain their formation and adequately supervise their management. However, according to the contractual perspective, the minimization of transaction costs is the main decision criteria. The subcontracting relations obey to a commercial logic of short and medium term where coordination takes place through authority. Under these conditions and to cope with problems of opportunism, the DO uses short term contracts and specific tasks. The foundations of contractual theories perfectly fit in the analysis of the relationship of traditional subcontracting. However, in the long term, the tradeoff between how and make-do is rather a strategic decision to ensure the renewal of competitive advantage. The contractual approaches seem, however, unable to explain the new forms of subcontracting relationships (Soussi, 2002).

The relationship of subcontracting in the current resource

The current resource is the second theoretical framework used. It is linked to the theory of transaction costs as the combination of resources is influenced by the minimization of transaction costs: the analysis helps to choose the governance structure (Mahoney and Pandian, 1992). Ring and Van de Ven (1992) emphasize that one should not ignore the role of trust, since it can reduce the risk and explain the structures of governance.

According to this perspective, cooperation primary objective is to borrow resources (especially skills) to external partners through a combination of new and existing capacity (Soussi, 2002). Moreover, to explain the existence of hybrid forms (such as networks of privileged partners) Cohendet and Llerena (1999) introduce a distinction between activities around core competencies and activities outside core competencies.

According to the authors, this is the search for complementary skills to develop their own skills which explains the existence of hybrid forms. In this same line of thinking, Hamel and Prahalad (1990) argue that the complementary strategic resources are the primary factor behind the construction of the outsourcing relationship. Since the obligations and outcomes of this relationship are complex, the parties must devote great effort to defining and evaluating the terms of the trust. In fact, a high level of trust allows the parties to focus on the long-term benefits from the relationship (Ganesan, 1994), which ultimately strengthens the competitiveness of partners and reduces transaction costs (Noordewin, John and Nevin, 1990).

As a conclusion, studying the methods of control in the

network outsourcing can not only be limited in the analysis of contractual mechanisms and in the interests of economic efficiency but also requires a consideration of trust, such as a new vision in different formation of interorganizational relationships like subcontracting, provided by current resources and not explicit in the theory of transaction costs.

Inter organizational control

Ouchi (1977 and 1979) developed a theory of control. Initially focused on the organization, and then applied to interorganizational context, it has three control strategies:

The monitoring the market that regulates the inter-firm on price, that is to say by the competition. Ouchi (1980) has shown that this type of control is ineffective because the transactions are complex. Control dealer must be based on the pair-reward assessment. That is to say, the standardization of results associated with the implementation of incentive mechanisms. Market-type control can be transposed to the relationship with interorganizational despite some limits due either to "the lack of control by the market in its pure form or to the complex and the expensive systems of evaluation to be implemented and is still especially delicate nature of targets to be met in the context of a relationship in egalitarian principle (Littlejohn, 2004).

The bureaucratic control based on rules and routines and manifests itself by a direct and mechanical drive. This type of control seems to partially transpose to the interorganizational relationships with the limitations inherent in the legal independence.

The control of a social and cultural type whose operation is based on a set of values shared by the actors and allows them to coordinate to achieve the objectives.

In fact, the creation of a corporate culture based on the implementation of a selection of individuals with a certain profile or on the development of common values, norms, behavioral or ideological part of the mechanisms control as well as formal procedures.

Control then carries on the results (or performance) behavior (or actions and activities) and cultural identity. Based on the work of Ouchi, Das and Teng (1998) proposed two modes of control interorganizational: The formal control includes control over the behavior and results. It employs codified rules, objectives, procedures and regulations that specify aspects of behavior. The performance evaluation is strict. The positive aspect of this type of control is that it clearly defines the borders. Its disadvantages are that it does not leave much autonomy to the controlled part: rather it is negatively related to trust, in the sense that it can lead to suspicion and create stress (especially if it is a control on the results).

The Social control, to mention the clan of Ouchi, focuses on the organizational values, norms and cultures to encourage a desirable behavior. It is more informal and long-term and positively related to trust. The authors, therefore, consider the notion of trust as moderator control mechanisms: formal control affects negatively on the trust between the actors, by limiting the autonomy of the controlled part, while social control is positively related to trust because it creates long-term relationships and informal. If the trust is not a mode of control, yet it plays a role in the developed mechanisms (Ring and Van de Ven, 1992 and Das and Teng 2001).

Two other factors influencing the level of control are commercial and technical risk (Nogatchewsky, 2006) and closeness (Talbot and Kechidi, 2007). Nogatchewsky (2002) proposes a typology of inter-organizational control to study the vertical relationship between the automotive and the suppliers. Cleverly using metaphors both the cursor and the stent, it integrates relational view to implement transactional approach phases of intra organizational control (finalization, monitoring and post-evaluation) by adding selection as Dumoulin did (1996). It highlights the inter-factors and the uncertainty factors (the degree of business risk and technical). It further emerged interpersonal factors playing on the ratio of power that enables the dominant to obtain information it concludes that the social embeddedness (Granovetter as defined) is then a strategy dominated actors.

This study shows that whoever controls is also subject to formal control, without being aware, perhaps more intense than hers. In 2006, it uses the same property combines military control strategies with sociological approaches to power and dependence. It distinguishes two stages: the preparation of war (knowledge of the field) and the conduct of war (control devices). Depending on the degree of mutual dependence, it notes that strategies of knowledge, encouragement, protection and seduction are deployed in the first stage, bringing a new dimension to the dynamic and contingent control. As for the notion of proximity, it is increasingly called upon to deal with issues related to the forms of coordination within or between firms. Thus, it is at the center of analysis of industrial parks suppliers (Adam-Ledumois and Renault, 2006) and the location of distribution networks (Baum and Haveman, 1997; Liarte, 2004). In these approaches, it is often the geographic dimension of proximity which is the key input. Rarely, it is considered in relation to interactions localized and treated by the institutional and organizational frameworks for action. Talbot and Kechidi (2007) propose to decline the different dimensions of proximity to integrate institutional and organizational dimensions of inter-firm relations. Proximity becomes an analytical perspective that assumes endogenizing institutions, endogenization our view essential to think when coordination relations unfold in worlds of action, localized or not, engaging actors who

share same benchmarks (Talbot and Kechidi, 2007). Geographical proximity is induced by an embedding social and territorial.

Institutional proximity designating the sharing and to comply with the ideas, customs, collective habits, prejudices and common set of roles. It corresponds to a "community of ideas and practices" (Talbot, 2006).

The organizational proximity reveals the sharing rules and the common organizational routines. In three versions: institutional or cultural, organizational and geographical "proximity seems to be the space that articulates the coordination and control in networks of subcontracting" (Talbot and Kechidi, 2007). According Kechidi Talbot (2007), the face to face, favored by geographical proximity is not enough to ensure the compatibility of the behavior of the players. In fact, technological and organizational change affecting the industry require new forms of coordination of the activity or, in any case, accentuate or play down the characteristics of previous methods of coordination. Within the organizational proximity, coordination procedures take two aspects. The first is largely formalized in the subcontracting agreement. The second is much less. It occurs mainly through the implementation of the contractual relationship. In the case of Airbus and its network of subcontractors, coordination is expressed through a system of meetings, the "Program Review Meeting" (PRM) - the principle is stated in the subcontract agreement. Beyond monitoring the progress of the work and the technical coordination of the activity, these meetings are interpreted as a means of resolving situations not specifically covered in the original contract. They are the sign of the impossibility to organize the entire outsourcing relationship through a set of technical and organizational procedures. But rather a response to the incompleteness of any treaty relations. RMC is the case, according to the authors, the formation of significant organizational area on which has an effective capacity of action by the contractor.

The Presentation of hypotheses

All contributions to the literature can conceptualize the problem by setting out four research hypotheses. The first hypothesis is based on the identification of modes of control that the company applies to its focal suppliers. These are not identical, on the one hand, in the products and services they offer, on the other hand, in achieving the objectives set by the firm. The methods of control used in the network of subcontracting are then various. According to multiple suppliers, various researches on inter-organizational control support this assertion. There is therefore a hybrid control of methods made by the company to control its subcontractors. Three generic strategies are used for evaluation: the bureaucracy, the

market (formal control) and the clan (informal control). We therefore propose the following hypothesis:

Hypothesis 1

Controlling the subcontracting network has a hybrid character that requires the consideration of two dimensions of control namely formal and informal control.

These two mechanisms are largely incompatible and cause a dilemma for the contractors. However, there are contingency factors that promote compromise and push partners to accept this or that type of control. According to the theories of control risk, the level of risk and control method is linked. This is the level of risk for the commercial and technical contractor. Technical risks are related to the specificity, the life of the product, the technology, the process or product, at the strategic level of the benefit provided by the subcontractor. Business risks can be identified by the degree of concentration of industry suppliers, price volatility, trade relations from a supplier with a competitor and the existence of countervailing market.

How then do these levels of risk affect the control method and the purpose (results or behavior)? This question leads us then to present the second hypothesis.

Hypothesis 2

The method of control is related to the level of risk. The higher the level of risk is, the more the method of control is informal. The lower the level of risk is, the less the method of control is formal.

The level of risk is related to the first group of contingency factors that affect the method of control. The nature of the relationship developed with supplier (subcontractor), and more precisely the degree of proximity (geographical proximity, proximity institutional and organizational) comprises the second and last group of contingency factors acting on the methods of control of the third hypothesis. If we refer to the method of control suggested by Das and Teng (1998), formal control (including control over the results and behavior) and social control (which is closer to the clan), it seems that the higher the degree of closeness developed between the focal firm and its supplier, the higher the method of control is closer to the method of social control.

Hypothesis 3

The relationship of proximity affects the method of control: the higher the degree of proximity, the greater the

size of the informal control predominates.

Different types of relationship identified between the prime contractor and its subcontractors differ, depending on the level of commercial and technical risk for the contractor, and the existence of relationship of proximity between the prime contractor and its subcontractors. These two axes of classification are studied situations that aim to match the method of control of determined relation types.

Hypothesis 4

There is a typology of methods of control in the network of subcontractors based on two axes of classification namely the level of risk and the relative proximity.

Empirical study: the case of network LEONI-Tunisia

Methodology and field research

The methodology is consistent with the objectives mentioned before; validation of hypotheses is quantitative in nature. It seems preferable to opt for a more particular than a quantitative monograph. It is to select a company managing a network of outsourcing and large enough to achieve the quantitative questionnaire study among different purchasers, each completing several questionnaires based on different dependent suppliers.

The company LEONI is the empirical field research through the study of its network of subcontracting. The questionnaire based on assumptions and accepted by experts LEONI, collects data on methods of control applied over the 75 industrial subcontractors. The selected company is LEONI Tunisia. Three reasons for this choice can be highlighted. Firstly, the LEONI Group is world-renowned with a network of subcontracting and therefore engaged in a process of management of the network. Then, LEONI Tunisia evolves in the automotive industry (automotive electrical wiring), field research in strategic management deemed as sensitive to managerial innovations. Finally, the company takes into account the process of subcontracting in the heart of its strategic concerns.

Analysis of results and validation of assumptions

Presentation of the studied population

The sample is composed mainly of equipment (48%) of major subcontractors (33.3%) and converters (18.7%). 54.7% of the surveyed companies are large companies employing more than 500 employees. Of the four sectors surveyed, 38.7% with the electrical supplier is the mode. Then follow the electronics (32%), then the water with

22,7% and finally the mechanical with 6.7% . The 86,7% of sub-contractors are from Germany The others are Tunisians.

Cluster analysis: method used

In fact, before conducting a cluster analysis on the choice of distance and method, it is essential to treat the following: the correlation between certain quantitative variables. In fact, three of the seven quantitative variables for cluster analysis proved correlated but significant correlations were observed between other variables. However, the use of correlated variables to obtain a typological treatment amounts to assign too much weight on these variables at the expense of others: "if these variables are kept unchanged in the analysis, they will be implicitly weighted, particularly when we calculate the similarities between objects and take too much importance in the analysis "(Chandon and Pinson, 1980). The solution is to realize principal components of factor analysis and use it as an analysis of variables factors, which by definition are orthogonal, thus uncorrelated. Four main components or dimensions' returning 91.75% of the information is then retained. Factor 1 is strongly correlated with the importance of price in the negotiation and LEONI dominance in the relationship and negatively with the delegation of quality control. This factor represents the dimension "formal" control. Factor 2 is positively correlated with two variables that are sustained relationships and formalized relations between the two parties. It represents the "social" dimension of control. Factor 3 is related to the importance of branding for LEONI supplier. It represents the dimension "Médiatique" control. Factor 4 is correlated with the flexibility of the relationship between LEONI and its suppliers. It represents the dimension of "Flexibility" in control. These four dimensions are then used instead of the original variables to conduct cluster treatment. Agglomerative hierarchical cluster analysis, according to Ward's method and using the squared Euclidean distance, was performed by the four factors from the principal component factor analysis. Reliability and external validity of the method used have been tested. Thus, five additional cluster analyses were made. The first three are based on the hierarchical methods and the last two on the non-hierarchical methods (the dynamic clouds). The different classes obtained are then compared with those of Ward's method and studied their dependence on the Chi 2 test. The five classes of methods proved to be dependent on those from Ward's method: the test of robustness of the typology is positive. To ensure the external validity of the typology, dependency tests were carried out between classes from the typology (according to Ward's method) and the variables "passive" theme linked to the control (ie not used in the treatment typological). These variables are all qualitative in nature,

the dependence test used is the Chi 2. These tests therefore confirm the validity of the derived classes, since the four variables are related to the cluster variable: the classes obtained are therefore not random.

Cluster analysis: validation of Hypothesis 1

Four control methods have been identified and made by LEONI Tunisia on its 75 subcontractors: the mixed control, the formal control on the voluntary results (by the supplier), the formal control on the oriented behavior and the formal control on the imposed results (by the prime contractor).

In group one, there was a predominance of manufacturers (about 61.9%), the share of major subcontractors being stressed (about 33.33%). With 66.66% of companies have more than 500 employees. The predominant activity is electronics. Providers are mainly from Germany (only one supplier is located in Tunisia). For 97.6% of the suppliers, the contract is long-term. Supplier is more dominant in the relationship and brand LEONI is very important to him. Companies in this group develop some expertise in their relationships with LEONI (61.9%) and the latter cannot control their production processes (61.9%): The relationship with LEONI is very flexible and there is a delegation of quality control. The variable "use of Net Supply" is not discriminating.

In group 2 OEMs, LEONI's reputation, despite representing 50% of this group are less prevalent than in the previous group because of the strong presence of major subcontractors with 50%. Firm size here is mostly more than 500 employees (57.14%). The activity of this group is electric. Suppliers are all from Germany. 71.4% of providers have a contract term to medium term. A 50% of the suppliers developed many skills while working with LEONI and saw their production processes controlled by the contractor. A 71.42% of these companies do not use the information system Supply Net. Relations are minimal and flexible enough. The degree of formalization of the relationship is moderately high.

Group 3 is composed exclusively of OEMs and major subcontractors. 3 of 6 companies have more than 500 employees. The main activity in this group hydraulics. These six companies are located in Germany. They all have a fixed-term average. They develop some expertise in the context of their relations with LEONI, which does not control the production process. They do not use the system Supply Net.

The group 4 is composed of 92.3% of finishers (presence of one major subcontractor). 84.61% of them have some numbers less than 500. The main activities are the electric (53.84%) and electronics (30.76%). 69.23% of them are from Tunisia. The contract is medium term for 61.53% of the companies and short term for 38.46%. For LEONI the price of the service is a very

important criteria. It controls 100% of the production process. The level of delegation of control quality is quite low. 100% of these companies are developing expertise in working with LEONI. This typology seems, on the one hand consistent with the conceptual model developed and on the other hand because of the strong statistical treatments performed in the optical to test its robustness. The first hypothesis is validated: the control network outsourcing has a hybrid character that requires the consideration of two dimensions of control, namely formal and informal control. There are methods of control, which oscillate between the three generic methods (social control, formal control over the behavior and formal control over the results), and the study highlights specific relational methods (extended, sustained, formal or not), related to the characteristics of suppliers: nature, size and type of activity. Information sharing, mutual commitment in the relationship, the scope of the evaluation (quality control delegation) and the degree of relationship building (flexibility and formalization) are all dimensions involved in the methods of control.

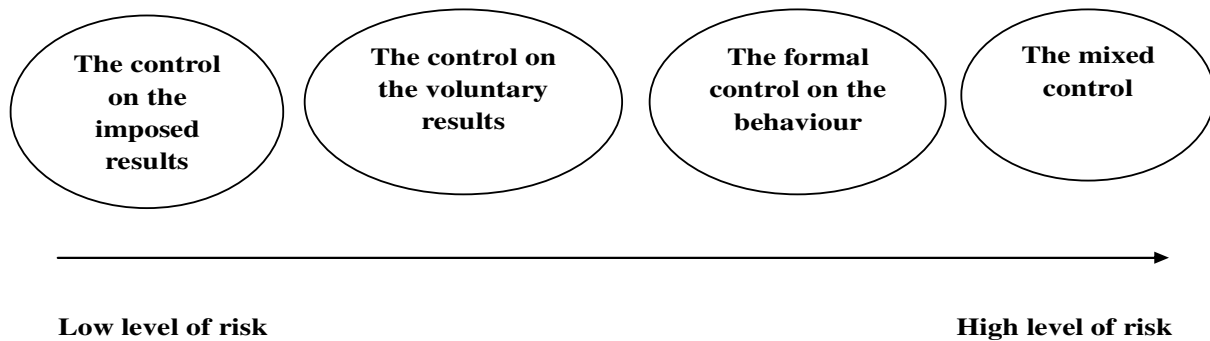
The Level of risk and the methods of control

The various analyses and Chi 2 tests were performed between the variable type and the variables related to the level of commercial and technical risk. These variables, seven in number, cover the substitutability of the skills, the frequency of the information flows, the complexity of the supplier's market, the strategic nature of the service offered by the provider LEONI, the staff qualifications and the reputation of the supplier.

The interchangeability is based on the method of control. Thus, unlike the other groups, group 4 is regarded by LEONI, as strongly interchangeable LEONI (5.69 out of 7). The more the methods of control are oriented, the lower the interchangeability is. The Substitutability of skills evolves according to the methods of control: for LEONI Group 4 presents skills which are easily substitutable, unlike the other groups.

In conclusion, the more the method of control is social, the higher the substitutability of the skills of the provider is impractical. The more the method of control focused on results, the more the skills of the provider are substitutable by LEONI. They are considered moderately substitutable under control behavior. The frequency of the information flow and the methods of control are weakly bounded.

The complexity of the market suppliers and the methods of control is related: for example, in group 4, the method of formal control imposed on the results. As a result, the complexity of the market is lower (average 3.08 / 7). However, in groups 1, 2 and 3, in which the developed methods of control are respectively the joint control and the voluntary control of behavior, operate in

Figure 1. The relationship between the methods of control and the level of risk

markets that are more complex. Concerning the strategic nature of the service offered by the provider LEONI, no dependency is highlighted with the methods of control. Qualification of the staff which illustrates the specificity of human assets is closely linked to the methods of control. Thus, the qualification of the staff is perceived as a specific advantage for the suppliers whose method of control is either mixed or oriented behavior. More specifically, the group 4 controlled results, thanks to the qualifications of its staff, 92.3% is considered as nonspecific by LEONI. On the contrary, the qualification of the staff in companies belonging to the group 1, 2 and 3 is perceived as highly specific by LEONI for 100% of the suppliers in this group. The reputation of the supplier which is the last variable used in the context of the specific brand is not taken into account here because LEONI considers this is not a particular characteristic for 90.7% of its suppliers. As conclusion, we can say that there is a link between the level of risk and the methods of control (Figure 1).

We can notice at the end of the second hypothesis that, on the one hand, the joint control is associated with a complex market supplier and a high asset specificity but, on the other hand, the control imposed on the results is related to a low complexity of the contract and the supplier asset specificity is very limited.

The intermediate forms of control are used to control the behavior and the voluntary results for which the complexity of the market and asset specificity are moderate.

Closeness and control modes: Hypothesis 3

Six variables compose the theme dedicated to closeness. These variables are qualitative in nature and need Chi2 tests to study the link between the methods of control. These variables refer to the geographical and cultural proximity of the supplier, the supplier group membership of LEONI AG, the knowledge by LEONI production costs of its suppliers, the control of time management and the

supplier development actions with the subcontractor. The geographical and cultural proximity of the supplier is not related to the methods of control as the Chi2 test tells us. The belonging of the supplier to LEONI AG supplier group is not linked to the method of control. The knowledge by LEONI production costs of its suppliers is closely linked to the method of control. Thus, the suppliers whose costs of production are controlled by LEONI are all part of Group 4, except of one company which is in group 1. The control over the results obliges the prime contractor to know about the production costs, which is not the case for other controls. The time management for future suppliers is not related to the method of control. The variable on the actions of co-development with LEONI is linked to the methods of control. Only the mixed control mode is widely associated with the actions of co-development.

In group 1, nearly 83.33% of suppliers are involved in such projects. However, in group 2, 16.66% of suppliers are included and 0% in groups 3 and 4.

Hypothesis 3 is partially validated. Indeed, the three variables "group membership LEONI AG", "referencing the group LEONI AG", "resupply time control" and "geographical and cultural proximity" are variables depending on indiscriminate methods of control. However, the other three variables, the influence of the control method is undeniable: the higher the costs of the supplier's production are, the greater the method of control is based on the results. The more the supplier is involved into the actions of co-development or co-design, the more the control is social in nature. We can say that the more the organizational proximity is collaborative, the more the method of control is social. The more the organizational proximity is coercive, the more the method of control is formal.

The Figure 2 below summarizes the contributions of the case analysis 3.

It summarizes the main results obtained after the statistical analysis. The four identified methods of control are placed in relation to the level of risk and the relative proximity (Table 1).

Figure 2. Proximity and organizational methods of control

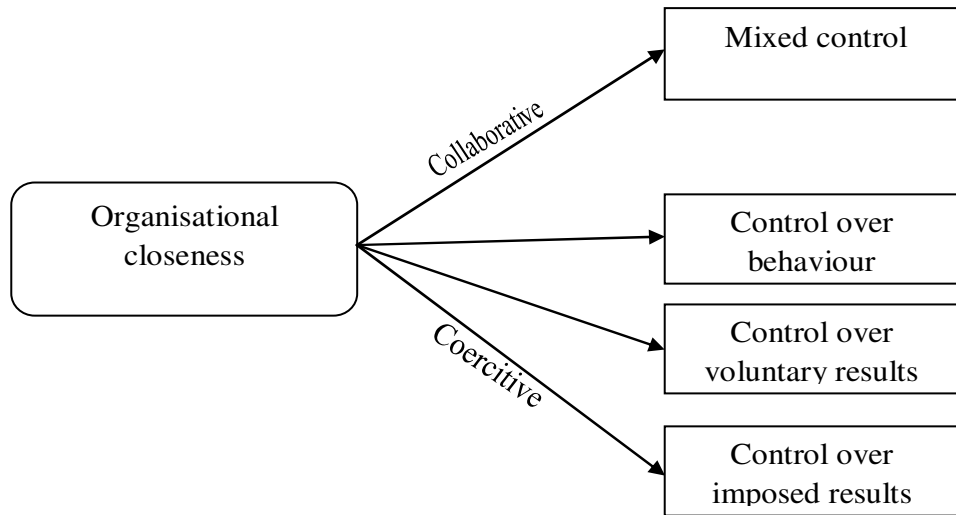


Table 1. Summary of results Joint Control Control Control the behavior results

	Mixed control	Control over the behaviour	Control over the voluntary results	Control over the imposed results
Level of risk	high	high	average	low
Closeness	Cooperative	Coercitive	Coercitive	Coercitive

CONCLUSION

The topic we discussed allowed us to identify and explain a typology of methods of control uses in the management of the supply chain. We defined four methods of control and highlighted that they were related to levels of commercial and technical risks and closely operated between actors. The research contributes to further knowledge in the field of interorganizational control, which is still unexplored. This is due to two main reasons. First, a large number of studies focus on the theme of inter-organizational control. Second, the study of control mechanisms is rare. Our interest is to present a new type of methods of control, which reinforces the existing methods. In fact, the level of commercial and technical risk is linked to the control methods. At the end of the second hypothesis, we notice that the social control is associated with a complex market supplier and high asset specificity, while the control of results is related to low complexity market and the supplier asset specificity is very limited. The intermediate forms of control are control over the behavior and the mutant control, for which the complexity of the market and asset specificity are moderate. The proximity plays a role in the control methods. It is a prerequisite for the

construction of inter organizational relationships involved in the long term and based on the collaboration of various parties around a common project. Our results show that there is a link between proximity and control modes. Single organizational proximity deployed by the hub firm vis-à-vis its suppliers could be used. It can, however, reveal a clear link with the control modes and appears to be much more complex than its initial description. In fact, two dimensions in organizational proximity have been updated: the collaborative dimension associated with social control and coercive dimension related to controls on behaviors and outcomes. Our research can be extended primarily around three axes. The first would be to test our conceptual model and tools developed in another field. This would, on the one hand, strengthen the methodology and in particular the questionnaire and, on the other hand, make our method more robust. The second axis is to further investigate the relationship between dyadic closeness and control methods, giving particular importance to the various dimensions underlying the concept of proximity. The third axis would be to introduce performance indicators to measure the relationship between the company and each of its suppliers and build a causal model.

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