

**PRODUCTIVE ORGANIZATION IN THE AUTOMOTIVE INDUSTRY IN SOUTH
OF BRAZIL: THE RELATIONS BETWEEN SUPPLIERS AND BUYERS'
COMPROMISE OF GOVERNANCE AND THE CREATION OF NEW
COMPETENCIES**

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Abstract:

This paper aims at discussing inter-firm cooperation in supplier-buyer relations. It argues that inter-firm cooperation should contribute to the development of new competencies by learning processes, in this case learning by interacting. We develop this argument by a brief review of the academic literature and, as empirical evidences, we present the cases of four automotive companies located in the state of Rio Grande do Sul – South of Brazil. Our principal conclusion is that every supplier-buyer relationship can develop inter-firm learning processes, but it is important to pay attention at the consequences of these processes, which can reinforce and create new competencies or only reinforce the competencies that already exist. The inter-firm learning process that only reinforces firms' competencies makes the relationship more robust. But, at the same time, it can contribute to a sort of inertial situation where firms make more of the same and run the risk of falling in a competency trap because they do not explore other opportunities. New competencies are created when firms work together, sharing resources in a sort of inter-firm communities of practices that permits the development of uniform language, practices and knowledge.

Keywords: inter-firm cooperation, learning process, competencies, communities of practices, automotive industry

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1. Introduction

This paper aims at discussing inter-firm cooperation. We focus on and their peculiar characteristics such as mutual dependence, relational or informal contracts, technological information exchange and, finally, trust. We argue that all of these characteristics are necessary but they are not sufficient to define this special and selective kind of relationship. Furthermore, we also argue that inter-firm cooperation should contribute to the development of new competencies.

We understand competencies as the firm's ability to use its pool of resources to create and manage technological change and organizational systems. In this sense, the competencies are essential for the entire innovation process. In inter-firm relation, the generation of new competencies occurs by learning processes, in this case learning by interacting, according to Lundvall (1990). New competencies permit firms to explore new markets and to face changes in the economic and technological environment (Figueiredo, 2003, Urso, 2002).

Inter-firm coordination influences these learning processes as well as their results. We assume that coordination evidences the compromise of governance - in the sense of Gerpisa's analytical framework - established between suppliers and buyers in supply chains. This compromise may be understood in three dimensions: the strategic dimension that shows why firms cooperate; the contractual dimension that establishes the rules and norms regulating the relationship and, finally, the learning dimension that is related to the creation of competencies.

We develop our argument by a brief review of the academic literature and following we present and discuss the cases of two supplier and two buyer companies located in the state of Rio Grande do Sul – South of Brazil. The paper has seven sections, including this introduction. In the second section, we relate new competencies, coordination and compromise of governance. In section three, the learning processes consequences are discussed and a learning paradox is presented. To complement the previous section, section four exposes a typology for strategic supplier relation, elaborated by Kaufman *et alii* (2000). This typology combines technological and cooperation dimensions. In fifth section, the

consequences of learning processes developed in the relationship between buyers and specialist collaboration are discussed, as well as the consequences in the relationship between buyers and problem-solving suppliers. Specialist collaboration and problem-solving are two types of suppliers defined in the typology presented in section four. In the light of this discussion, some critical remarks are made with respect to the degree of cooperation in the relationship between buyers and specialist collaboration suppliers. Section six reinforces the critical remarks and the argumentation of this paper by the presentation of the cases of four Brazilian companies. Finally, in section seven, we summarize the main considerations and some concluding suggestions are made.

2. Competencies, coordination and compromise of governance

The competencies of a firm will be a source of competitive advantage if they fulfill some important conditions: they should be difficult to replicate, to buy or sell in the market and they should permit firms' access to others markets (Henderson e Cockburn 2002). When these competencies are created in an inter-firm relation, it is necessary to think about two aspects: 1) the advantages that such competencies bring to the relation and; 2) the competitive advantages of the relation.

In the first case, we can say that relation-specific competencies contribute to increase partners' mutual dependence, thus they reduce the probability of opportunism and information asymmetries and also contribute to long-term relations (Williamson, 1987 e 1999, Aoki, 1988, Lundvall, 1990, Kauffman *et alii* 2000, Mikkola, 2000).

In the second case, we can analyze buyers' and suppliers' competitive advantages when participating in this kind of relationship. The former can reduce production and coordination costs by outsourcing some activities; while the latter can execute them in a more economic and technologically efficient way. Hence, as long as buyers profit from the competitive advantage of specialization, suppliers assure their place because it will be difficult to buyers change their supply source, thanks to the relation idiosyncrasies (Richardson, 1996, Williamson, 1987 and 1999, Aoki, 1988, Sako, 1992, Baudry, 1995 Dyer, 1996, Mikkola, 2000 kaufmann *et alii* 2000, Volpato and Stocchetti, 2002).

The inter-firm learning process that makes the creation of specific competencies possible should develop an intensive interaction between partners. Through this interaction, suppliers can learn about customer's processes and understand their product needs. The customers, on the other hand, need to know well the suppliers' product, its characteristics, its

potential for future developments and the supplier's capacity to meet their expectations. This degree of interaction constitutes a strong user-producer relation, according to Lundvall (1990).

However, this inter-firm learning process should happen in an organized way. It demands inter-organizational structures and an interaction environment created by partners' resources. Both of them help elaborate a system for information exchange, which accounts for the development of a common work language to be used by the inter-firm teamwork. We agree that these teams make the relation more concrete and that they are a fundamental condition for the institutionalization of learning practices into routines (Voisin *et alii*, 2000). These organizational structures and the interaction environment form a type of inter-firm *communities of practices*, according to Duguid and Brown (2000).

These authors stress the importance of communities of practices in a learning process within firms. For them, the heterogeneity with respect to information acquisition and assimilation within firms requires well-organized and systematic learning activities. Applying this idea to inter-firm learning processes, we may say that the need for systematic learning processes is even greater, because now this heterogeneity tends to be higher when several firms are involved.

To corroborate this idea, we should consider the firm's relationship as a dynamic process. For that reason, contributions of each partner are not symmetric all the time and change in a qualitative way while the relationship develops. Hence, such structures are necessary to control and to assess the sharing of ideas, knowledge and practices (Lamming, 1993).

These organization structures define the relationship in terms of coordination. They reflect coordination characteristics, its objectives and its potential gains. They also reveal the compromise of governance, in the sense that this notion is utilized in Boyer and Freyssenet's (2002)¹ analytical framework. In other words, inter-firm coordination strongly impacts the learning process.

Considering this, we agree that it is essential to understand the inter-firms learning processes' results. For us, they can bring about two different situations: 1) they can only reinforce firms' competencies; 2) they can reinforce firms' competencies and also develop new ones. It is the latter case that we consider cooperation. In the next section we will discuss the first situation.

¹ The notion of compromise of governance, developed by Gerpisa's analytical framework, will be used in this paper with respect to the coordination and organization of supply relationship.

3. The consequences of learning processes in buyer-supplier relationship

Both the reinforcement and the creation of new competencies deliver positive results in terms of the firm's competitive advantage. However, learning processes, which only reinforce competencies, can contribute to a dangerous situation of firm inertia. This constitutes a sort of learning process paradox (Levinthal, 1996).

On the one hand, reinforcing competencies facilitates firm specialization and increases competitiveness by dominating the technological knowledge in its activities. This is also attractive from a market perspective, because reinforcing competencies represents a way to gain customers' competency trust (Sako, 1992, Dyer, 1996, Levinthal, 1996). On the other hand, if the firm only reinforces its competencies, it can fall in a competency trap, because it does not explore other opportunities.

In fact, it seems safer for a firm to operate in the domain of its competencies. However, in the case of a technological or an economic change, the firm can become a hostage of its competencies. It can be difficult to make an adaptation to the new conditions or it can be a long time-consuming process. As a consequence, the former competitive advantage of specialization may disappear (Pisano and Teece, 1989, Levinthal, 1996).

We can extend the same reasoning to the learning process that take place in an inter-firm relation. We agree that in this case, the reinforcement of the competencies makes the relationship more robust, as long as the relation becomes more intensive. But at the same time, and in the case of changes in the technological and economic environment, both buyers and suppliers run the risk of not being prepared to act as fast as possible or, what is even more dangerous, they may not understand the changes' consequences.

For the reasons presented above, we consider that it is fundamental that an inter-firm relation provides opportunities to develop learning processes that also permit to create new competencies. For us, this seems more important if the buyer can easily change the source of supply. In the next section, we will utilize a strategic supplier typology elaborated by Kaufman *et alii* (2000) to discuss this learning paradox. We also present the case of four companies, located in Rio Grande do Sul (South of Brazil). Using these cases and the learning process paradox, we intend to show some problems with the authors' typology regarding the three dimensions of inter-firm cooperation mentioned in the introduction of this paper.

4. The degree of cooperation and supplier's characteristics

Kauffman *et alii* (2000) elaborated a strategic supplier typology that aims at providing categories which buyers (OEMs) can use to determine what type of supplier to engage. This typology is constructed by combining two dimensions: the technological and the collaboration dimensions. These dimensions are divided into high and low categories. Four types of suppliers were defined:

- 1) Commodity Suppliers: These suppliers compete on the basis of low cost. They design and manufacture parts that are sold 'out of catalog'. There are not mutual dependencies between suppliers and buyers and the switching costs are low. There is little or no differentiation and the relation happens on the basis of spot market supply. The degree of cooperation in this case is low and the same happens with the level of technology.
- 2) Collaboration Specialists: these suppliers manufacture products that are under the total and detailed control of the customer. They are selected during a bidding process. After this selection process, the buyer tries to learn about suppliers' manufacturing, purchasing and distribution practices (Mikkola, 2000). The supplier receives the design and develops the manufacturing process, making sure to fulfill the buyers' specifications and needs. They invest few resources to innovate in product and process technology. According to Kaufman *et alii* (2000), these suppliers *develop enhanced collaborative techniques to fulfill current and to anticipate future customers needs*. For them, buyers outsource activities that do not use core manufacturing know-how.
- 3) Problem-solving suppliers: these suppliers usually invest high resources in product and process technology innovation. They participate in the design process and product development of the buyers. Generally, they are large enterprises that export and are connected to global networks. As they participate in product design, they establish with buyers a very tight relation. According to Kaufman *et alii* (2000), they also build up very collaborative relations, but they present higher level of technology than the collaboration specialist. In addition, buyers share core development and manufacturing know-how with problem-solving suppliers.
- 4) Technology Specialists: like problem-solving suppliers, these ones also invest high resources in product and technology innovation. The main difference here is that they are exclusive owners of component technology. Generally, they are known by the high

quality of their products and by the reputation of their brands. With these suppliers, buyers do not engage in cooperative relations, rather they benefit from them by acquiring exceptional or even unique parts without making costly investments.

Regarding the typology above, we can see that the second and third types of suppliers, collaboration specialist and problem-solving supplier respectively, are the only ones to present higher degree of collaborative relations with buyers. For this reason, we will choose both of them to discuss the consequences of the inter-firm learning processes in the next sections.

While developing our discussion, we will present the four Brazilian companies' cases. Two of them fulfill all of the characteristics of collaboration specialist. They are automotive parts' suppliers. The other two cases are multinational companies, which are automotive assemblers' direct suppliers. Here, we explore the characteristics of their strategic suppliers. We conclude that all characteristics mentioned agree with those presented at the third type supplier typology (problem-solving suppliers).

5. The reinforcement of competencies in the inter-firm relation: can we call this cooperation?

We can say that each supplier-buyer relation has a strategic objective, which we consider a strategic dimension of the relationship. In the case of buyers that engage collaboration specialist suppliers, the objective is to reduce their internal coordinating and monitoring costs in those activities that are not core for their business. This does not mean that these activities do not need to be controlled in terms of quality requirements and technical specifications. For this reason, it is important that buyers develop long-term relationships with suppliers that can provide this. However, these suppliers should be price competitive. As they utilize standardized technologies, which offer low appropriability conditions, they get some competitive advantage by the cumulativeness of technological knowledge (Dyer, 1996, Mikkola, 2000 Volpato and Stochetti, 2002).

As long as buyers know supplier's manufacturing process and organization systems, and, as long as the supplier has success in fulfilling buyers' needs, the buyer develops a sort of competency trust with respect to the supplier's capacity. If, at first, a formal contract² is

² According to Frankel *et alii* (1996), formal contracts or agreements are written documents which clearly specify the required degree of cooperation, conformance and inter-organizational integration.

utilized to regulate these relations, it can give place to informal agreements as long as this relationship attains some degree of stability. This turns the negotiation process easier and faster meaning that a contractual trust begins to arise (Sako, 1992)³.

Regarding this picture, now we should emphasize the learning process that takes place in a relation between buyer and collaboration specialist supplier. We already see that these suppliers make few investments in product and process technology. In the first case, as they do not participate in product design they do not have the incentives to make product innovation. In the second case, the narrowed margin of their profits does not permit high commitments in this direction. All they can do is making some efforts to know the progress in this area and, as long as possible, to improve their existing technologies and capabilities.

As we can see, in the relation between buyers and collaboration specialist suppliers there are long-term relations, competency trust, contractual trust, mutual dependence, but there is no symmetric dependence. There is also a learning process, but buyer and supplier seem to create a sort of vicious circle, where it is not possible to explore other opportunities. They seem to enter a routine where they are making more of the same.

We believe that this constitutes a dangerous situation, especially for the supplier. Although it is difficult for a buyer to find another supplier that fulfills all their product and process requirements in the short-term, it is not impossible that this takes place. Generally, buyers do not like to be dependent on their suppliers and try to develop more than one supply source, whether or not they utilize them (Bois, 1998, Williamson, 1999). Can we call this cooperation? We think that the answer is negative.

In others words, we do not agree with Kaufman *et alii* (2000) typology with respect to the high degree of cooperation between buyers and collaboration specialist suppliers. For the reasons presented above, we insist that for inter-firm relations to be defined as cooperation they should permit the development of learning processes that create new competencies for partners. For this, we agree that only in the relations between buyers and problem-solver suppliers it is possible to develop inter-firm cooperation.

Although the two kinds of strategic relations present mutual dependence, long-term relations, informal or relational contracts and trust, only one permits that partners develop together new competencies; it is when the relationship occurs between buyer and problem-

³ According to Sako (1992), there are three types of trust: 1) Competence trust concerns the expectation of the trading partner performing its role competently; 2) Contractual trust is predicated on both trading partners upholding a universalistic ethical standard, namely that of keeping promises; 3) Goodwill trust concerns the expectation that trading partners are committed to take initiatives to exploit new opportunities over and above what was explicitly promised.

solving suppliers. This brings a great difference to the relation, although all of the other characteristics seem to be the same at a first glance.

In order to show the differences between the two types of relationship (buyer-collaboration specialist supplier or buyer-problem solving supplier), we can affirm that there is a status similarity between buyers and problem-solving suppliers, which promotes a high degree of mutual dependence, but now a symmetric one. In inter-firm cooperation, similar status between buyers and strategic suppliers, in terms of technological, financial, operational and organizational systems is as important as their complementary capabilities. Firms are not used to engage with very different partners in their strategic business, where the level of commitments needs to be strong. Also, similar partners guarantee that all kind of risk will be shared as well as the profits that a good result can promote (Chung *et alii*, 2000, Williamson, 1999).

Because of this similar status, the problem-solving supplier has a very strong involvement in buyers' strategic activities. He knows the product design, and better, he participated in it. Thus, all conditions exist for the development of inter-firm communities of practices, as we mentioned in section two. The teams that count both on buyers' and suppliers' resources are now a reality because buyers and suppliers cannot make differently. To better illustrate our argument, in the next section we present the cases of four Brazilian companies, two auto-suppliers and two buyers.

6. Relations to types of supplier and learning process : the case of four Brazilian automotive companies

The Brazilian automotive companies located in Rio Grande do Sul are national ones. They are medium, small and micro enterprises. However, there are some multinational companies that are assemblers' direct suppliers. The state has a traditional automotive industry, especially with respect to auto-parts suppliers, and counts with tractors, light trucks, autobus, and engine assemblers. Figure 1 shows general information about the four companies presented in this paper.

Figure 1 : Companies' general information⁴

Companies	No. of employees	Original Country	Customers	Products
S1	98	Brazil/Rio Grande do Sul	General Motors' First Tiers Others cars and trucks assemblers' direct suppliers Eletroeletronic industry.	Rubber bushings, Rubber suspension mountings, "O" rings,
S2	35	Brazil/Rio Grande do Sul	Tractors assemblers	Hydraulic pipes and hoses for tractors
B1	290	USA	Trucks assemblers	Half shafts, steering columns, axles
B2	555	USA	Tractors assemblers	Engines

Source: qualitative research interviews

6.1. Supplier S1

The S1 supplier manufactures according to customers' design. It supplies assemblers' direct suppliers, as the General Motors' first tiers. In order to meet customers' quality requirements, this supplier has two quality certifications: ISO 9002 and QS 9000. In addition, S1 exports part of its production to an American customer. It buys its primary raw material - synthetic rubber - from a large firm that controls market prices. Moreover, there are other raw materials that are brought from firms indicated by customers. S1 uses standardized technologies and its main competitive advantage is its products' prices. It also benefits from the proximity to its main customers as General Motor's first tiers.

With its customers, S1 makes formal relational contracts, containing product technical specifications and other information like the agreements with respect to raises in products' prices and how many, where and when products should be supplied. According to S1, there are some difficulties to negotiate prices because customers have total control over S1's production costs and use it to threaten S1 with a second supply source.

Some technical information exchange occurs between S1's and customers' engineers for initial adaptations at production process. But they are not so intensive to form teamwork or an inter-firm community of practice. The relations are based on long-term contracts, which consider product life or the quantity demanded by the customer.

⁴ These information was collected in the period of August-november/2003

6.2. Supplier S2

The case of S2 presents few differences when compared to S1. To begin with, S2 supplies tractor's assemblers. However, it supplies 90% of its production to its main customer. Like S1, S2 also uses standardized technologies to make products that should meet the specifications of customers' design. There is a tight control over component quality and production cost, what increases customer's bargaining power.

With its main customer, S2 has a long-term relationship (more than 5 years). They are not used to establishing formal contracts. By the customer's design, S2 has all technical information needed to manufacture the product. Other kinds of information are exchange by phone calls, e-mail etc. In case of problem with the product supplied by S2, it is responsible for all corrections; this is an implicit agreement between S2 and its customers.

6.3. Buyer B1

B1 is a MNC's subsidiary. It was implanted in Rio Grande do Sul in 1984 by a joint venture with a local company. There are other unities in Brazil, in the state of São Paulo. B1 exports to Europe, USA and Argentina. In Brazil, it adapts MNCs' products to Brazilian market's conditions.

B1 divides its supplies into categories. So, type A suppliers contribute with 80% of B1' products' costs, type B suppliers contribute with 15% and type C suppliers represent 5% of products' costs. We will present the characteristics of type A suppliers, the most important because they are strategic suppliers.

These suppliers constitute a small group, formed by about 10 large national companies or other MNC's subsidiaries. All of them are located outside Rio Grande do Sul, and some are in other country. With them, B1 establishes relations based on formal relational contracts.

Being large companies, they can invest in innovative process technologies. They also participate in product adaptation, what permits tight relationship with B1. These suppliers use to make suggestions that can improve product performance. Hence, B1 benefits from their expertise and incentives an intense flow of information by sharing human and physical resources. B1's and type A suppliers' engineers use to work together when a new adaptation is being developed. For B1, the technological and financial capacities of these suppliers are important factors that make cooperation easier.

6.4. Buyer B2

Like B1, B2 is also an American MNC's subsidiary. It constitutes a small business unity, which develops and manufactures V diesel engines to Brazilian's markets. It also exports these engines to USA and Argentine markets.

B2 divides its strategic suppliers into two categories: 1) those that have technological capacity in product development and that can contribute with B2 in this area; 2) those that have financial conditions to invest in process technologies and production capacities. These two categories also constitute a small group of suppliers that are responsible for 70% of the production costs. With these suppliers, B2 affirms that it is possible to think about cooperation, long-term relations, interdependence, etc

In the case of these suppliers, the price is not a very important competitive factor, according to B2. The relationship is regulated by formal relational contracts, where both B2 and these suppliers negotiate some conditions that will structure the relation, such as rights, norms, prices, and also the penalties.

7. Discussion and conclusion

Regarding the characteristics of the supplier-buyer relations developed by S1, S2, B1 and B2, we can affirm that all of them present long-term relations, relational and even informal contracts (S2), mutual dependence and trust. However, as we argued in the introduction of this paper, they have an essential difference: the relationships show different learning processes results.

The cases of S1 and S2 give insights indicating that the typology elaborated by Kaufman *et alii* (2000) should be reviewed. We can see in these cases the strong dependence of suppliers with respect to their customers, but the same is not real for the latter ones. Although there are switching costs in changing supply sources, if the suppliers utilize standardized technologies and do not influence or participate in the customers' design, they always will be in unstable situation. It shall be considered that customers use to have more than one collaboration specialist supplier. This is a way to control suppliers' prices and production costs. Also, we shall consider the nature of inter-firm learning processes that this kind of relation promotes. We cannot say that it does not bring consequences for suppliers or buyers, but we question their results because these processes only contribute to reinforce firms existing competencies. As we mentioned at section three, both suppliers and buyers can fall in a competency trap.

B1 and B2 show the other way of the situation. By them, we can confirm the characteristics of problem-solving suppliers presented at the typology elaborated by Kaufman *et alii* (2000) and also the advantages for the buyers to engage these suppliers in cooperation. The cases of B1 and B2 also show the importance of status similarity in terms of technological, financial and organizational systems, between partners. The need of formal structures to organize inter-firm learning processes is presented in B1 and also B2, because both companies affirm that strategic suppliers participate in product adaptation (B1) or development (B2). We can say that B1 and B2 present conditions to form the inter-firm communities of practices. In addition, the fact that B1 adapts a product to the needs of the Brazilian market makes it clear that a learning process that creates new competences occurs. This fact is even clearer in the case of B2, where we have an autonomous business unity that develops new products.

By the discussion that we developed in this paper and by the examples that the four cases bring, we hope to contribute with some light that helps clarify and, at the same time, make more evident the complex nature of inter-firms cooperation. Finally, we can summarize our main conclusions:

- ✓ Every supplier-buyer relationship can develop inter-firm learning processes. What is important is to pay attention at the consequences of these processes, which can reinforce and create new competencies or only reinforce the competencies that already exist.
- ✓ The inter-firm learning process that only reinforces firms' competencies makes the relationship more robust, in the sense that the inter-firm relation becomes more intensive. But, at the same time, it can contribute to a sort of inertial situation where firms make more of the same and run the risk of falling in a competency trap because they do not explore other opportunities.
- ✓ New competencies are created when firms work together, sharing resources in a sort of *inter-firm communities of practices* that permits the development of uniform language, practices and knowledge. In this case, we can say that there is inter-firm cooperation.
- ✓ These inter-firm communities of practices are formal and organizational structures where we can apprehend the relation's strategic objectives (strategic dimension), its coordination (contractual dimension) and its potential results with respect to learning process (learning dimension). They also reflect the compromise of governance established between supplier and buyer.

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- ✓ In inter-firm cooperation, similar status between buyers and strategic suppliers, in terms of technological, financial, operational, and organizational systems is as important as their complementary capabilities. Firms are not used to engage with very different partners in their strategic business. In this perspective, we can say that cooperation is a selective kind of relationship.

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