LOGISTICS OUTSOURCING DECISION MAKING PROCESS: A CASE STUDY IN AN ENGINE MANUFACTURER

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Logistics outsourcing is a business practice adopted by a growing number of organizations worldwide. Nonetheless, a wrong decision can become a source of corporate problems that may lead to increased logistics costs, affecting the company’s competitiveness and image. There is a high incidence of unsuccessful cases in outsourcing agreements, mostly due to deficiencies in the decision making process. This fact highlights the complex nature of the logistics outsourcing decision and the difficulty faced by executives in identifying factors that should be analyzed in this decision process. This research aims to identify the key decision factors behind logistics outsourcing from the standpoint of hiring companies from the Brazilian automotive industry. The research method applied was a case study in a leading engine manufacturer that act in the Brazilian automotive market and has contracts with third-party logistics (3PLs). Content analysis technique was employed to evaluate the interviews held with executives from the assessed unit. The results indicates that the logistics outsourcing decision occurs from the analysis of five factors - Strategy, Costs, Environmental characteristics, Characteristics of the Logistics Process to be outsourced and Characteristics of Logistics Providers. The research contributes to management practice by providing a set of variables to be analyzed during the logistics outsourcing decision from the standpoint of the hiring company.

1. Introduction

Logistics outsourcing has become a necessity for most organizations due to the fierce competition among companies, and can be an important enabler for global supply chain success (SCHOENHERR, 2010). Leading organizations, such as Cisco Systems, Ford and Fiat, outsourced much of their logistics processes in an effort to make their supply chains more agile, cost efficient and competitive, as well as to focus on their core business (GUNASEKARAN; IRANI, 2010).

Logistics industry increased globally, from 1995 to 2007, at a rate of 10% annually (BOT; NEUMANN, 2007). In 2008, despite the economic crisis, it increased 6.5% (DiBENEDETTO, 2009). In Brazil, this market also experienced significant growth, with revenue up 20% in 2008 (CEL/COPPEAD, 2008). In 2009, approximately US$ 100 billion, 11% of Brazilian Gross Domestic Product, was spent on logistics and 63% of this value represented the amount spent on logistics outsourcing, a similar level to the European (65%) and Asian (62%) outsourcing indexes (BARROS, 2009).

On the other hand, some companies choose not to outsource their logistics due to: disbelief in costs reduction; belief that the service will be better performed internally; loss of know-how; and loss of control over the logistics activities (KREMIC et al., 2006). Another element which influences this decision is the unsuccessful logistics outsourcing experience of some companies. 20 to 25% of logistics agreements failed within two years and 50% failed to succeed in five years (CRAIG; WILLMOTT, 2005). Such failures have been attributed mainly to deficiencies in this complex decision process (KHAN; SCHRODER, 2009).

Although the number of publications on logistics outsourcing has expanded over the past 15 years, much is still to be learned by academic researches and decision makers (SCHOENHERR, 2010). Most of the existing studies are concerned with the selection of 3PLs, with little attention to the logistics outsourcing decision from the perspective of contracting companies (HARLAND et al., 2005). In this context, the main purpose of this investigation is to
propose a set of key decision factors for logistics outsourcing. Logistics managers and decision makers can refer to this set of factors for structuring the decision making process in their organizations and, therefore, reduce the risk of making wrong decisions.

2. Logistics outsourcing decision

The logistics outsourcing decision can be considered a variation of the classical make or buy decision (HARLAND et al., 2005). According to Schoenherr (2010), the most prominent theories in reference to the outsourcing decision are the Transaction Cost Economics (TCE) and the Resource-based View (RBV).

TCE has been the predominant theoretical approach for the outsourcing decision (BALAKRISHNAN et al., 2008). TCE deals with the limits of firms (BARNEY; HANSEN, 1994) and defines transaction costs as the reason why firms choose to adopt market solutions instead of developing them internally. According to this theoretical perspective, firms seek the sourcing arrangement that minimizes transaction costs. The decision about governance aims to reduce to a minimum the cost of transaction problems created by limited rationality and opportunism (WILLIAMSON, 1995). However, Madhok (2002) argues that the exclusive use of economical criteria limits the quality of the decision assessment, so TCE should be used in association with Resource Based View (RBV).

RBV assesses organizational resources based on their value, rarity, inimitability and non-substitutability. Gainey and Klass (2003) advocate the use of concepts from RBV in the outsourcing decision, since valuable, rare, inimitable and non-substitutable resources can result in competitive advantage and hence should not be outsourced. For Rodriguez and Robaina (2006), the concept of core competence can also be used to understand why companies choose to outsource, since organizations should only invest in activities which constitute their core competencies and outsource the remaining ones.

Nevertheless, Priem and Butler (2001) criticize the RBV perspective, arguing that the mere possession of rare, unique and valuable resources does not guarantee competitive advantage. Sirmon et al. (2007) emphasize the importance of integrating RBV with theories of
the competitive environment, such as the Institutional Theory and the Theory of Contingency. Therefore, the essential theoretical bases of the present study are the RBV and TCE approaches, but concepts from Contingency and Institutional Theories are also used to propose a set of decision factors for logistics outsourcing.

3. Decision Factors in logistics outsourcing

Figure 1 illustrates the preliminary research model compiled from the literature review, which represents the decision elements grouped into factors in logistics outsourcing. This section also provides five research hypotheses.

- **Strategy**

  **Proposition 1:** The logistics outsourcing decision-making process relies on the analysis of the factor strategy.

  The decision-making process is based on the assessment of decision factors that are strategic in nature, such as: core competence; resources availability for logistics; and strategic risks involved in the logistics outsourcing process. Core competence is a theoretical concept of
RBV that has been used in combination with TCE to address the outsourcing decision, since products or services that represent a core competence should not be outsourced (SCHOENHERR, 2010). Additionally, according to the RBV, companies seek, through outsourcing, external resources and capabilities to improve their performance. As 3PLs can be significantly more advanced in logistics operations, outsourcing to them allows organizations to exploit their more advanced technologies and resources (HARLAND et al., 2005). However, logistics outsourcing can also represent a series of strategic risks for the hiring party, such as: risk of increased logistics costs; loss of control of outsourced activities; dependence on providers; loss of organizational image or loss of clients due to provider’s poor performance (KREMIC et al., 2006).

- **Costs**

  **Proposition 2: The logistics outsourcing decision-making process relies on factor cost analyses.**

  Price and cost advantages are often mentioned as the primary reason to outsource in the literature (HARLAND et al. 2005). 3PL providers are expected to offer lower logistics costs and better services. As logistics is their core business, these firms can lower costs by being more efficient or by economies of scale (RAJESH et al., 2011). According to TCE, the decision to outsource logistics is taken in order to reduce to a minimum the cost of transaction problems created by limited rationality and opportunism (WILLIAMSON, 1995). Thus, the logistics outsourcing decision-making process should include analysis of Costs, through assessment of: logistics costs and investments needed for logistics assets.

- **Characteristics of the logistics process**

  **Proposition 3: The logistics outsourcing decision-making process relies on the analysis of the factor characteristics of the logistics process.**

  There is evidence that the characteristics of the process may interfere in the logistics outsourcing decision (KREMIC et al., 2006). The characteristics that should be considered in the decision-making analysis are: specificity, ability to create value, performance, quality, flexibility, difficulty in substituting and imitating the logistics process, complexity and operational risk of logistics processes. According to the RBV perspective, logistics outsourcing is an opportunity to
improve quality, performance and flexibility of processes (PERSSON; VIRRUM, 2001). Moreover, according to RBV, concepts such as value, specificity, inimitability and non-substitutability can be used to classify processes according to the generation of core competences, and therefore influence the outsourcing decision (RODRIGUEZ; ROBAINA, 2006). In addition, logistics operations have become so complex that some companies find it difficult to manage them and opt for outsourcing (SOHAIL; SOHAL, 2003). Furthermore, in the case of outsourcing, operational risks of the logistics process are shared between the provider and hiring company, mitigating the operational risk (PERSSON; VIRRUM, 2001).

- **Environment**

  Proposition 4: The logistics outsourcing decision-making process relies on the analysis of the factor environment.

  Logistics outsourcing decision-making should involve the analysis of environmental elements, such as: success of organizations that outsourced logistics processes (isomorphism), organization’s internal political environment and environmental uncertainty. Some organizations choose to outsource due to the success obtained by other firms when delegating logistics processes to 3PL providers. This concept of mimetic isomorphism is rooted in Institutional Theory (DIMAGGIO; POWELL, 1983), but the influence of environmental elements on outsourcing decision can also be explained by the Theory of Contingency, which states that organizational characteristics reflect influences of the environment where the organization is inserted on (DONALDSON, 1998). The organization’s internal political environment is represented by the commitment of senior management, which is a crucial element for the success of outsourcing (REN et al., 2010), and by the engagement of the remaining collaborators. Moreover, environmental uncertainty has a negative impact on outsourcing due to greater transaction costs associated with negotiating, monitoring and enforcing arrangements (SCHOENHERR, 2010).

- **Logistics Providers**

  Proposition 5: The logistics outsourcing decision-making process relies on the availability of logistics providers.
This factor is conceptually grounded in Contingency Theory, since the characteristics of logistics provider market is a dimension of the external environment (DONALDSON, 1998), as well as in TCE, due to the relation with 3PL availability. 3PL providers should meet the high standards and demands of the hiring company. Therefore, the decision-making process for logistics outsourcing must include the analysis of logistics provider market, checking the availability of providers who offer: the required services, resources and geographic coverage and have experience in the market of the hiring company.

4. Research Method

A case study was conducted to examine the research propositions and generate hypotheses. The assessment unit is a leading engine manufacturer which outsources logistics activities to 3PL operators. The organization participates directly in the automotive supply chain, so the choice for this assessment unit is justified by the strategic role logistics plays in competitiveness and performance of this sector. The selection of interviewees was performed by the company, following the requirement that they worked with logistics and that participated in the logistics outsourcing decision making process. Content analysis technique was adopted in the interview assessment.

5. Assessment of the case study

The following section presents the characteristics of the assessment unit and the results for each decision factor.

5.1. Assessment unity

The organization participates directly in the automotive supply chain, being the leading engine manufacturer in MERCOSUR. The company has 2,500 collaborators acting in 4 plants and finished 2008 with a net turnover of US$ 790 million. The logistics department is composed of three sectors: Internal Logistics, Expedition and External Logistics. Most of the outsourced logistics activities are the responsibility of External Logistics: consolidation and packaging activities, transportation, milk run system, storage, load consolidation, fleet managing operations,
reverse logistics and information technology. The reasons that led to the outsource of such activities vary according to their characteristics. The company currently works with 20 3PLs. Table 1 summarizes the main characteristics of the decision making process for logistics outsourcing in the organization.

**Table 1 - Characteristics of the decision making for logistics outsourcing**

<table>
<thead>
<tr>
<th>Logistics process previous to the outsourcing</th>
<th>The organization had most part of its logistics activities outsourced to a single provider, but the results were not satisfactory.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision makers</td>
<td>The logistics management itself makes the decisions concerning outsourcing according to its needs.</td>
</tr>
<tr>
<td>Decision making process for logistics outsourcing</td>
<td>The reasons which led to outsourcing of such activities range according to their characteristics. Outsourcing of the storage process was encouraged by the lack of space to keep the inventory internally. The milk run system requires specific knowledge and therefore, it was outsourced to a provider with experience in this process. The company also develops benchmarking studies.</td>
</tr>
<tr>
<td>Involved risks in the logistics outsourcing process</td>
<td>The main risks are related to the dependence on the logistics provider and to the possibility of bad performance from their side.</td>
</tr>
<tr>
<td>Expected benefits from the logistics outsourcing</td>
<td>The organization chose to outsource logistics with the purpose to obtain more flexibility, velocity and performance, to reduce operational costs and to fulfill the need of investment on assets, to substitute the fixed for variable costs, to focus on its core competences and to have more availability to processes, services and latest generation technology.</td>
</tr>
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</table>

5.2. Decision Factors for Logistics Outsourcing: assessment of the case study

This section presents the assessment of the case studies for each proposed factor.

- **Strategy**

The logistics activities outsourced by the analyzed organization are considered complementary competences. The company intended to transfer the logistics process to skilled providers and focus on their core competences. Therefore, the case study corroborate to the RBV theory, which considers that only processes which do not generate core competences should be considered as an option for outsourcing (RODRIGUEZ; ROBAINA, 2006). It can also be observed that the company chose to outsource in order to have access to resources (IT and equipments) they did not have before. The greatest advantage mentioned by the executives is the
access to such resources with variable costs and without the need to invest. Moreover, the risks which most worry the executives involved in the outsourcing decision of the assessment unit are: risk of dependence on the providers; risk of low performance from the provider; and loss of control of the outsourced activities. The company is aware of the risks involved in the outsourcing process, but does not consider them an obstacle, since they try to manage and control these through careful selection and follow-up processes of the providers.

- **Cost**

It was observed that the company is concerned about the reduction of logistics costs and the majority of the expected benefits from the outsourcing involve financial aspects such as: reduction of logistics costs; reduction of investments; availability of resources for other activities; and substitution of fixed for variables costs. The result is in concordance with the TCE perspective. In the case study development, logistics costs were assessed as a single item. However, such costs are composed of different portions. Bowersox and Closs (2007) classify them in inventory, transportation and storage costs, stressing that inventory and transportation costs are the main portions of the total logistic cost matrix.

- **Characteristics of the logistics process**

The case study evidences that the reasons which led to the outsourcing of different activities changed according to their own characteristics. The assessed company is a market leader known for high quality and performance of logistics services and despite of that, chose to outsource. The success of the outsourcing process depends on maintaining or improving the high standards of performance and quality, as well as flexibility.

The logistics process of the assessed unit is extremely complex with suppliers and clients spread worldwide. Such complexity implies on operational risks to the performance of the logistics process. As a result, the assessed organization seeks to mitigate such risks through logistics outsourcing.
It is observed in the case studied that the outsourced activities are not difficult to be imitated or substituted, since interviewees consider satisfactory the availability of providers capable of performing these activities. Thus, the case study is in concordance with RBV, which states that processes which correspond to specific capacities of difficult substitution or imitation or that aggregate value to the organization should not be outsourced. The logistics processes of the assessed company aggregate value to the organization; however, they still chose to outsource these activities, since the value created is not high enough to make logistics into an organizational core competence.

The analyzed company demands a series of resources from providers, but such resources may be used in alternative applications. In consequence, the processes outsourced do not present high specificity, such as stated by TCE and RBV. According to these perspectives, processes with high specificity reduce the probability to outsource (HOLCOMB; HITT, 2006).

**Environment**

The analyzed organization received full support from the senior management for logistics outsourcing. Ren et al. (2010) consider senior management commitment as a key factor for the success of logistics outsourcing. On the other hand, the support from the remaining employees was not considered in the decision process. Generally, employees feel threatened by the possibility of losing their jobs, and hardly support outsourcing, a fact which usually leads to a negative impact in the self-esteem of the remaining collaborators.

In the case studied, outsourcing was influenced by the success obtained by other companies, not only competitors but also leaders in different markets. The logistics manager develops benchmarking studies when analyzing the viability of outsourcing a logistics process.

The automotive market is strongly influenced by the economical environment and hence it is susceptible to uncertainties and contingencies from the external environment. For that reason, the assessed unit highlights the risks involved in investments dedicated to the logistics process, once their volumes are subjected to great variations. Even though, the organization chose to outsource such processes which are susceptible to uncertainty from the external environment,
opposing to literature recommendations. For Kremic et al. (2006), the tendency to outsourcing is lower in cases which involve a high level of uncertainty.

- **Logistics providers**

  The interviewees considered the availability of providers capable of efficiently performing the outsourced activities an essential factor to be assessed in the logistics outsourcing decision. Logistics outsourcing would be impossible without the availability of providers who offer the demanded services and resources, assist the desired market, have good reputation and experience in the market. Thus, the organizations would have to develop the competences to internally carry out their logistics operations.

7 Conclusions

This research aims to discover which factors and elements must be considered by contracting organizations in the logistics outsourcing decision-making process. The research question is justified by the number of unsuccessful cases of logistics outsourcing as well as the fact that a great amount of this failure is attributed to deficiencies in the decision-making process (KHAN; SCHRODER, 2009).

In the bibliographical research, it was found that an error in the outsourcing decision may be crucial to the company due to a possible increase in logistics cost and process flaws (performance and quality), affecting organizational competitiveness and image (KREMIC et al., 2006). The errors are a consequence of the complexity of the decision which involves a large amount and variety of both quantitative and qualitative factors that are interdependent on each other (WATER; PEET, 2006).

The qualitative research shows that the engine manufacturer has not structured a logical process and criteria to conduct the logistics outsourcing decision-making process, even though such decisions influence organizational competitive position and the achievement of strategic goals. The results also showed that their executives have difficulty defining which elements should be analyzed in the logistics outsourcing decision-making process.
The assessment of the case study reveals important points that drive the logistics outsourcing decision: (a) with outsourcing, companies seek access to resources for complementary activities without the need for investments; (b) access to information technology is an essential strategic element in the logistics outsourcing decision-making process, and (c) decision makers should be aware that outsourcing leads to loss control of logistics activities, causing dependence on operator's performance.

The decision-making process of logistics outsourcing should also include the evaluation of economic criteria. Logistics costs should be analyzed through the assessment of the following elements: Cost of Transport, Storage Cost and Inventory Cost. These are the most important logistic costs, since almost 90% of a company’s logistics costs correspond to the transport, storage and inventory (BOWERSOX; CLOSS, 2007).

Other important points that drive the decision to outsource logistics that were revealed by the case study are: (a) top management’s commitment is crucial to the success of the logistics outsourcing decision-making process. Ren et al. (2010) argue that outsourcing success depends on top management commitment, (b) success achieved by other companies (competitors or market leaders), through logistics outsourcing, encourages the outsourcing decision by organizations. Qualitative research also highlighted the importance of analyzing logistics provider market in the decision-making process. The feasibility of outsourcing depends on the availability of logistics providers capable of meeting the needs of the hiring company.

Finally, the decision for logistics outsourcing actually occurs from the assessment of the five factors proposed: Strategy, Costs, Environment, Logistics Providers and Process’ Characteristics. This result is quite useful to researchers and professionals in Logistics and Supply Chain, as it contributes towards a better understanding of the logistics outsourcing decision and the decision-making process structure.
References


