

Performance management in logistics outsourcing: a study on sugar-energy industry

Performance
managing in
logistics
outsourcing

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Abstract

Purpose – This paper analyzes managerial practices currently used for outsourced logistics activities in mechanized cutting, loading and transportation (CLT) of sugarcane in a Brazilian company using performance-based logistics contracts (PBL) as reference.

Design/methodology/approach – The methodology draws on literature review, design of an analysis model, small group meetings with academics/industry professionals and practical application through a case study. The model is based on PBL and its construction involved choosing the analysis axes, defining evaluation items and respective measurement scale and the means and sources of data collection.

Findings – When comparing the evaluation results with PBL recommendations, it is possible to see that there are still many improvement opportunities. In contracting axis, decision-making process was poor-rated due to the absence of strategic considerations to support outsourcing decision. Procurement, contract and implementation are in intermediate level. Performance management is the most mature axis. However, quality analysis showed intermediate level. In relationship axis, the most relevant gap is the lack of expectations alignment. Remaining items showed intermediate levels of compliance but still need focusing on communication, establishing a structured relationship management development.

Originality/value – This study contributes first to develop an analysis model based on PBL to evaluate the level of relationship integration between company and logistics service provider, and second, to apply the model to an empirical case in a CLT company operation. As a result, the analysis model presents guidelines for the company, not to just contract/rent equipment and manpower but hire results.

Keywords Performance measurement, Logistics, Outsourcing, Performance management

Paper type Research paper

1. Introduction

The pursue for continuous improvement in operational efficiency and the constant pressure to reduce costs, especially on mass-production sectors, have driven companies to focus on their core competences and subcontract specialized services for support functions. This is becoming effective in various organizations' activities, with emphasis on the logistics area (Kenion and Meixell, 2011; Stojanovic, 2012).

Logistics outsourcing has undergone changes evolving from just contracting traditional services such as transportation and storage to more complex activities, such as inventory management and development of logistics projects (Stefansson, 2005).

The degree and scope of logistics outsourcing is growing significantly, and users are reporting cost reductions in a range of 12–15%, reduction in logistics assets investments above 20% and reductions in order cycle around 20–30 % (Wallenburg *et al.*, 2010). However, logistics outsourcing is not merely a means to make the supply chain operation more efficient but also a strategy for gaining competitive advantage through increased service and flexibility (Yang, 2014).



There is no basic rule that supports a firm's decision to outsource all or part of its logistics operation. Indeed, there are many reasons such as return on investment, greater productivity of teams that work in the activity-end of the company, flexibility, labor issues, cost reduction, management and policy issues, specialized services, constant technological updating and the maturity of the logistical operators themselves (Lynch, 2004).

In Brazil, the outsourcing of logistics activities is present in virtually all segments, such as automotive, beverages, paper and pulp, electronics, petrochemical, sugar-energy, hygiene and cleaning and food. The sugar-energy industry has significant importance for the Brazilian economy (Tecnológica, 2009) and has undergone a process of professionalization and consolidation in large business groups through mergers and acquisitions. It is one of the sectors that presents great demand potential in logistics outsourcing area (Nastari, 2009), and it is responsible for moving approximately 2% of the national gross domestic product and 31% of the gross domestic product of whole agriculture (Neves and Trombin, 2014; Biosev, 2017).

In sugar-energy sector, the outsourcing is getting consolidated every day, and its application in logistics activities within the farming operations is already a reality. One of the most critical steps of these operations is the mechanized cutting, loading and transportation process of sugarcane (CLT), representing approximately 40% of raw material production costs for the sugar-energy industry, and these are activities presenting the greatest challenges (Nunes, 2009). The need to mechanize this operation due to legal and environmental issues in Brazil tends to increase the level of investments in the industry, which makes the outsourcing of these activities an attractive alternative (Nastari, 2009).

However, when outsourcing is applied to CLT process, it requires changes in operations management since company's own team no longer performs these activities. The focus, therefore, changes to manage hired service and supplier relationship and requires therefore, a reassessment of the whole process (Nastari, 2009). These changes become even more important when it is considered that the management of the CLT carried out by the plants has deficiencies, such as little application of technology in the processes and lack of tools to control the operation performance.

Companies must evaluate and weigh the advantages/disadvantages and be prepared for the outsourcing process, creating a partnership, transferring and sharing activities and difficulties in the transition period and establishing indicators and procedures to measure services (Wallenburg *et al.*, 2010). Bandeira *et al.* (2008) point out that the complexity of logistics activities and the scope of outsourcing result in a large business effort and considerable investments. Therefore, it is necessary to establish contracts that take these characteristics into consideration and that are also able to report and minimize operational risks and guarantee the stability of the services provided.

When studying the sugar-energy sector, there is little literature on topics such as performance management of outsourced operations and supplier relationship development. It is also observed that companies have not yet fully exploited the advantages of outsourcing the activities involved in the process of CLT. Until 2014, for instance, only 16.5% of the CLT was outsourced, mainly because companies cannot efficiently define and manage outsourcing contracts (Neves and Trombin, 2014). For the authors, due to specificities of CLT operation, traditional contracts are not so effective in managing its outsourcing.

Adoption of performance-based logistics contracts (PBL) can contribute significantly toward the outcome of an outsourced operation by creating an environment of co-operation between companies and promoting discussions about results based on previously established indicators with focus on operational improvements (Forslund, 2009). Performance-based contracts represent a clear benefit for both the contracting company and the contractor because on one hand the customer pays only for the results achieved, and on the other hand, the contractors has more autonomy to innovate and to use all their knowledge and experience on the task to be performed (Sols *et al.*, 2007).

From the previous considerations, the following research problem arises: What are the main gaps in the process of performance management of logistics operators practiced by the sugar-energy sector in relation to what is observed in the literature?

The objective of this study is to analyze the managerial practices currently used for performance management of outsourced CLT activities in Brazilian sugar-energy industry using a PBL-based model as a reference.

The analysis of these practices from performance-based contracts perspective will help companies to manage and improve the results of CLT outsourcing process. Therefore, an analysis model is proposed, and a case study is conducted in the largest Brazilian company in the sugar-energy sector.

2. Literature review

The literature review seeks to obtain a theoretical basis for structuring the analysis model and support and for conducting the case study.

2.1 Logistics outsourcing

Companies follow different models of vertical integration, depending on their strategy. Chains with highly vertical levels of integration can obtain advantages, such as lower transaction costs and less exposure to supply variability, while models with low level of vertical integration allow greater focus on the product and lower levels of investment in assets. For the authors, extremely important strategic decisions are those in which operations must remain within the limits of the company and which will be carried out by suppliers.

There are many reasons that motivate companies to outsource logistics operations: concentrate on core activities; improve customer service level; integrate the entire supply chain; increase efficiency, stability and flexibility; avoid extensive capital expenditures; increase productivity; reduce risk, uncertainty and fluctuation; improve expertise, market knowledge and data access; reduce personnel and equipment costs (Yang, 2014). A study on outsourcing logistics in European companies shows that 56% of them obtained a reduction in logistics costs and a reduction of inventory costs of 15–30% (Gooley, 1997). Studies by Cap Gemini Ernest & Young show that the use of logistics service providers generates for companies the following: logistics cost reduction by 8.2%; fixed logistics asset reduction to 15.6%; average order cycle length reduced from 10.7 to 8.4 days and overall inventories reduced by 5.3 (Parashkevova, 2007).

The hiring of logistics services does not mean the simple rental of equipment and manpower to operate a given process. Instead of hiring resources, the main objective became hiring results (Sols *et al.*, 2007). Such results should come from the integrated relationship between company and logistics service provider (Langley and Allen, 2011; Selviaridis and Norman, 2015; Large *et al.*, 2011). Logistics service providers can perform services that add more value to the contracting company business than the contracting company would be able to achieve alone (Deepen *et al.*, 2008).

Increasing volumes in specific industries enables a logistics operator to operate efficiently by using resources in an intensive manner. At the same time, the competencies developed in these specific industries can be replicated to other client companies, allowing operators to achieve a performance/cost ratio that customers would not be able to achieve on their own (Marchet *et al.*, 2017). Success and the generation of competitive advantage from outsourcing activities in the supply chain depend heavily on contracts that involve a close and transparent relationship between companies (partnership) and also on performance measurements through clear metrics and indicators, agreed between the parties (Logan, 2000; Lambert, 1996).

Changing role of logistics in business and complexity of activities that began to be outsourced demanded the creation of more skilled logistics service providers, known as third-party logistics (3PL). 3PLs can be seen as tools used by clients to integrate supply chains and/or improve performance (Fabe-Costes *et al.*, 2009). 3PLs offer, besides the basic logistics activities such as transportation and storage, more complex services such as distribution requirement planning, resource management and elaboration of projects for facilities' locations (Lieb, 2005). Nowadays, outsourcing logistics activities to 3PLs is becoming a widespread practice in industry worldwide (Yang, 2014).

Outsourcing decision focuses on cost and operational control. Although the arguments against outsourcing seem logical (it eliminates the margin of the supplier and make possible retaxation; it ensures control over the operation, which creates flexibility and agility), they are not always proven right. The arguments for this are that 3PLs often have a higher operating efficiency and are able to better explore factors such as specialization of manpower and economies of scale, also considering the fact that if the client company kept its operations, the lack of external competition could generate a higher risk of accommodation and loss of efficiency over time (Wilding and Juriado, 2004).

2.2 Performance management and relationship

The methods of measuring organizational performance are considered an important field of research for both practitioners and academics (Folan and Browne, 2005). According to Nae and Severin (2018), all major 3PL companies are adopting performance management models or creating custom models based on other worldwide recognized models.

Major motivation for discussion on this subject and for strategic application of performance measurement in business was the work of Kaplan and Norton (1992) and the balanced scorecard (BSC), considered by Burgess *et al.* (2007) as the most popular approach of this subject by companies located in economically developed countries. Furthermore, the BSC approach also brought up the concept of balance, initially addressed by Peter Drucker (Neely, 2005), as a way of balancing the strategies and business decisions around several perspectives, avoiding a partial view of the business using financial metrics alone.

Performance evaluation is a critical success factor, and the reality is that many companies do not develop and implement formal performance evaluation processes (Cravens *et al.*, 2000). Performance evaluation is the most important activity at all levels of decision since it helps the company's professionals to control business processes variables, by evaluating trends and outcomes, helping on the decision-making and allowing them to measure the effects of these decisions (Slack, 1991).

Cravens *et al.* (2000) developed a model for performance evaluation of strategic alliances between companies based on the BSC. The proposed model discusses the whole process of creating the partnership, from the motivation to its implementation, to the definition of the performance indicators to be used. The impact of quality of the relationship can be measured through factors as trust among people, commitment, co-operation, integration, internally shared information, social interactions and the quality and quantity of interorganizational communications. These indicators can be measured from the project's performance itself and from the project's impact on the organization's performance, both in the short and long term. Basically, the typical circumstances for measuring a supplier's performance are:

- (1) To discern what seems to be happening from what is actually happening.
- (2) Establish a reference line before improvements are made.
- (3) Making decisions based on solid evidence.
- (4) Show that changes lead to improvements.

- (5) Make it possible to compare performances.
- (6) Identify better performance in results (U.S. DHHS, 2011).

For Bowersox *et al.* (2002), evaluation and performance control are required in order to allocate and monitor resources. To reach company's goals, effective and efficient use of logistical resources is extremely important, as well the continuous performance evaluation. The better and more sophisticated the system of performance evaluation is, the better are the operating results. The purpose of a performance evaluation system is to monitor, control and orientate the logistics operations. Performance measurement is also an important tool for managing outsourced operations (Aktas *et al.*, 2011).

In the study of Wilding and Juriado (2004), they claimed that customers state competences of 3PLs as the primary reason for contracting out logistics. In a study to assess relationship implications between customer and 3PL on operations performance, Deepen (2007) proposes a performance evaluation of outsourced operations based on two factors:

- (1) Achievement of objectives, regarding meeting the goals, needs and expectations specified in the contract and
- (2) Overcome the objectives related to value added to the customer through customer-oriented, innovative and proactive approach. The author concludes, from a survey with more than 500 German logistics executives, that these two factors are directly influenced by the degree of cooperation and proactive improvement employed in the buyer-supplier relationships, which depend on the perceived level of six other components within the partnership, namely, communication, shared values, trust, commitment, openness and opportunism, this last one with an inverse way.

Lynch (2004) comments that, in the process of 3PL performance management, it is important that expectations and possible points of disagreement are identified at the time of contract's definition, and that even so, after some time, interests change and conflicts arise. Knowing that, it is important that both the contract and the management system are prepared to cover the maximum possible scenarios, but, more importantly, is to review this document periodically. The main causes of friction in the relationship between client and 3PL are as follows:

- (1) Remuneration and service level agreements set out early in the contract and with no mechanisms of continuous improvement.
- (2) Cultural differences between contracting company and 3PL often cause misunderstandings and distrust. But this also occurs between companies with similar cultures because goals of each company are different.
- (3) Contracts adopt key assumptions that can change after its signing and throughout its term, given the dynamics of the business. Therefore, it is important the contract be flexible, especially when it comes to long-term hiring.
- (4) Once the operation has begun, there is a strong tendency for both sides to "sub-optimize" the relationship in order to increase their benefits at the expense of the other.
- (5) Client companies underestimate time and attention required to manage relationship with 3PL, or worse, they pass the responsibility to the supplier, which starts to operate in accordance to its own objectives and priorities. This mismanagement generally results from the lack of continuity of people involved in the process, or because the team that negotiated the contract did not continue involved in it after

beginning the operations or even because the employees that knew the “pre-outsourcing” environment has been transferred to 3PL team.

Lynch (2004) mentions that while the indicators are extremely important for performance management, it is essential to combine measurements efforts with a qualitative analysis of processes and improvements implementation. Another important factor is the relation between motivation and rewards: a good performance is frequently considered a rule, while it ignores the fact that approval and recognition are basic human needs. Cravens *et al.* (2000), also discuss the rewards structure coupled with performance indicators.

Lambert (2008) defines partnership, as a tailored business relationship based on mutual trust, openness, sharing risks and rewards, which results in a business performance greater than would be achieved by the two companies working together in the absence of partnership. In the other hand, Dwyer *et al.* (1987) explain that though all transactions have some relational properties, it makes sense to consider many exchanges as practically discrete since there are bilateral sets of costs and benefits to relational exchange, where sometimes a durable association is not necessarily desirable. For Ayers (2001), the evolution of partnerships, including the achievement of expected gains from its formation, is quite difficult since relations between companies are traditionally “arm’s length” (traditional business relationship).

Basically, 3PL should create a partnership aiming logistics solutions and should be able to generate competencies for the clients and to learn from their experiences (Halldorsson and Skjott-Larsen, 2004). Collaborative activities, such as information sharing, joint relationship effort and dedicated investments lead to trust and commitment. Trust and commitment, in turn, lead to improved satisfaction and performance (Nyaga *et al.*, 2010).

Domingues *et al.* (2015) created a framework containing 25 performance indicators in order to improve the performance evaluation of the 3PLs logistic activities. It involves transport capacity, distance traveled per day, delivery frequency, product changeover time, productivity, transportation accidents, cargo theft and other indicators. However, it is observed that this framework contemplates only the transportation activity.

2.3 Performance-based contracts

Performance-based contracts offer several potential advantages over conventional service contracts, both for service providers and customers. Benefits for the service provider include the following: sustainable competitive advantage, lower servicing costs, opportunity for innovation and improved customer acquisition for highly innovative technologies and improved customer loyalty. On the other hand, benefits for the customer encompass the following: increased motivation of the supplier to provide high quality outcomes, efficient supplier management, cost savings, predictable costs and reduced investment costs. Despite the benefits of performance-based contracting, not every product or service is appropriate for commercialization under this model. Managers must be able to assess what extent this strategy may be appropriate to their business (Kuzniatsou, 2015).

Forslund (2009) presented a comparison between outsourcing based on traditional contracts and operations regulated by PBL and evaluated how this method can influence the process of performance management (PMP) and the results of the operation. His work proposes a model of PMP in two steps. First step consists of three preparation stages (setup), selection of performance variables, definition of metrics and goal settings, followed by two execution phases, measurement of the results and analysis/actions to be taken.

The main characteristic of this model is that it presupposes the joint implementation of the two stages, in which it involves the client company and 3PL. Though the client company has a greater decision power in preparation stage due to its strategic characteristics, as of on the analysis phase, a greater responsibility is demanded from the 3PL, when corrective actions

must be taken and improvements be done. When creating a PBL it is important to evaluate the format and size (in terms of details and complexity) of the contract, the degree of formalization, its applications, the improvements included in the contract (ex. incentives and penalties) and the “spirit of formulation” employed, in a way that it would be flexible, clear, simple, fair and designed to encourage teamwork. PBL positively contributes to the results of logistics operations in several aspects since preparation of 3PL’s performance evaluation process is done at once and on a defined way. Then, both companies can concentrate their attention on discussions and actions to improve their processes. Furthermore, the processes of results evaluation and analysis/actions to be taken become faster and simpler because they are supported by a set of rules and standards.

Experience shows that for a PBL to achieve the expected results, it is essential a full agreement on the metrics used to measure system effectiveness, as well as a plan to allocate rewards according to the level of performance achieved by 3PL (Sols *et al.*, 2007). For Kuzniatsou (2015), it is important for customers and service providers to agree on what is a well succeeded outcome of the contract and define how to measure performance. Both the level and the related key metrics of required outcome need to be considered and clearly established. The contracted outcomes and performance metrics should be objective, measurable, clear and realistic.

These contracts represent a transition in relationship between client company and 3PL, migrating from a situation in which the client used to say what and how things should be done for the establishment of the goals to be achieved. From this point on, 3PLs have autonomy to use their knowledge and experience to achieve their goals, while incentives and penalties are defined as economic motivators (Kim *et al.*, 2007; Ng and Nudurupati, 2010; Straight, 2006).

On the other hand, even doing well in these criteria settings, there are situations in which it is difficult to measure the actual 3PL performance – or to obtain agreement between parties on the calculated values – and therefore it is essential to select the adequate 3PL for a specific task (Kleemann and Essig, 2013). This view is shared by Lynch (2004): “The basic premise of outsourcing is to hire a qualified 3PL for the activity, so this activity would be done by itself”.

3. Methodology

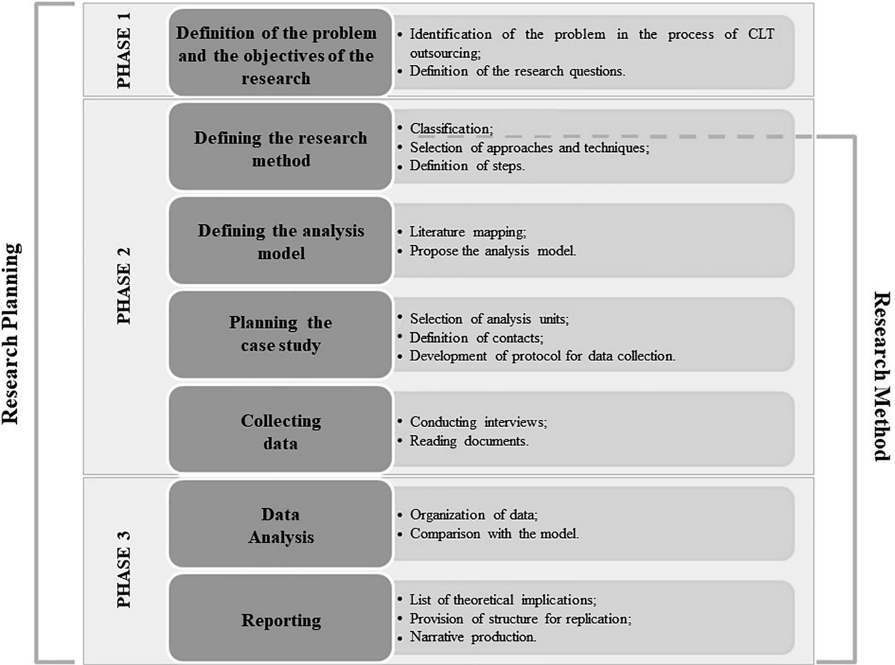
Based on the concepts presented in previous sections and on the characteristics of the studied problem, the research was conducted according to the sequence of steps presented in Figure 1.

Phase 1 contemplates the definition of the problem and the objectives of the research. Phase 2 covers four sub-phases: defining the research method, structuring the analysis model, planning the case study and collecting data. It basically draws on a literature review, expert interviews, design of an analysis model and one explorative case study to test the model applicability. Phase 3 refers to data analysis and reporting.

The model elaboration started from the selection of the relevant concepts present in the literature and from the establishment of the relationship between these concepts. Subjects considered relevant to performance management of outsourcing contracts were studied, and analysis factors were selected and grouped.

A preliminary analysis model was structured with the purpose of guiding the evaluation of the practices carried out by the company targeted by the case study, related to the process of performance management and relationship with the logistics operator. This preliminary model was mainly based on the work of Forslund (2009) that deals with the performance management analysis of outsourcing, based on traditional contracts and on PBL. It integrates the practices described in the literature on performance management and relationship with logistics operators and was adopted as reference for the preparation of the interview script,

Figure 1.
Research planning and
method



consultation of documents and analysis of the case. The model was submitted to the analysis of professionals and academicians involved with logistics practice and research.

According to Folan and Browne (2005), the initial steps for a performance measurement (PM) system development are the PM recommendations. These recommendations are the basis for development of a PM framework and are related to the measures or structure of performance measurement. Recommendations concerning PM are divided as follows:

- (1) Recommendations for performance measures (emphasize the requirements of adequate performance measures) and
- (2) Recommendations and issues for PM framework and system design (examine the recommendations regarding the design and development of PM frameworks and systems). Additionally, the authors highlight that the basic requirements for a well succeeded PM system are the structural and the procedural frameworks.

The structuring of the model was based on the selection of the most relevant concepts seeking to relate the practices on performance management and relationship management with logistics operators described in the literature. Its construction involved choosing the axes of analysis, defining the evaluation items and the respective measurement scale and, finally, defining the means and sources of data collection. The final model was obtained after incorporating professionals and academicians' suggestions. The analysis model is shown in Figure 2, and it contains three evaluation axes, each one containing four requirements. Its goal is to evaluate how company manages its outsourced operations and relationship with 3PL.

The goal of the model is to guide the evaluation of the practices (defined in the contract) used by the company in relation to the processes of performance management and relationship with the logistics operator.

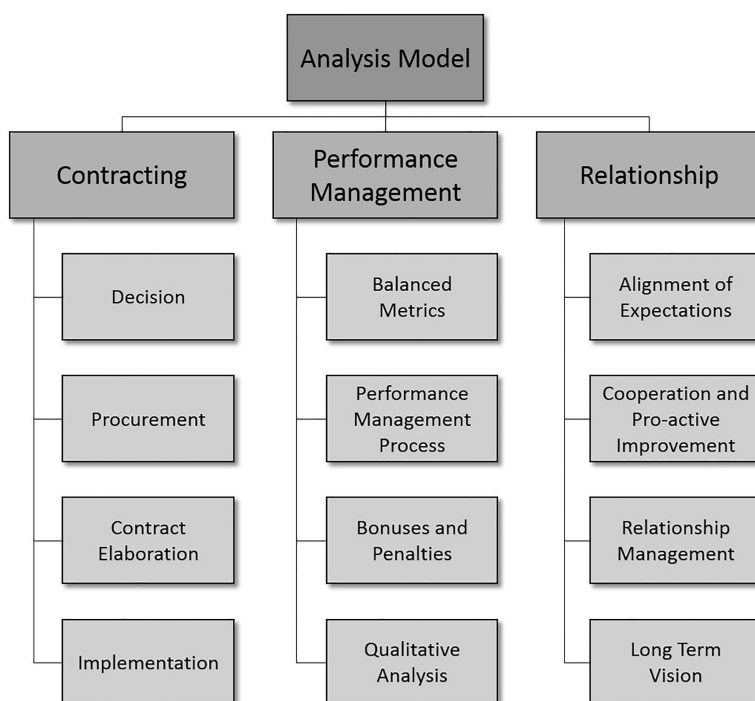


Figure 2.
Analysis model

The contracting axis considers that the increase of the complexity of the logistics activities and the scope of outsourcing of these activities results in great business effort, high responsibility and considerable investments. Elaborating contracts that take these characteristics into account and that are capable of reporting and minimizing operational risks, besides guaranteeing the stability of the services provided, is of fundamental importance. This axis serves as support to evaluate the understanding of gaps both in the performance management process and in the relationship between company and logistic operator (Forslund, 2009).

The performance management axis is established considering that evaluating the efficiency of logistics operators and customer satisfaction are critical activities for the success of chain members when outsourcing a logistics service (Zamcopé *et al.*, 2010).

Even though the indicators/metrics are extremely important for performance management, it is essential to combine measurements efforts with a well-structured management process and a qualitative analysis of processes and improvements implementation. Another important factor is the relation between motivation and rewards: a good performance is frequently considered a rule, while it ignores the fact that approval and recognition are basic human needs (Lynch, 2004).

The relationship axis seeks to compare the contract specifications with what is observed in practice to define the operational strategies and the mechanisms/incentives to give autonomy to the logistics operator (Park *et al.*, 2010). It still seeks to evidence the levels of communication, shared values, trust and commitment, also considering the mutual concern with the results of the business and its evolution over time (Qureshi *et al.*, 2007; Park *et al.*, 2010; Cravens *et al.*, 2000). The axes consider that it is necessary to understand the level of relationship the company must adopt with suppliers, based on an analysis of the business

strategy and the identification of the products and services key to its success. The relationship should range from the technological level, culture and innovation to the volume purchased from the supplier (Croxtton *et al.*, 2001).

Tables 1–3 show a brief description of the evaluation items of the analysis model for contracting, performance management and relationship axis, regarding outsourcing logistics (OL).

The evaluation model does not seek to determine if the identified gaps are impeditive to the success of the performance management or even the relationship between the companies. The purpose is to direct the improvement of processes related to performance management.

3.1 Data collecting modes and sources

In general, it is expected that most items of contracting and performance management axes can be evaluated by examining/analyzing the contracts documents, except for decision-making process. As for relationship axis, the need to conduct interviews is expected in order to gain better understanding about this topic. However, the adopted procedure in the case study begins with reading the contract, to identify useful information to assess each one of the twelve evaluating items, followed by an interview in two steps. The first to validate items subjected to evaluation through the contract, and the second to focus on the evaluation of the remaining items. The request for proposal (RFP) is also used to support interviews and contracts analyses.

3.2 Analysis procedure

The relationship between the stages of data collection and analysis based on the evaluation axes of the model is summarized in Figure 3. The data obtained for evaluation of the requirements related to the contracting and performance management axes seek to identify gaps in the performance management process of the company. This is obtained by comparing what is recommended in the literature with what is observed in practice in the sugar-energy sector. In turn, the analysis of the relationship between gaps in the contracting and performance management process and the practices of relationship between company and

Evaluation item	Contractin axis Detailing
Decision-making process outsourcing	Verify strategic alignment and motivators considered (goals and expectations)
Procurement: 3PL selection process	Evaluate whether criteria have been established to ensure the hiring of a suitable supplier for the task Verify the existence of a structured process of prospecting and selection of providers (Request For Information, Request for Proposal)
Contract elaboration	Evaluate actions to identify friction points and define rules for mitigation Evaluate the degree of formalization employed Check whether periodic review and flexibility were envisaged
Implementation: Implementing the outsourced operation	Evaluate the company's dedication during this phase in order to ensure operational stability and to make all necessary internal changes Check if necessary communications were made during the implementation Verify the accomplishment of integrations and training and if all the procedures foreseen for OL control and evaluation were established

Table 1.
Contracting axis

Evaluation item	Performance management axis Detailing	
Balanced metrics for evaluating performance	Verify the existence of a balanced set (not only financial) of performance evaluation metrics	
Performance management process	Identify the roles of the client company as the main thing responsible for the definition of the metrics and the establishment of performance targets and of the OL as the main thing responsible for the analysis and actions on these indicators Evaluate the method used to measure OL performance Evaluate the existence of a monitoring process carried out by the company and periodic meetings aimed at monitoring the performance of the operation	
Bonuses and penalties	Evaluate the existence of compensation mechanisms linked to the performance of the OL as well as rewarding policies for results above expectations and penalization otherwise	
Qualitative analysis	Check the existence of qualitative analysis of the operational processes in order to extend the management and promote improvement actions, in addition to the action taken based on the performance indicators	Table 2. Performance management axis

Evaluation item	Relationship axis Detailing	
Alignment of expectations	Compare what is specified in contract with what is observed in practice, regarding the autonomy of the OL to define operational strategies Verify the unfolding of the strategy considered for the outsourcing on the conduct of the managers and other employees of the company that accompany and evaluate Evaluate the mechanisms and incentives adopted by the company so that the OL has as attribution the pursuit of overcoming the objectives	
Co-operation and proactive improvement (from client perception)	Verify the existence of these critical factors for the performance of the outsourced operation, evidenced by the existence of good levels of communication, shared values, trust, commitment, openness and lack of opportunism	
Relationship management	Evaluate the existence of resources and processes for this purpose, such as the managerial dedication to the relationship (formal assignment) Check if there is concern about the cultural changes and involvement of the top management Evaluate the practice of recognition of results and initiatives taken by OL	
Long-term vision, to evaluate both the attitudes of client and 3PL regarding short and long term	Evaluate the actions of the companies in terms of short- and long-term objectives (mutual concern with the results of the business of each company) Evaluate if there is concern about the continuity of the teams involved with the outsourced operation, both on the client and OL side, especially at coordination and management levels Verify the existence of elements related to the practice of the partnership as defined in the literature	Table 3. Relationship axis

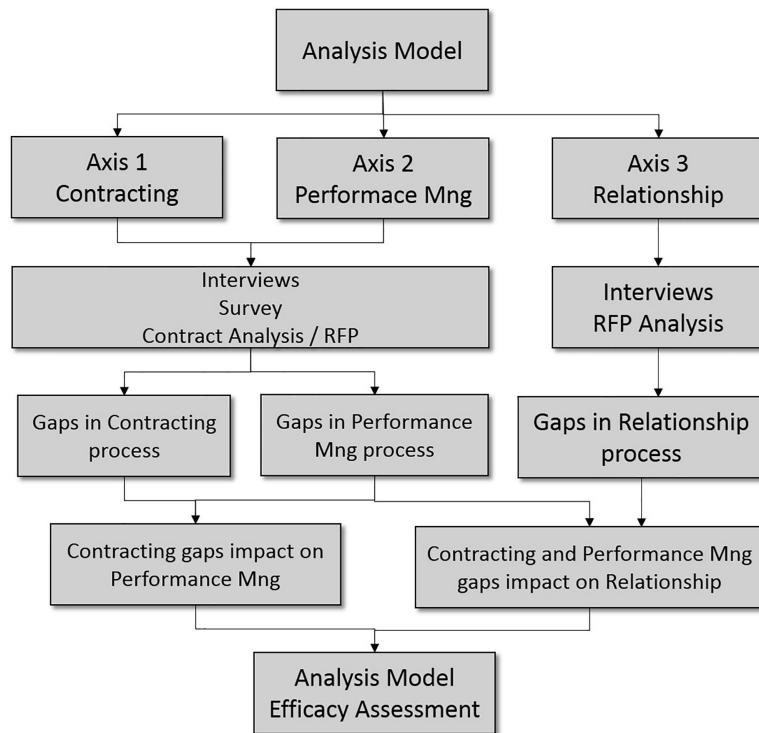


Figure 3.
Analysis procedure

logistics operator identifies the influence of the gaps in the process of performance management on the relationship between company and logistics operator.

3.3 Evaluation criteria

The degree of adherence of each assessment item to the references used to develop the model is graded according to the following criteria: 0 (zero) if the item is not observed, 1 (one), if it is observed with low compliance in relation to the references and 2 (two), if the adhesion observed is high. The intention here is to highlight the practices that are not present, identify which practices are present in an intermediate degree and which ones are present as recommended by the literature, providing a direction for improvement.

4. Case study

Case study was conducted in one of the largest Brazilian sugar-energy companies, among the five world largest sugar and ethanol producers. The company began outsourcing stages of the CLT process to 3PLs in 2009.

Case study was conducted in two phases. First one involved reading documents provided by the company – contracts and its attachments and second conducting semi-structured interviews with agricultural logistics department professionals, responsible for the processes of outsourcing (definition, selection and procurement) and management of outsourced operations. After executing both phases results were critically confronted against the analysis method, so that the conclusions of the study could be reached.

Documentation developed by the company to support CLT activities outsourcing is structured as shown below, and it was drawn based on the observation of the four different contracts made available by the company:

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- (1) The RFP is the document that guides the steps in the process of selecting logistics operators. It has about 50 pages and addresses five topics: presentation of the company and the sugar-energy market, macro description of the CLT process, contracting scope, description of the process of performance management and detailed process schedule. In the description of the CLT process, the company cites how it is carried out internally and directs the participants of the competition to propose their own approaches to issues that the company sees as critical. The contracting scope presents the demand, the main operational parameters, responsibilities of each company and specifies how the proposal, separated in technical and commercial content, must be presented. According to the company, this procedure aims both to evaluate the consistency of each proposal and to facilitate the comparison of these between them. The performance management process is presented in the RFP and describes operational routines, performance indicators as well as goals.
- (2) Contract: Contracts are about twenty pages long and contains the scope delimitation of employment, including hired volumes, duration, equipment to be used in each activity and expected productivity. The document contains a comprehensive list of items concerning client and 3PL responsibilities. On the client side, it includes, as an example, the need to provide operational programming in advance and afford any damages caused to the equipment due to reasons under their responsibility. On the 3PL side, the list includes: meeting performance targets, acting in compliance with rules and regulations and establishing plans for action in case of underperformance.
- (3) Attachment I (management model): This document has 28 pages and sets the standards for assessing performance of 3PL. The assessment involves a set of performance indicators grouped into following themes: Quality, productivity and safety and environment. For each of them, targets, methods and frequency of assessment are defined. These indicators serve as a basis for applying two remuneration mechanisms linked to performance: the weighting of these indicators would generate a rating for the 3PL, and based on that, a percentage penalty factor would be applied on their revenue. Individual results of each indicator may implicate on the application of bonuses or financial penalties of fixed and pre-established values. The counterpart of using mentioned penalty factor on revenue is given by adopting take-or-pay policy, which guarantees payment for the 3PL based on the contracted amount of sugar cane to be harvested, even if the client-company does not demand all of the hired volume due to climatic or industrial factors. The document also sets out profit sharing policy, for when 3PL has initiatives that brings savings to the operation. Finally, attachment I establishes creation of joint meetings (daily, weekly and monthly), in order to monitor results as well as the creation of specific committees involving company's and 3PLs top management when performance is much lower than expected or even in the case of recurrent poor results;
- (4) Attachment II (Price List): Besides the unit prices of the contracted activities, this eight-page document also contains details of these prices in fixed costs and variable costs – and their main subdivisions – and operating margin. This breakdown is done so that readjustment index can be defined in advance, and each one of these can be readjusted without commercial negotiation on every annual price adjustment. This

document also contains acquisition values for major assets used specifically in the operation since the main contract states that in the event of termination, the client-company has the option of purchasing these assets.

Interviews were conducted after the contract analysis, intended to validate interpretation of the paperwork, and mainly investigate the decision-making process to outsource and how relationship management dynamics occurs in reality. By doing that, the objective was to make a comparison between what was stipulated in the contract and what is practiced day by day. In other words, the goal was to measure the degree of contract formalization of practices and rules in the relationship between both companies.

5. Results

Table 4 shows the evaluation of the items defined in the model, based on the analysis of contract documentation and interviews, for each analysis axis. The column “Evaluation item” refers to the boxes/questions described in the analysis model (Figure 1), the column “Data collecting mode” identifies how the item was evidenced (contract and/or interview), the column “Source” presents the number of contracts, documents and professionals consulted/interviewed. The evaluation column indicates the degree of adherence to the references, graded according to the following criteria: 0 (zero) if the item is not observed, 1 (one), if it is observed with low compliance in relation to the references and 2 (two), if the adherence observed is high. The intention in using these values is to highlight the practices that are not present, what practices are present in an intermediate degree and what are present as recommended by the literature, providing a direction for improvement besides just an evaluation.

In the evaluation axis, contracting the interviews showed that company motivation to outsource logistics activities was to test this business model based on the success of the practice in other sectors. Moreover, objective of outsourcing was to reduce investment in equipment, especially harvesters, leaving it to supplier. The fact of 3PL being conceptually a

Evaluation item	Data collecting mode	Source	Evaluation
<i>1) Contracting</i>			
Decision	Interview	Five company professionals	0
Procurement	Contract/ Interview	One professional one document	1
Contract	Contract/ Interview	Two professionals/Four contracts	1
Implementation	Interview	Two professionals	1
<i>2) Performance Management</i>			
Balanced metrics	Contract	Five company professionals	2
Process	Contract/ Interview	One professional/one document	2
Bonuses and Penalties	Contract	Two professionals/Four contracts	2
Qualitative Analysis	Interview	Two professionals	1
<i>3) Relationship</i>			
Alignment of expectations	Contract/ Interview	Two professionals/One document	0
Co-operation and improvement	Interview	Four professionals	1
Relationship management	Interview	Four professionals	1
Long-term vision	Interview	Four professionals	1

Table 4.

Evaluation item, data collecting mode, source and evaluation results for each analysis axis

Note(s): Professionals involved in interviews: One corporate manager, one logistics development manager, three co-ordinators linked to the process of hiring and managing CCT logistics operators, three managers from the agricultural logistics area and three area co-ordinators

solution provider was not considered. Thus, there were no strategic considerations about outsourcing. Considering this information, the first item (decision) was rated zero.

The outsourcing of CLT is a very recent process, and the first contracts were made by invitation to recognized companies in the market but with no prior experience in the sugar-ethanol sector. For that the second item (Procurement) was rated “1”. The company’s expectations are that soon there will be more experienced 3PLs in this area, future contracts can be conducted through a structured process of competition (bidding) and with greater expectations about previous CLT experience.

Contract was created based on market practices of outsourcing logistics activities and did not have the participation of the 3PL. There were no joint exercises to define possible points of disagreement and resolution rules. Both the contractual documentation and interview pointed to a high degree of formalization in terms of scope, responsibilities, goals and process performance assessment, rewards and penalties, meeting schedules, among others. The contract does not foresee contents periodic review, and in terms of flexibility it is limited to the requirement of automatic transfer in case of new rates and taxes that might influence the 3PLs costs operation. According to the company, this low flexibility is due to the fact that outsourcing CLT is recent, and company’s main concern when designing contract was to ensure that outsourcing took place in a stable manner, with no impacts on the operation, and that reviews and flexibility mechanisms would have been set over time. Whereas there are several points in line with recommendations, this question (contract) received a score of “1”.

The operation implementation is conducted jointly by company and logistics provider. Basically, company validates and monitors the schedule designed by the supplier and simultaneously performs the necessary internal actions, for example communicating and involving all necessary departments (safety and healthy, human resources, information technology, general administration, among others).

Company does not adopt a structured communication plan, so the affected areas are involved only when necessary. The same applies for training of employees that will remain in the process or for those whose will be working in interface with 3PL team. During the deployment process tools necessary to perform routine management of 3PL were presented to employees involved in both companies. However, as the implementation occurs during the offseason, the processes end up being structured and stabilized during the first month of operation. The lack of a structured communication process was considered a relevant gap, so this item (implementation) was pointed “1”.

In the evaluation axis performance management, the existence of balanced metrics, a well-established performance management process – containing all the recommendations found in literature – and the existence of bonuses and rewards policy were clearly evidenced in the contract attachment (management model); these three items were graded 2.

Again, due to the fact that outsourcing is new, it was observed that the process of qualitative analysis occurs at a low level. This is because the main focus remains on the compliance of the contract expectations and on the achievement of performance targets, and that is where the 3PL puts all their efforts. But still, this item received grade “1” instead of zero as the client argues that the routine of periodical meetings and the existing management model are facilitators on the process of analysis and improvement. This is expected to occur in a next step (after the “learning curve”).

In relationship evaluation axis, the item that verifies the alignment of expectations was pointed zero. First, the company’s expectations referring outsourcing were not deployed to internal teams, which in practice consider the 3PL as a traditional service provider. Second, 3PLs has low autonomy to plan and conduct their operations.

In order to evaluate cooperation level and 3PLs attitudes toward proactive improvements (co-operation and improvement), company’s perception about quality and communication effectiveness was obtained on the interview, as well as other aspects such as shared values,

trust, commitment, openness and opportunism within the buyer–supplier relationships. Communication between client and 3PL mainly occurs during routine meetings established in the contract. Even so, there are situations in which this channel is not effective, mentioning as examples the lack of early company reports informing 3PL about technical stops in production lines or the lack of 3PL reports informing work safety incidents and occurrences. There were no major efforts to use potential shared values between client and 3PL as a driving force for the alignment between both businesses, consequently boosting the partnership. In relationship description between company and 3PL, there was a great mutual trust. As mentioned during the interview, in some cases this trust was evidenced by the complete outsourcing of the CLT process in a plant on its first year of contract and, in other cases, the approval of financial loans for the 3PL to purchase equipment. On the 3PLs side, evidence of trust was the adoption of various technical premises passed by the client that directly impacted the financial result of the contract (since 3PL had no historical knowledge of the operation). According to the company, commitment and the absence of opportunism within the relationship have been measured at satisfactory levels, but it is noteworthy that there was, until then, situations of relevant disagreement over the calculation of results and rules on the contract, so that these two behaviors have not been fully validated. Finally, this opening between the companies is considered excellent, probably because the way this relationship has developed, resulted in the hiring of the service (invitation instead of bidding, in a long negotiation process, that involved the opening of technical information and total cost of both sides). Based on these considerations and taking into account that relationship between client and 3PL is recent, the grade attributed for the item co-operation and improvement was “1”, mostly due to the opportunities to improve communication and explore shared values.

Company’s departments interfacing with outsourced operation provide technical and operational support to the 3PL and actively participate in operational and managerial meetings. However, there is not a structured buyer–supplier relationship management process. So, there is no formal attribution of relationship management responsibilities for the professionals in contact with 3PLs, as long as their responsibility is limited to monitoring the operation, checking and reporting results. Considering this evaluation, a grade “1” was assigned to the item relationship management.

Last item assessed is long-term vision. When 3PL has satisfactory performance, there is no feedback of recognition from the client. However, every goal achieved, every initiative or innovation proposed by 3PL, are discussed and formally recognized, involving top management. Although both companies monitor absenteeism and staff turnover, there was no concern about the continuity of staff involved in the contract (retention) in order to guarantee the performance of the outsourced operation. On the other hand, as all the 3PLs came from other segments and the investments necessary to act in the CLT are quite high, 3PL long-term vision, at least within the sector, can be considered as a fact. Moreover, there is clearly a long-term vision on the part of 3PLs as they made investment initiatives on technical consulting for advice and in general search for final solutions (not palliative) to operational problems. Finally, the existence of a supplier development program can be considered an evidence of long-term focus. The dedication of resources for conducting this program aims to ensure that 3PLs continuously evolve in terms of operating results, which in a performance-based contract helps to meet the expectations of both companies. Considering the information gathered, the item long-term vision was graded “1”.

6. Implications for practice

The first major practical contribution of the present research is that it demonstrates that performance-based contracts can effectively contribute toward the outcome of the

CLT-outsourced operation by creating an environment of co-operation between companies and promoting discussions about results based on previously established indicators with focus on operational improvements. The analysis of these practices from performance-based contracts perspective will help companies to manage and improve the results of CLT outsourcing process.

Additional implications refer to the fact that while the indicators are extremely important for performance management, it is essential to combine measurements efforts with a qualitative analysis of processes and improvements implementation. So, the use of performance-based contracts represents a benefit for both the contracting company and the contractor because the customer pays only for the results achieved, and the contractors have more autonomy to innovate and to use all their knowledge and experience on the task to be performed.

Finally, the case study showed that, although the outsourcing of the CLT logistics is a recent process, modern practices are already being employed in performance management and in the relationship between the company and the logistics operator, especially with regard to the process of selection and contracting and performance monitoring routines. However, there are opportunities for evolution in several aspects, mainly internal alignment and inclusion of the areas impacted in the discussions related to outsourcing.

The analysis of the managerial practices currently used for performance management of outsourced CLT activities in Brazilian sugar-energy industry from performance-based contracts perspective will help companies to manage and improve the results of CLT outsourcing process.

7. Conclusion

Case study showed that although outsourcing CLT logistics is a very recent tendency, modern practices are already being employed in performance and relationship management between client and 3PL. However, there are still many improvement opportunities in various subjects, as shown in [Table 4](#).

It is noticed that performance management process is the most mature when compared to the practices identified in literature. There are three items fully compliant and only one with partial adherence, the qualitative analysis. This is because the focus remains on the compliance of the contract expectations and on the achievement of performance targets, and that is where the 3PL puts all their efforts. The need for a structured process of qualitative analysis is an improvement opportunity.

In the axis related to the contracting process, the item related to decision-making process was extremely poor rated (pointed zero), mostly due to the absence of strategic considerations to support outsourcing decision. The adoption of a selection process of suppliers showed partial compliance, but it signals progress with the entry of new players and maturity of the existing 3PLs in the segment. The contract includes a high degree of formalization and is well structured. On the other hand, the lack of 3PL participation in the preparation of the contract, as well as the absence of periodic revisions and low flexibility to its contents brings some gaps to the contract elaboration item. The elimination of these gaps in the future depends on both the maturity and greater mastery of the outsourcing process by the client company.

In the evaluation axis relationship, there was no adherence on the item regarding the alignment of expectations, which is considered the most relevant gap. The remaining items have shown intermediate levels of compliance, with attention to the need of

- (1) More focus on communication
- (2) A structured relationship management process and

(3) Initiatives to ensure the continuity of staff.

Additionally, the establishment of an effective relationship depends on time. However, it is necessary that the environment and the practices adopted by companies act as drivers immediately after the beginning of this relationship. The direct involvement of the top management of both companies is essential for the evolution of co-operation among them, through long-term vision sharing within the structures (which enhances the confidence, openness and lack of opportunism) and promoting the organizational changes needed. Thus, it is expected management commitment to the buyer-supplier relationship and a concern of the managers and their teams towards good performance of the outsourced operation.

The structuring of the data collection tools, with the prior definition of what should be obtained by means of interviews and what should be obtained through the interpretation of documents brought objectivity to the stage of information gathering. Within the interviews, the model's unfolding in a roadmap for capturing information sought to ensure that all defined items were evaluated. The presentation of the results, showing the gaps in relation to the concepts found in the literature, allowed to evaluate the process of performance management in a broad way, including pointing out the main factors of influence for the identified gaps. Thus, the research met the expected objective, proposing a consistent analysis model that allowed evaluating the process of performance management of logistics operators of the studied case in a satisfactory way.

Results have some limitations mainly because the interviews were conducted only with the client company, and so the observations may have some judgment distortion in items declared as adherent. Therefore, it is recommended for future studies the involvement of 3PL in analysis method application in order to contribute to a deeper and balanced evaluation of the relationship. Although the analysis method has been designed for this specific case study, it is applicable in other sectors since its structure was based on general concepts of performance management and logistics outsourcing.

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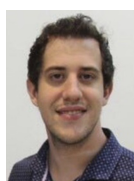
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