An AHP- Structural Contingency Theory -Based Approach for Supplier Selection: Insights from an Algerian Industrialized Company

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Abstract

In this paper, a structural contingency approach is demonstrated, as a roadmap for applying the Analytic Hierarchy Process (AHP) method for supplier selection in an Algerian supply chain environment. Despite the fact that various earlier research advocated a range of strategies for selecting effective suppliers, the AHP was identified as the most popular. There is no immediate evidence that techniques have taken into account the contingency theory for supplier selection while using the AHP. This research aims to consider and fill this gap by utilizing the most widely used set of key performance indicators (KPIs) derived from related literature with relation to wires/cables from the perspective of industry and subject matter experts. Furthermore, a comparison between a company case study procedure and the proposed methodology has been offered. The proposed framework seeks to tackle an issue of multi-criteria decision attribute observed by the authors in the company case study. Moreover, the proposed approach suggested that behavioural KPIs should be considered exclusively, without incorporating quantitative KPIs, which in this case study were price/cost; this is to eliminate the potential negative effect of the price / cost factor on the outcomes of the supplier selection process, which has potential to lead to a conflict with the company's strategic objective. Findings revealed that using AHP crudely would contradict the implementation of the strategic alignment process. As a structural contingency logic, AHP implementation does necessitate, in some cases, removing at least one factor from the model in order to improve strategy alignment.

Keywords: AHP, Contingency Theory, Supplier Performance, MCDM

1. Introduction

Selecting the most appropriate supplier, as the up-stream actors, has an important impact on a supply chain's efficiency and productivity (Tavana et al., 2021), as it will influence the supply chain’s competitiveness (Büyüksaatçi Kiriş et al., 2020).
Supplier’s options for the buyers’ firms are often challenging for a number of reasons, such as conflicting evaluating factors and several unquantifiable criteria, such the behavioural aspects. The possible impact of this being, that buyer’s demands, aligning with supplier’s options, can present a demanding challenge. Moreover, supplier selection has a strategic effect in supply chain management (SCM). Therefore, supplier selection is considered as a critical issue in SCM for sustaining a competitive advantage.

Classical ways to supplier selection have primarily focused on financial performance indicators, but after 1980s another set of essential factors including those with behavioural characteristics, especially the non-financial key performance indicators (KPIs) such as quality, flexibility, delivery and environmental performance have been also highlighted (Kilincci & Onal, 2011; Liu et al., 2019; Tavana et al., 2021).

Framed within the context of the study conducted by PwC and the Business Continuity Institute in 2013, 75% of businesses experience at least one major supply chain disruption each year, with supply-related issues accounting for the majority of the disruptions (Yoon et al., 2018). As a result, researchers have sought to develop advanced decision-making methodologies to assist in the selection and implementation of appropriate supplier development activities (Glock et al., 2017).

Accounting for procurement in strategic planning provides clarity on needed supplier responsibilities and qualifies the selection of relevant suppliers for the consolidation of organizational strategic capabilities (Nair et al., 2015). In this regard, the structural contingency theory (Galbraith, 1973) claims that the effectiveness of an organizations operations, may be determined by how well its strategy is linked with its design; this alignment between strategy and organizational performance is referred to as "fit." (Milgrom and Roberts, 1995). In the SC context, structural contingency theory proposes that the supplier’s performance evaluation should be matched with the company's strategy.

In this paper, to align the supplier selection objective with the company's strategic objective, the proposed structural contingency-based framework using the AHP method suggested that the price/cost criterion, which is included in almost all previous frameworks or constructs of supplier performance evaluation, be removed from the evaluation criteria and that its potential negative impact on the company's strategic objective be cancelled. This fits the company case study as observed by the authors.

A wire/cable firm has been chosen as a case study to assess the applicability of the proposed approach. Wire and cable industries fulfil three main functions: they transport information and/or energy, carry loads, or perform both functions occasionally. Wires and cables businesses have a significant socio-economic impact on all socio-economic sectors as a result of these three functions. Therefore, it is critical to assess and measure these industries’ supplier’s performance for which an efficient framework should be designed. To do this, a set of KPIs from the literature and wire/cable industry experts’ opinions are selected to help the buyer to have a thorough understanding of the supplier’ performance measurement (PM) process. In the context of an Algerian wire/cable company, the framework is used to evaluate the performance of a wires/cables industry’s suppliers.
The classical procedure of evaluating supplier performance was solely based on cost/price criteria. Companies have realized, however, that approach, which emphasises cost/price as the sole consideration, is ineffective and must be altered (Parthiban et al., 2013). As a result, multi-criteria techniques have been considered. Environmental, social, and behavioural aspects have been added to these multi-criteria decision making (MCDM) systems, making them more complicated (Parthiban et al., 2013). Alternatively, however, the AHP technique can be viewed as another MCDM method, used to address the criteria multitude problem as well as the unquantifiable factors related to behavioural aspects.

In this study, a framework based on structural contingency logic and the AHP approach is developed for supplier selection to overcome the criteria plurality problem and to negate the price/cost influence on the company's strategic objective.

From a comprehensive review of the literature, there is confidence that this paper describes a novel approach to dealing with the wires/cables industry, specifically in terms of supplier selection using the AHP method from a structural contingency approach. Furthermore, there appears to be no globally accepted strategy or framework for selecting suppliers that matches all buyer types. Moreover, the research incorporates a review of the general literature for related KPIs as well as the opinions of wire/cable experts to produce a full set of KPIs that are appropriate for the company case study based on a structural contingency logic. A key driver of this work, is to clearly identify that some performance assessing criteria/factors for the supplier's selection should be excluded as a structural contingency logic, where the company's strategic objective is taken into account. A framework is introduced to aid senior tier decision-makers in refining their supplier selection processes, in order to attain these objectives and fill these research gaps.

The nature of the suggested framework's adaptability, proposes that it can be used by other buyers in different industries' scenarios. The following is a breakdown of the paper's structure. The relevant literature is reviewed in Section 2. Section 3 contains the methods. The case study, research methodology and data collections, are defined in Section 4. Section 5 contains the numerical experiments, results analysis, and comments. As a final point, conclusions and perspective research are drawn in Section 6.

2. Literature review

Some relevant publications are examined in this area, along with approaches/frameworks and a variety of measures for supplier selection.

In the context of supplier selection decision making, Lima Junior et al.,(2014) conducted a comparison of the methods Fuzzy TOPSIS (Fuzzy Technique for Order of Preference by Similarity to Ideal Solution) and Fuzzy AHP; both methods were used to supplier selection of
a company in the automotive production chain. Kilincii & Onal (2011) proposed a fuzzy AHP-based methodology to handle a washing machine company's supplier selection problem. They calculated the priority weights of the alternatives using MS Excel macros based on the questionnaire forms. Awasthi et al., (2010) presented a fuzzy-TOPSIS multicriteria approach for evaluating environmental performance of suppliers. Linguistic assessments are used to rate the criteria and the alternatives. A numerical application is provided to demonstrate the proposed approach. Wu (2010) developed a stochastic efficiency analysis model as a new methodological extension to data envelopment analysis (DEA) for the international supplier evaluation. Aksoy and Öztürk (2011) advanced a neural network based supplier selection and supplier performance evaluation systems to aid just-in-time manufacturers in selecting appropriate suppliers. Their proposed approach was tested with data taken from an automotive factory. Ho et al., (2012) introduced modified Importance-Performance Analysis which uses the multiple regression analysis and Decision Making Trial and Evaluation Laboratory (DEMATEL) techniques to promote supplier quality improvement and solve complex problems using the cause-effect relation for the Supplier Quality Performance Assessment. A case of computer manufacturer is illustrated. Xue et al., (2018) employed a multi-stage multi-criteria decision-making (MCDM) method based on the evidential reasoning approach. A criteria framework of the supplier performance evaluation problem is constructed first. Then belief distributions are adopted to model the problem, wherein the rule-based information transformation technique is introduced to unify quantitative data and qualitative information. An illustration of high-speed train manufacturing case was given. Liou et al., (2019) developed a data-driven MCDM model that utilizes potential rules/patterns derived from a large amount of historical data to objectively select appropriate green suppliers. In this line, the authors combined other techniques such as the random forest algorithm and the DEMATEL.

From the perspective of a Turkish supplier, Inemek & Tuna (2009) conducted a literature study on global supplier selection procedures and implications for supplier performance. Quality, delivery, price, commitment and trust were found to be the most important factors in selecting global suppliers and maintaining long-term supply relationships. The authors demonstrate that 44 criteria were utilized in the evaluation and selection of suppliers, with quality being the most frequently mentioned and regarded as the most essential criterion, followed by delivery and cost. Tavana et al., (2021) proposed a fuzzy- based methodology that integrates the fuzzy group best- worst method and the fuzzy combined compromise solution method for supplier selection in reverse SCs within a lean, agile, resilient and green strategies in an automotive paradigm. Noshad & Awasthi (2015) introduced a multistep approach including fuzzy DEA, Delphi technique and the AHP method. Büyüksaatçı Kiriş et al., (2020) advanced a model which its main focus is on five performance criteria: reliability, responsiveness and agility for customers; costs and asset management efficiency for internal. Their model integrated the SCOR system and the fuzzy DEMATEL method.
Parthiban et al., (2013) proposed the MISM technique (modified interpretive structural modeling) and AHP to develop an integrated multi-objective decision making process for supplier performance evaluation. The cost was one of ten criteria in their decision model. An enhanced approach to MCDM approaches was described and applied by Parthiban et al., (2013) on an automotive component company, they used fuzzy logic, strength-weakness-opportunity-threat (SWOT) analysis, and data envelopment analysis (DEA). As supplier performance criteria, they consider quality, delivery, productivity, costs, and services. With an actual case study, Sevkli et al., (2007) combined the DEA technique and the AHP. The cost was one of more than 20 criteria included in their methodology.

There is no research on supplier selection employing both the AHP method and the structural contingency theory while removing the price/cost factor or while at least clarifying that one or more criterion should be omitted from the structural contingency viewpoint to emphasize more the company's strategic objective priority, according to the relevant literature. Furthermore, the presented framework incorporates expert opinion while also taking into account relevant literature, making the proposed approach more practical and resilient. Moreover, the use of the suggested framework for operations managers has been simplified by avoiding the complexity of mathematics models.

Operations managers tend to adopt simple methods in their daily duties due to time constraints. Despite the fact that the aforementioned frameworks are backed up by solid mathematical models. Nevertheless, from the point of simplicity, their implementation requires a strong understanding of software engineering and/or mathematics. As a result, the objective of this research is to provide a practical and easy model that operations managers (or buyers) can use to select their suppliers. Despite the fact that AHP is a robust MCDM, its implementation is simple and has a short learning curve (Mead 2008). For these reasons, the authors proposed a framework for evaluating supplier performance in order to improve the decision-making process and enhance the outcomes connected to supplier PM in an Algerian SC setting.

The proposed framework's usefulness is demonstrated by its application in a wire/cable firm. Finally, the proposed framework's results are presented to the case company's SC management in order to improve their supplier selection outcomes.

3. Methods

3.1 Supplier selection reasoning based on structural contingency theory

It is self-evident that the essence of a SC is that it is a system or a collection of subsystems, i.e., the SC partners, of which the supplier is one of the most important, is a subsystem in essentially any SC type. As a result, ignoring system thinking when studying the SC or any of
its subsystems concepts such as the environmental suprasystem, the interconnected nature of its partners as subsystems, and the system boundary notion, which led to the concepts of "closed" and "open" systems, which have been primarily useful in integrating process, quantitative, and behavioural or qualitative constructs, is not an option (Luthans & Stewart, 1977).

Despite the fact that each construct from various management approaches have been effective in specific situations, quantitative constructs have had significant difficulty accommodating behavioural or qualitative factors, and behavioural theorists have been more commonly effective in solving management problems more adaptable to qualitative approaches (Luthans & Stewart, 1977). There appears to be a need for a new management theoretical framework that can integrate various process, quantitative, and behavioural concepts into an interconnected theoretical system while also defining specific functional relationships between situational factors, management concepts and applications, and organizational performance (Luthans and Stewart, 1977). When used to supplier performance management (SPM), the AHP can accommodate both qualitative and quantitative aspects, as it may be used to create a new theoretical framework solution for SPM that integrates many quantitative and behavioural notions into a single theoretical system. The situational approach, on the other hand, claims that the most effective management concept or practice is determined by the collection of circumstances at a given point in time (Luthans & Stewart, 1977). Contingency theory (Thompson, 1967) states that no single superior approach can be used in all circumstances, implying that there is no single superior method or theory for managing an organization (Flynn et al., 2010). It further infers that the efficacy of certain managerial techniques such as participative decision making or task directed leadership is contingent on the organization’s context and structure. In this vein, organisations are always founded in a setting that includes both an internal and a situational exterior context. As a result, the environment influences the structure, processes, and technologies of organizations, as well as customers and suppliers, who are a significant element of a manufacturer's environment. (Flynn et al., 2010; Thompson, 1967; Waterhouse & Tiessen, 1978)

Structural contingency theory (Chandler, 1962 as cited in Luthans and Stewart, 1977) is an extension of contingency theory that claims that how effectively an organization operates is determined by how well the strategy it tries to pursue is linked with its design. In the literature on strategic management, this alignment between strategy and performance is referred to as "fit" (Flynn et al., 2010). Applied to SC, supplier performance should be evaluated and selected in accordance with the manufacturer's strategy. In addition to organizational and environmental contingencies, a third type of contingency recently emerged in strategy research is the level of performance attained by a business. Similar to the role performed by environmental and organizational factor, the level of performance also dictates a variety of strategic options open to an organisation. For example, the options open to a company whose performance is
continually dropping differ significantly from those available to a company whose performance is steadily improving (Harrigan, 1980 as cited in Ginsberg and Venkatraman, 1985). As a result, any thorough approach for defining the domain of strategy’s contingency perspectives should also include performance as a key contingency influence (Ginsberg & Venkatraman, 1985).

Our approach recommends that the AHP technique should only cope with behavioural aspects accounting for the company's strategic objective to avoid the effect of cost/prices on the company's strategic objective, based on structural contingency logic. AHP, on the other hand, has been implemented to improve behavioural measurements and address the problem of inconsistency that usually happens when dealing with behavioural aspects. Using the AHP to evaluate and select suppliers, dealing with both behavioural and quantitative (i.e., prices/cost of raw materials in our case study) factors at the same time might produce results that are at contradiction with the company's strategic objectives. AHP was also chosen because of its simplicity. Simplicity can be considered a situational aspect from the structural contingency logic and a rational argument to use the AHP in this case. AHP is implemented to rank a set of supplier’s performance according to the most common set of KPIs derived from the literature and the wire/cable industry's experts: quality, delivery, service and reliability. Finally, the importance of each criteria is attained that can help the buyer to improve the PM processes and to reveal the top performant supplier according to the company’s strategy.

3.2 KPIs for supplier’s selection in the wire/cable industry

Several performance indicators, based on the published literature, and framed in the context of in-depth interview’s result with a heterogeneous sample of experts (Saunders et al., 2009) from the wires/cables industry, are introduced from which relevant KPIs are identified (Table. 1).

<table>
<thead>
<tr>
<th>KPIs (criteria and sub-criteria)</th>
<th>References</th>
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<tbody>
<tr>
<td>Cost /Price</td>
<td>(Monezka &amp; Trecha, 1988; Van Nyen et al., 2009)</td>
</tr>
<tr>
<td>Service</td>
<td>(Hammami et al., 2020; Posselt &amp; Gerstner, 2005)</td>
</tr>
<tr>
<td>Reliability (responsiveness and problem-solving ability)</td>
<td>(Islam et al., 2020; Kim et al., 2012; Lee et al., 2020)</td>
</tr>
<tr>
<td>On-time deliveries</td>
<td>(Grout &amp; Christy, 1999; Kamalahmadi &amp; Mellat-Parast, 2016; Noori-Daryan et al., 2019)</td>
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Quality (raw material quality, compliance to regulations and specifications, quality of delivery documentation) (Kalaignanam et al., 2017; Persson & Olhager, 2002)
Environmental performance (Awasthi et al., 2010; Humphreys et al., 2003; Shen et al., 2013)

3.3 The AHP approach
AHP (Saaty & T.L, 1980) has been regarded as one of the most widely used MCDM methods to date due to its ease of use and flexibility. It can account for behavioural factors, which were thought to be a step forward from existing MCDM techniques (Emrouznejad & Marra, 2017). It also allows for the weighing of decision-making inconsistency (Saaty & T.L, 1980), which is a distinctive feature when compared to other MCDM techniques. AHP also allows experts' obsolete judgments to be embodied. Accounting for these factors would make the proposed model more effective. Furthermore, suitable software, such as the SuperDecision software (www.superdecisions.com), greatly facilitates the decision-making process, allowing the degree of inconsistency in the decision-making process to be easily measured. Another advantage of the AHP approach is that the paired comparison can be repeated to decrease potential conflicts.

In this study, AHP incorporated behavioural KPIs while quantitative ones which were the cost/prices in our case study have been excluded from the model from the structural contingency point of view and that to measure the supplier’s performance without affecting the strategic objective of the company case study. To test the proposed approach, the AHP method was applied twice, as in the first method (Method A) the AHP model incorporated five main criteria (quality, delivery, reliability, service and the price/cost criterion), and in the second method (Method B) the AHP model has been applied including only the first four mentioned criteria (i.e. the price/cost criterion has been omitted from the model). Subsequently, a comparison between the company method results which is a price/cost based method and the method A and the method B (the proposed approach) have been illustrated to reveal the robustness of the proposed approach.

4. A case study
4.1 Research strategies and data collection
This study employed a case study research strategy based on the authors' observations, which revealed two major issues: a delay in a significant amount of deliveries and the price/cost-based method of supplier selection. The triangulation technique was used to collect data, which involved a combination of in-depth interviews with a heterogeneous purposive sample of wires/cables experts, as well as archival research and a partial literature review (Saunders et al., 2009)
4.2 The company’s profile

‘Entreprise National des Industries des Cables Biskra’ (ENICAB). Was established on 1982. On 20/05/2008, ENICAB became a subsidiary of Group Cable Sistemas. It covers 35% of national needs in all wire /cable types.

The copper constitutes the strategic as well as the principal part of purchased raw materials. For that reason, it has been dealt only with the copper’s suppliers as a non-probabilistic sample (Saunders et al., 2009)

5. Implementation of the proposed approach

In this section, the implementation illustration of the AHP model is devoted to the model B (the proposed approach) as far as the model A, the same steps are fallowed.

The AHP implementation involves five stages: (A) Diagnosing the problem; (B) Structuring the decision model, (C) Pairwise comparisons construction (D) Assessing the model and (E) Results including supper matrices development and discussion (Thomas., 2008).

5.1. Diagnosing the problem

The proposed AHP is focused on the copper (8mm Ø) suppliers. This category of raw materials accounts for around 45 percent of the overall material amounts. Given the fact that the company is aiming to implement ISO 9001:2008 standards, the problem of supplier PM is still being managed in a largely obsolete method, that used a cost-based decision method. Furthermore, when it comes to supplier PM and selection, the organization does not use the AHP method or any modern MCDM technique. In these circumstances, all pair-wise comparisons have been made based on the buyer's experience collaborating with a single author.

5.2. Structuring the decision model

A MCDM software, with the proprietary identifier of 'SuperDecisions' (www.superdecisions.com) has been employed to carry out all calculations and form the AHP structure. Figure. 2. Illustrates the proposed model.

5.3. Pairwise comparisons
A unique nine-point scale was utilized to conduct all pair-wise comparisons, resulting in a total of eleven questionnaires; even numbers are intermediate values (Thomas., 2008). Following that, we have 11 matrices: one for the criteria cluster and two for the sub-criteria clusters; the first is for the sub-criteria under the ‘quality’ node; it covers raw material quality, documentation quality, regulatory compliance, and environmental performance. The other one is for the sub-criteria cluster related to reliability criteria which includes responsiveness and problem-solving ability nodes. (figure. 1)

5.4. Assessing the model

The factors’ priorities are determined. The output of the limit matrix can be translated into relative priorities, which are the total preferences of the company’s possible suppliers and the prominence of the corresponding evaluation criteria

5.5. Results: supper matrix development and discussion

This stage includes the supper matrix development. The eigenvectors, which have been figured by the software, are presented by The Limit Matrix. Table. 2. Shows the concluding results from the Limit Matrix.

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Priorities</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier B</td>
<td>0.0702</td>
<td>5</td>
</tr>
<tr>
<td>Supplier E</td>
<td>0.1328</td>
<td>3</td>
</tr>
</tbody>
</table>
In Method A, the authors entered the cost/price factor. Moreover, the authors directed the buyer to raise the degree of preference for the time deliveries (Table 4), since the company suffers from delays in delivering orders on time. However, we note that the cost/price factor still has a negative impact on the rest of the criteria. This however, aligns with the strategic objectives of the company, where the company believes in the importance of satisfying and meeting the needs of its customers, but it is not enough if the company wants to allow greater importance to the other factors/criteria especially the delivery time. For these reasons, the authors considered that it appropriate to remove/eliminate the cost/price factor, to allow greater importance to the company's strategic objectives with priority focus on the time deliveries factor and this is what was followed in Method B as a structural contingency approach. This doesn’t mean the total neglect of the cost / price factor, but rather it is a strategic choice which is sacrificing an objective with less strategic importance (i.e., make profit in the short term) for a more important strategic objective which is gaining customer satisfaction and improving market share. This is because the current conditions of the company call for accelerating the improvement of the time deliveries, in addition to the fact that the prices of suppliers do not differ much.

Table 3 shows the proportional relevance of criteria. The most significant of these factors was determined to be 'delivery time' (0.5), followed by 'quality' (0.25). In terms of alternatives (Table 2), 'supplier A' (0.3488) was the best performing possible supplier, followed by 'supplier C' (0.3197). According to table 2, pairwise comparisons should be carried out in accordance
with the company's strategic objective. In this context, the author indicated in the in-depth interview that the buyer should prioritize the ‘delivery time’ and the ‘quality’ which are more aligned with the company's strategic objectives. As a result, the buyer has assigned the 'delivery time' criterion (0.5) and the 'quality' criterion (0.25), higher than the other factors. Because the buyer believes that the suppliers have the same quality.

5.5.1 Results’ comparison of the company method, method A, and the proposed method B

Table 5 demonstrates the results of the three methods

<table>
<thead>
<tr>
<th>Alternatives with their prices/cost in dollar/ton</th>
<th>The company method (price/cost-based method)</th>
<th>Method A: The AHP method including price/cost as a criterion</th>
<th>Method B: The proposed method with regards to contingency logic (excluding the price/cost criterion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier A (5964$/ton)</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Supplier B (5972$/ton)</td>
<td>3</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Supplier C (5959$/ton)</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Supplier D (5994$/ton)</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Supplier E (6317$/ton)</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 5 shows that the suppliers’ ranking results according to the company’s method and method A correspond to a large extent with each other, that due to the price/cost effect on the model results, where the model was affected by the cheapest suppliers at the expense of the influence of other behavioural factors (quality, delivery time, reliability and service). As these results do not fit the company’s strategic objective. i.e., satisfying customers with regard to the mentioned behavioural factors. This indicates the threat of the ‘crude application’ of the AHP without taking into account the circumstances of the organization as a structural contingency approach. The aforementioned behavioural factors present strategic choices regarding customer satisfaction, as well as being a critical factor for the company's competitive advantage achievement, especially since the prices of suppliers do not differ greatly (table 5). Therefore, to make the supplier selection’s objective compatible ('fit') with the company’s strategic objective, method B should be adopted.
6. Conclusion

The performance of wires/cables industry suppliers was measured and evaluated in this study using a structural contingency AHP-based framework, which considered and addressed the problem of supplier performance decision-making in connection with the company's strategy. The buyer's evaluation of the supplier's performance can be viewed as a beginning point for contributing to the company SC's performance improvement. In this regard, the AHP application from the structural contingency theory perspective can provide a roadmap for completing this difficult endeavor.

Using old performance measurements like the cost-based method would be in conflict with the company's strategic objective. Furthermore, research revealed that, similar to the role performed by environmental and organizational contingencies, a business's degree of performance dictates a range of strategic options available to it. In this context, findings demonstrated that to benefit from the application of the AHP method, the situational factor must be taken into account, in which the strategic objective is the most important factor. On this basis, the application of AHP may call for the cancellation of some factors in order to focus on other factors or to avoid the effect of the removed ones on the rest of the factors that better serve the strategic objectives of the company.

The proposed framework would assist the buyer in having a more effective decision-making process for evaluating and selecting suppliers. As a result, it will aid in the enhancement of SC performance. Accounting for new research that promotes the building of a lengthy relationship based on trust and collaboration between the buyer and the supplier will considerably increase the supplier's performance since it will be a good complement to this research.

Acknowledgment

The authors express their gratitude to Mr. Nacereddine HOUHOU, the SC manager, for his invaluable assistance, as well as Mr. Maria GALLEGO, the Chief Executive Officer-CEO of Group Cable Sistemas' ENICAB subsidiary. Furthermore, ENICAB's specialists, the conference's scientific committee, and the paper's anonymous referees deserve appreciation.
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