THE CONTRIBUTION OF THE BALANCED SCORECARD TO STRATEGIC ALIGNMENT: A SYSTEMATIC LITERATURE REVIEW ADAPTED FOR DESIGN SCIENCE RESEARCH

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ABSTRACT

Highlights: The Systematic Literature Review (SLR) approach is specifically focused on the sciences of the artificial (what has been produced, invented, or influenced by man), with a problem-solving focus that is not solely supported by the traditional social and natural sciences paradigm. The aim is to update the theoretical ballast of the Balanced Scorecard’s (BSC) contribution to organizational strategic alignment through an RSL, adapted for Design Science Research (DSR) based studies. The adapted RSL was used for research employing DSR, a methodology based on Design Science that presents more suitable applicability for organizational problem-solving. It was found in this study that the BSC contributes to strategic alignment, especially concerning the ability to communicate the strategic priorities, translation, and operationalization of strategic objectives and the balancing and alignment between areas and departments towards a common goal. Moreover, it was observed that its role in motivational influence, awareness, and behavior of employees, besides the possibility of joint use with fuzzy logic for translating inaccuracies and vagueness associated with human thinking in decision-making. The RSL performed by only one person rather than a team of researchers and the reviewed articles are ontologically and epistemologically different. This may limit their comparability, considering the vagueness and imprecision of human thinking in decision-making processes (fuzzy logic); the influence of the BSC on coordinating employees by encouraging their motivation and communicating strategic priorities, and establishing awareness of organizational responsibility. In this context, the discussion on the strategic alignment provided by the BSC performance measurement system, which is still widely used and whose approach needs to be updated because it has existed for almost thirty years, and the incorporation of the fuzzy concept to solve organizational problems were deepened.

Keywords: Strategy; Alignment; Balanced Scorecard; Design Science Research.
1. INTRODUCTION

According to Oliveira (2018), strategic planning is the administrative process that provides the methodological basis for establishing the direction to be followed by the company to optimize and improve its degree of interaction with external factors in an innovative and differentiated way. From Kaplan and Norton’s (1997) point of view, at first, there were preponderantly financial measures focused on the past performance of organizations whose assets were, until then, mostly tangible. However, due to the development of new businesses, greater market complexity, and new organizational structures, the analysis of the so-called intangible assets has become necessary. Examples of such assets are quality, innovation, customer relations, information, and knowledge. Thus, it was sought to fill the gap between the accounting model and the competitive requirements of the information age to add value to the business and obtain an advantage in the competitive battle.

Thus, in the 1990s, the Balanced Scorecard (BSC) emerged in the USA, bringing together performance indicators into four perspectives associated with a logical structure of cause and effect and which cannot be seen independently: “Financial Perspective,” “Customer Perspective,” “Internal Process Perspective,” and “Learning and Growth Perspective.” Through them, the model can be understood as a strategy based on a particular collection of critical indicators that measure managerial performance in implementing the business strategy (HU et al., 2017).

The strategic communication capability of the BSC in organizations that operate in highly competitive scenarios assists decision-making and strategic alignment adjustments and, consequently, promotes the synergy of actions at the various hierarchical levels aimed at achieving the common goal (Kaplan and Norton, 1997). According to Guerra et al. (2018), the BSC is expected to drive the energy, skills, and knowledge of all employees in the organization to achieve long-term goals. By building these strategies and capabilities, organizations provide value to the market and provide value to their shareholders at the same time. In this aspect, Quesado et al. (2018) indicate that the BSC fosters the development of long-term competitiveness skills that, in the competitive context, can mean future value creation. Furthermore, according to the authors, the BSC increases the organizations’ ability to implement strategies and improve their performance and highlights value creation processes and the importance of intangible assets for the organization.

In Maltempi (2014), the increased search for companies’ competitiveness has encouraged the adoption of best practices in management and the increasingly extensive use of support tools. From this perspective, the BSC still proves to be quite relevant since, according to a survey conducted and published by Bain and Company (2018), with more than 1,268 managers worldwide, the BSC is still the third among the twenty-five most popular management tools. Moreover, according to Bain and Company (2018), the BSC remains relevant among the main management tools. According to the publication, the BSC presents its usage and satisfaction rates with values of 29% and 3.93, respectively, which indicates that the tool is practically the average relevance compared to the others, with usage and satisfaction rates of 30% and 3.99, respectively (Bain and Company, 2018).

Given the relevance and importance of the BSC’s contribution to organizational competitiveness and its capacity for top-down strategic alignment, as indicated by Quesado et al. (2018), this work is justified by contributing to the improvement and updating of the theoretical ballast that underlies the process of strategic alignment in organizations that apply the BSC. Moreover, according to the authors, the tool has already had almost thirty years since its first publication (Kaplan and Norton, 1992), making it timely to update the most recent approaches on the subject.

In terms of new perspectives for problem-solving, RDS is an alternative methodology for research instead of traditional science. Thus, the RSD is more suitable for developing artifacts that allow satisfactory solutions to practical problems and are aimed at the organizational context (Dresch et al., 2015).

According to Dresch et al. (2015), the discussion on Design Science began with verifying the existing gap due to the sole and exclusive use of traditional sciences to conduct certain investigations. Thus, research aimed at studying the project, the conception, or problem resolution cannot be sustained solely with the paradigm of traditional social and natural sciences, whose central focuses are to explore, describe, explain, and, when possible, predict.

Also, according to Dresch et al. (2015), due to research in organizational areas that is generally restricted to the internal environment of organizations, it is advisable to use Design Science in this type of research to ensure relevance and academic credibility, in addition to the global reach of the results obtained. From this perspective, rigor is essential for conducting Design Science research so that the results can be disseminated by the academy and in relevant publications, which allows for greater interaction between the practical and theoretical worlds.

Thus, Design Science is the epistemological basis of the study of the artificial, which, according to Simon (1996), would be everything that was produced, invented, or influenced by man. Conversely, DSR is understood as the method for supporting and operationalizing research conducted when the goal to be achieved is an artifact or a prescription. As it re-
presents a problem-solving approach, the RSD seeks, from the understanding of the problem, to build and evaluate artifacts to modify situations by changing their condition to a desired or more favorable state (Dresch et al., 2015).

In turn, Ayoup et al. (2016) indicate that most publications on BSC highlight its function as a performance measurement system (PMS) much more than as a strategic alignment tool. Hence, the relevance of this research to fill this knowledge gap stands out. Therefore, the following central research question is defined: “How can a BSC application contribute to organizational strategic alignment?”

Hence, there is an opportunity to deepen the discussion on the relationship between strategic alignment and BSC through an RSL with the approach proposed by Dresch et al. (2015). As such, this article aims to update the most recent publications on the contribution of the BSC to organizational strategic alignment through an RSL, adapted for research using the DSR methodology. Furthermore, this article also contributes as a reference for conducting methodological steps of an RSL, a fundamental requirement in DSR-based research.

This paper is divided as follows: the first part includes the introduction with the presentation of the opportunity of the study, the main objective, and the theoretical framework that establishes the boundary conditions of this research. The second part includes the research methodology and the detailed method for conducting the RSL. In the Results section, the main concepts and approaches reviewed are discussed, and, finally, the conclusion and opportunities for future work are presented.

2. METHOD

The RSL proposed for the research problem will be presented in this section. According to Morandi and Camargo (2015), RSL is a secondary study used to map, critically evaluate, consolidate, and aggregate the results of relevant primary studies about a specific research question or topic. Also, according to the author, the expression “systematic” means that the method must strictly follow an explicit, planned, and justifiable method. The research must be well planned to avoid bias and to ensure replicability.

Cooper (2015) defines the RSL, or research synthesis, as a study focused on empirical research findings aimed to integrate previous studies by inferring generalizations from a series of separate investigations that deal with identical or related hypotheses to the research topic. Also, according to the author, the research’s main goal is to present an overview of the state of knowledge regarding the variables of interest and to highlight the points that still need elucidation.

The first step proposed by Cooper (2015) for conducting an SLR is “Problem Formulation.” In this step, the relevant variables for the research and which research evidence will be relevant or irrelevant to the problem or hypothesis studied are defined. The second step is the “Literature Search,” which involves deciding the population of elements that will focus on the research since it seeks cumulative results that reflect all previous research on the problem and include studies that allow generalization. The third step, “Gathering of information from studies,” requires the researcher to define what information he will need from each research unit, in addition to defining a training procedure for the people who will gather the information, ensuring that they will do so in a reliable and traceable manner. In the fourth step, “Evaluation of study quality,” the researcher critically analyzes the quality of the data obtained. In the fifth step, “Analysis and integration of study results,” the researcher needs to analyze the various data types and integrate them to identify patterns and rule out outliers. In the sixth step, “Interpretation and Evidence,” the researcher interprets the cumulative evidence and determines which conclusions are justified by the data. Finally, the seventh step, “Presentation of results,” involves publishing a document describing the research and resolving the research problem.

For Thomé et al. (2016), an RSL uses well-defined and rigorous criteria to identify, evaluate, and synthesize the literature, including a list of studies published in peer-reviewed or grey literature. Grey is understood as any material that is not easily identifiable by a traditional bibliographic index or database, such as newsletters, reports, working papers, and theses. Thomé et al. (2016) also use a step-by-step approach to conducting an RSL influenced by Cooper (2015). The first step is “Problem planning and formulation,” which includes building the research team, defining the scope, conceptualizing the topic, defining the research question theory, and proposing the search protocol. The second step, “Literature search,” includes selecting databases, journals, and periodicals for the search, defining keywords, reviewing abstracts, applying inclusion and exclusion criteria, reviewing full texts, and backward and forward-searching. Then, in the third and fourth steps, “Data gathering” and “Quality assessment,” respectively, the risks of bias in the review are assessed, and their quality assessment is performed. In the steps “Data analysis” and “Interpretation,” in this order, data consolidation and interpretation are performed. Finally, in the steps “Presentation of results” and “Update of the review,” the final presentation is prepared and kept up to date.

In Tranfield et al.’s (2003) approach, the SLR features three stages: “Planning the review,” “Conducting the review,” and “Reporting and disseminating the review.” The first stage can be divided into identifying the need for review, preparing a review proposal, and developing a review protocol. The second phase, “Conducting the review,” includes identi-
fying the research, selecting studies, assessing study quality, extracting data, monitoring research progress, and synthesizing data. The third phase, “Reporting and disseminating the review,” includes presenting the review results and recommendations and obtaining practical evidence of the findings.

Morandi and Camargo (2015), in turn, indicate that the first step would be the “Definition of the issue and the conceptual framework,” i.e., the definition of the central theme to be discussed as to its specificity, extension, comprehensiveness, and scope, and the definition of a conceptual framework, which can be understood as a skeleton for conducting the research. Then there is the step of “Choosing the work team,” in which, in general, a team can be assigned for carrying out the research, mainly due to the length and deadline of the reviews. The third step is the “Search Strategy,” in which time is invested in designing a search strategy that can manage high volumes of information. In the next step, “Search and coding eligibility,” the operationalization of the search takes place, i.e., the search, selection, and coding of primary studies based on the strategy defined in the previous step. In the “Evaluation and quality” step, the credibility of the results produced is verified. In the “Synthesis of results” stage, the results of the Systematic Literature Review are integrated to generate knowledge that did not exist in the primary studies. Finally, in the “Study presentation” stage, the results of the Systematic Literature Review are integrated to generate knowledge that did not exist in the primary studies. Finally, in the “Study presentation” stage, the review results are widely disseminated, generally through publication in scientific journals. It is worth noting that the model proposed by Morandi and Camargo (2015) makes explicit the participation of stakeholders, i.e., the interest groups that influence the conduct of the review or those who will subsequently use the research results.

Thus, the steps of conducting RSL according to the cited authors can be summarized in Chart 1.

<table>
<thead>
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Thus, to give greater attention to the steps of defining the review question, research strategy, and result synthesis, Morandi and Camargo (2015) propose a classic RSL model specially adapted for research using RSD (Diagram 2).

Thus, in the first stage, “Definition of the question and conceptual framework,” the research question is: “How can a BSC application contribute to organizational strategic alignment?” After this phase, a research strategy is proposed, called the “Search strategy.” In this step, one must follow a search protocol (Chart 1) in addition to applying filters and criteria for article inclusion and exclusion. First, based on the mentioned protocol, publications were sought in the article databases based on the search string defined in the protocol. In this research, the proposed string and the search keywords related to the research question (“Alignment,” “BSC,” “Strategy,” and “Balanced Scorecard”) and the logical operators (“OR” and “AND”) were adjusted for each base to return the largest number of publications possible.

The search strategy implemented has been illustrated in Diagram 3.

The steps of the search strategy for the Systematic Literature Review are described below.

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The search strategy implemented has been illustrated in Diagram 3.

The steps of the search strategy for the Systematic Literature Review are described below.
1) Search for articles based on the RSL search protocol:
In this step, based on the Search Protocol (Chart 2) and the keywords “Strategy,” “BSC,” “Balanced,” “Scorecard,” and “Alignment,” the selected databases Scopus, Web of Science, and Science Direct were searched for publications using the following search strings defined using the criterion of the highest possible number of articles returned:

- **Scopus**: (Strategy AND Alignment AND BSC OR Scorecard);

- **Web of Science**: (Strategy AND Alignment AND Balanced AND Scorecard);

- **Science Direct**: (Strategy Alignment AND BSC AND Scorecard).

2) Data registration of the studies found: In this step, a total of 411 publications were obtained through the searches. The following is the total number of publications according to their respective databases:
3) Reading of the articles’ titles and abstracts: In this step, only the titles and abstracts of the articles are read to verify whether there was mention of the search keywords as defined in the research protocol (Chart 2);

4) Filtering articles by reading the title and abstract: After reading the title and abstract indicated in the previous step, whether the publications have referred to at least one keyword in their titles or abstracts is verified. If at least one keyword is mentioned in the title or abstract, the study is filtered and moves on to the next step. Thus, a total of 29 articles that passed through this first step were obtained:

- **Scopus** - Total of returned articles: 104;
- **Web of Science** - Total of returned articles: 73;
- **Science Direct** - Total of returned articles: 234.

5) Exclusion of articles that do not meet the criteria: In this step, articles that do not mention at least one keyword in the title or abstract are excluded and do not proceed to the second filter. Thus, a total of 382 articles were excluded in this step:

- **Scopus** - Total articles excluded in the first filter: 89;
- **Web of Science** - Total articles excluded in the first filter: 67;
- **Science Direct** - Total articles excluded in the first filter: 226.

6) Selection of potential studies: In this step, the 29 publications selected in the first filter (Step 4) were checked for duplicates. After this step, five publications were repeated and excluded. According to their database, the remaining 24 publications were
tabulated in chronological order, from the oldest to the most recent, as shown in Table 3;

7) Full-text reading: In this step, again based on the research protocol (Chart 2), a detailed reading (screening) of the articles cataloged in the previous step is performed to check if the content of the articles refers to the relationship between BSC and strategic alignment;

8) Second filter through the exclusion and inclusion criteria: In this step, for the publication to be included in the review, it must be written in English, be available on the web through the selected databases, and, in addition, it must refer to the relationship between strategic alignment and the BSC or to the BSC’s ability to contribute to strategic alignment. In total, 12 articles passed the second filter:

- **Scopus** - Total filtered articles: 8;
- **Web of Science** - Total filtered articles: 1;
- **Science Direct** - Total filtered articles: 3.

9) Study selection for inclusion in the search and data storage: In this step, the articles that passed the second filter are cataloged, as detailed in Chart 4. Thus, the analytical reading of these articles was performed to carry out the other steps of the Systematic Literature Review (SLR). On the other hand, after this second filter, a total of 12 articles were excluded:

- **Scopus** - Total articles excluded in the second filter: 5;
- **Web of Science** - Total articles excluded in the second filter: 3;
- **Science Direct** - Total articles excluded in the second filter: 4.

Chart 2 describes the search protocol used in the research.

Diagram 4 shows the schematic summary of the selection flow of publications included in the RSL according to the steps of the search strategy (Diagram 3).

Chart 3 below shows the catalog of publications included after the first filter.

Chart 4 below shows the catalogue of publications included after the second RSL filter.

3. RESULTS

Once the RSL article search and selection step has been conducted, one can consolidate the information about each step of the Search Strategy (Diagram 3) conducted in the three different databases: Scopus, Web of Science, and Science Direct in Table 1.

Regarding the research lines on the studied theme, it was found that several authors have studied the role of the BSC for strategic alignment. In Tables 5, 6, and 7, the last step of conducting the RSL is presented, “Synthesis of results,” according to Diagram 2, where the main approaches of different concepts related to the theme researched in the RSL are summarized.

According to Rezende and Nogueira (2010), it was evidenced that the corporate performance would be conditioned to the strategic alignment, especially the integrated management strategy and a business model to obtain greater total value to be distributed to stakeholders.

The use of the BSC to control and communicate the mission and strategic objectives throughout the organization was highlighted by Quesado et al. (2018). According to the authors, the BSC facilitates strategy definition in operational terms. It facilitates communication effectiveness by making possible a systematic dialogue between the organization and its employees, their respective activities, and departments, in addition to continuous feedback on the achievement of strategic goals. Furthermore, according to Quesado et al. (2018), the BSC can increase employee morale since it establishes a link between employees’ contributions to the corporate mission and strategy. From this perspective, the study aligns with the perception of Rezende and Nogueira (2010). Furthermore, there may be an increase in the spirit of cooperation, communication, and visibility between top management and operational and administrative employees. The most significant contribution of the BSC would be its ability to enable organizations to build a high-performance-oriented culture as alignment is promoted between key indicators and the company’s strategic objectives at all organizational levels (Quesado et al., 2018).

There was also confluence regarding the relationship between BSC and strategic alignment to increase organizational performance (Ayoup et al., 2016; Jusoh et al., 2008). In their research, Jusoh et al. (2008) indicated that the effectiveness of integrated, comprehensive, and coherent performance measurement systems depends largely on how well strategy and performance measures are aligned, integrated, and harmonized to improve organizational performance. Moreover, the authors’ research results indicate that when financial, consumption, internal processes, learning, and innovation measures are properly aligned to meet the organization’s
The BSC is a tool for organizational alignment in the company studied. One of the ways to verify the tool’s contribution to strategic alignment is through the stakeholders’ perception. However, there is difficulty capturing their perception, which is based on approximate reasoning. Thus, it is proposed to verify the most suitable approaches to quantitatively translate the human perception of the organizational strategic alignment provided by the BSC.

Context
The research will be conducted through a Systematic Literature Review model proposed by Morandi and Camargo (2015).

Horizon
Between 2008 and 2019

Theoretical Currents
Strategic management, strategic communication, strategic alignment, performance measurement systems (BSC)

Languages
English

Revision Strategy
Aggregative

Search criteria
Inclusion: Articles that mention the search keywords in their titles or abstracts are included in the title and abstract reading stage. In the second filter, articles in English that were available on the web in the selected databases and made reference to the relationship between strategic alignment and the BSC or to the BSC’s ability to contribute to strategic alignment were included.

Exclusion: Articles that do not mention the search keywords in their title or abstract were excluded from the title and abstract reading stage. In the second filter, articles were excluded if they were not written in English, if they were unavailable on the web in the selected databases, and if they did not refer to the relationship between strategic alignment and the BSC or to the BSC’s ability to contribute to strategic alignment.

Search Terms
Scopus: (Strategy AND alignment AND BSC OR Scorecard)
Web of Science: (Strategy AND alignment AND Balanced AND Scorecard)
Science Direct: (Strategy alignment AND BSC AND Scorecard)

Search database
Web of Science, Science Direct, and Scopus.

Chart 2. RSL Search Protocol

Diagram 4. Publication Selection Flow for RSL
 strategic requirements, superior non-financial performance occurs. This performance should exist regardless of the type of strategy the organization adopts or emphasizes since the four BSC perspectives’ overall alignment can explain this superior performance level.

The study of Ayoup (2009) demonstrated that the relationship between an effective strategic alignment and a compensation plan based on the BSC could generate positive results in the extrinsic motivation of executives. Moreover, according to the authors, there is a lack of published studies dealing with the BSC implementation process in the context of real organizations. From this perspective, Ayoup (2009) indicates that an effective strategy deployment depends on factors such as the level of understanding of managers and their respective departments about the strategic objectives, sponsorship of initiatives by managers, and communication, in addition to time constraints, supervision, and coordination. They add that an effective deployment process will enable the organization to access a platform to achieve strategic alignment, always linked to better financial and non-financial performance.

In a subsequent study, Ayoup et al. (2016) indicate that
most of the literature on BSC has focused more on its function as a performance measurement and management tool than as a strategic alignment tool. Therefore, evidence of the BSC for such a purpose is limited. Thus, strategic alignment theory states that organizations that seek to align their different components, such as people, systems, and structure, perform better in achieving their strategic objectives than those that do not. Also, according to the authors, a failure to strategically align the various components can lead to undesirable implications such as strategic objectives that are misaligned across sectors, measures that may not be fully understood or applied, goals that may be compromised or not achieved, and important initiatives or investments that may not be prioritized, optimized, or adequately sponsored.

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**Chart 4. Publications Catalogue after RSL’s Second Filter**

*Source: The author (2020).*
red, which can lead to costly corrections. Still, according to the authors, strategic alignment enables organizations to improve their performance and efficiency. Consequently, a competitive advantage is gained and maintained. In addition, successful implementation of organizational strategies requires a crucial understanding of the link between resources, activities, and the desired outcome.

Both Ayoup (2009) and Ayoup et al. (2016) discuss the possibility that alignment can be categorized into vertical and horizontal and can also be achieved through strategy deployment. In turn, Melnyk et al. (2005) defined vertical alignment as the alignment of strategies, objectives, action plans, and decisions at all levels of the organization. On the other hand, the horizontal alignment would be defined as a matrixed and coordinated alignment of efforts among struc-

<table>
<thead>
<tr>
<th>Search Sting used</th>
<th>Base</th>
<th>Total publications found</th>
<th>Total publications after analyzing titles and abstracts</th>
<th>Potential studies after duplicity elimination</th>
<th>Number of publications after the second inclusion and exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>(“Strategy” AND “Alignment” AND “BSC” OR “Scorecard”)</td>
<td>Scopus</td>
<td>104</td>
<td>15</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>(&quot;Strategy” AND “Alignment” AND “Balanced” AND “Scorecard&quot;)</td>
<td>Web of Science</td>
<td>73</td>
<td>6</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>(&quot;Strategy Alignment” AND “BSC” AND “Scorecard”)</td>
<td>Science Direct</td>
<td>234</td>
<td>8</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>411</strong></td>
<td><strong>29</strong></td>
<td><strong>24</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

**Table 1. Base Search Summary**
Source: The author (2020).

<table>
<thead>
<tr>
<th>Conceito</th>
<th>Definição</th>
<th>Autor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alinhamento estratégico e BSC</td>
<td>O alinhamento entre estratégia e medidas de desempenho através do BSC contribui com a performance organizacional. Uma combinação de alinhamento estratégico efetivo e compensação baseada na abordagem BSC podem contribuir positivamente para a motivação extrínseca da liderança.</td>
<td>Ayoup (2009); Jusoh et al. (2008)</td>
</tr>
<tr>
<td>Análise hierárquica, Lógica Fuzzy e BSC</td>
<td>O BSC convencional não integra automaticamente as perspectivas de desempenho em uma visão consolidada. Tal abordagem pode ser aprimorada através da incorporação da lógica fuzzy para abordagem de conceitos da vagoz que e ambiguidade.</td>
<td>Quesado et al. (2016)</td>
</tr>
<tr>
<td>Alinhamento estratégico e performance</td>
<td>Alinhamento estratégico facilita a capacidade das organizações em melhorar sua performance, eficiência e obtenção de vantagem competitiva. A performance corporativa é condicionada ao arranjo interno de vetores de desempenho [alinhamento] com destaque para a importância do gestão estratégica integrada para maior agregação de valor aos stakeholders.</td>
<td>Ayoup et al. (2016); Rezende e Nogueira (2010)</td>
</tr>
<tr>
<td>Alinhamento e desdobramento da estratégia</td>
<td>O desdobramento da estratégia deve ser feito da maneira que a estratégia organizacional seja traduzida a cada atividade diária dos empregados e em cada nível da organização. Os scorecards são parte integrante da comunicação e alinhamento da estratégia.</td>
<td>Joseph (2009); Chopra et al. (2017)</td>
</tr>
<tr>
<td>Vantagem competitiva e IT strategy</td>
<td>Para a criação de vantagem competitiva, a organização precisa possuir bom alinhamento estratégico. Organizações são mais eficazes quando existe coordenação entre os requisitos necessários para o processamento de informação da estratégia e a capacidade de processamento de informação.</td>
<td>Asli et al. (2013)</td>
</tr>
</tbody>
</table>

**Chart 5. Summary of Concepts Revised in the RSL**
Source: The author (2020).
tures at the same level. Compared to vertical alignment, horizontal alignment receives little attention from researchers. According to Ayoup (2009), many managers believe that alignment is necessary to achieve the organizational vision and mission. The strategy deployment in companies with a high degree of hierarchy makes the process more complex. According to Ayoup et al. (2016), the study demonstrates the positive effects of implementing BSC as an approach to managing the issue of strategic alignment in large organizations. However, managing such alignment involves dealing with all the hard and soft elements of an organization. The hard elements seem to be easier to deal with, such as systems, policies, and procedures. The soft or elastic elements, such as awareness, knowledge, and communication, are a greater challenge to maintaining organizational alignment.

Also, in their study, Ayoup et al. (2016) indicated that there are different approaches to the strategic alignment concept. For example, Nath and Sudharshan (1994) use the word coherence to refer to the alignment between business and functional strategies. On the other hand, Smith and Reece (1999) define strategic alignment as the degree of compatibility between an organization’s operational components and its business strategy. According to Ayoup et al. (2016), the strategic alignment makes it easier for organizations to improve performance and efficiency. Consequently, gaining and maintaining competitive advantages is more easily achieved. Moreover, the successful implementation of organizational strategies requires a crucial understanding of the link between resources, activities, and the desired outcome.

The BSC’s contribution to strategic alignment could be verified through the various approaches raised in the RSL, such as performance increase, competitive advantage, integration, and synergy of strategic perspectives. In particular, the BSC’s contribution is highlighted in its ability to communicate strategic priorities, translate and operationalize strategic objectives, and balance and align areas and departments toward a common goal. Regarding the type of researched articles, there is a great tendency for case study publications, most likely due to the need for empirical verification of the BSC implementation and its relationship with strategic alignment (Acuña-Carvajal et al., 2019; Asli et al., 2013; Ayoup, 2009; Ayoup et al., 2016; Chopra et al., 2017; Ferreira, 2017; Joseph, 2009; Lee et al., 2008).

In their study, Quesado et al. (2018) also indicated that once the BSC is properly implemented, it has a number of advantages over traditional financial reporting as it facilitates the change process. Some of the advantages include greater flexibility, inclusion of greater non-financial information, ability to communicate key drivers of performance, organizational innovation, and learning. The BSC also recognizes the influence of the performance measurement system on managers’ and employees’ behavior. Thus, the method forces the organization to explicitly recognize the activities that contribute to the success and proper development of performance measures.

According to Joseph (2009), a strategy should consider the different levels of the organization for the development of proper scorecards since they are an integral part of communication and strategic alignment. Complementarily, Asli et al. (2013) state that the BSC is suitable for implementing and operationalizing the strategic alignment model that enables the alignment of the more operational and internal organizational layers with strategies extrinsic to the organization. The study also suggests using BSC for establishing a strategic alignment model. In turn, Ferreira (2017) concludes in his study that performance measurement systems used interactively favor market awareness, an entrepreneurial mindset of managers, innovation, and organizational learning. Moreover, the study adds that the BSC performance measurement system has increased managers’ decision-making power and awareness of responsibility (accountability).

Concerning the study by Chopra et al. (2017), BSC introduction and implementation as a strategic management tool proved to be highly beneficial in creating a business strategy, connecting objectives to long-term goals, facilitating organizational change, and improving the understanding of organizational vision and mission. Moreover, they add that organizations all over the world face the same difficulty, i.e., strategy creation and development would be only one step, because communicating it with the extent and depth of the organization and checking if the strategy is being implemented correctly is something completely different.

With regard to new approaches, the recent use of fuzzy logic to capture and quantify the vagueness and imprecision of human thinking stands out in particular, as well as its association with multi-criteria hierarchical analysis for prioritizing organizational strategies when considering subjectivity in the decision-making process (Acuña-Carvajal et al., 2019; Lee et al., 2008). Specifically, in Lee et al.’s (2008) view, the BSC is a performance measurement framework that promotes an integrated look at a company’s business strategy through financial and non-financial measures. However, a conventional BSC does not consolidate such performance measures; therefore, incorporating the hierarchical analysis method (AHP) into the BSC seems to be a good solution. Since vagueness and imprecision are common characteristics in many decision-making problems, an integrated method of BSC and Fuzzy AHP (FAHP) can deal with such aspects.

The study by Acuña-Carvajal et al. (2019) reveals that some more recent prioritization approaches use the classic BSC to generate strategic maps for decision support. In this respect, such approaches do not consider the existing subjectivity of one objective over another, nor the decision
makers’ perception regarding the influence of some objectives over others. Such an approach would imply ignoring the uncertainty inherent in the prioritization process. In addition, the study proposes a three-step quantitative method for establishing causal relationships between strategic objectives and the strategic maps of a BSC. First, the DEMATEL multicriteria decision method was used to find the weights and evaluate the objectives based on a cause-and-effect process comparison. A matrix is generated that represents all possible causal relationships between objectives. In a second step, the DEMATEL method is improved by using fuzzy logic to overcome the limitations of subjectivity gradation in the data obtained from decision-makers. In the third step, a binary optimization model was built and applied to define which relationships would be prioritized to construct the strategic map. Finally, according to Acuña-Carvajal et al. (2019), the BSC’s use in real-world contexts has been used in companies in Fortune Magazine’s Top 1000 companies, including those in the financial, industrial, and energy sectors.

Regarding the study by Quesado et al. (2018), it was possible to verify that the BSC uses a set of financial and non-financial indicators fully integrated and coordinated through causal relationships established with the organization’s objectives and targets. Therefore, its flexible nature, adaptability to particular activities and circumstances of each organization, and its synthetic and summarized characteristics, which allow a quick overview of the organization, are qualities that stand out in the BSC. Furthermore, according to the study, the BSC has always been considered a complete indicator system compared to those proposed. Thus, the BSC went beyond conventional scorecards by considering all key factors in an organization and the active involvement of managers. Thus, besides being a useful tool for information and control, the BSC enables the coordination of people and encourages their motivation. The study also indicates that, some years later, the BSC started to show that it was also useful to align people coherently to the organizational strategy and to help achieve strategic objectives, constituting a powerful tool to ensure that the strategy is implemented correctly.

Thus, the BSC is integral to mission identification, strategy formulation, and strategy implementation. Therefore, it plays an important role in communicating the organization’s strategy to its members while generating feedback on the process. Furthermore, once used properly, the BSC enables a link between long-term strategy and short-term actions and creates strategic awareness among employees. In this context, the BSC approach helps managers to focus on the organization’s strategy and decide how and what to measure, avoiding potential conflicts between different goals and indicators (Quesado et al., 2018; Joseph, 2009).

Chart 6 summarizes some of the concepts reviewed per author.

According to Dresch et al. (2015), no single synthesis technique is to be adopted in an RSL. The synthesis process begins with a tabulation of the selected primary studies to obtain a map of the results found. At the end of the synthesis process, one seeks to answer the original review question.

Thus, in light of the RSL conducted, one can answer the research question, “How can a BSC application contribute to organizational strategic alignment?” The DSR was initially established in the first step of the RSL model adapted for DSR (Diagram 2). According to the review, the BSC contributes to:

- Strategic alignment by communicating and identifying the mission and strategy formulation and implementation;
- The vertical and horizontal strategic alignment;
- The influence on the behavior of employees and

<table>
<thead>
<tr>
<th>Influence of BSC for horizontal and vertical alignment</th>
<th>Influence of BSC on motivation and behavior</th>
<th>Contribution of BSC to strategic alignment</th>
<th>Strategic communication through BSC</th>
<th>Influence of BSC for accountability</th>
<th>Applying fuzzy logic to BSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ayoup (2009); Ayoup et al. (2016); Quesado et al. (2018)</td>
<td>Quesado et al. (2018)</td>
<td>Joseph (2009); Asl et al. (2013); Ayoup (2009); Ayoup et al. (2016); Chopra et al. (2017); Lee et al. (2008); Ferreira (2017); Acuña-Carvajal et al. (2019)</td>
<td>Joseph (2009)</td>
<td>Ferreira (2017)</td>
<td>Lee et al. (2008); Acuña-Carvajal et al. (2019)</td>
</tr>
</tbody>
</table>

Chart 6. Key Concepts Reviewed per Author
Source: The author (2020)
managers, coordination of people by encouraging their motivation;

- Communicating strategic priorities;
- Establishing awareness of responsibility (accountability);
- Capturing the vagueness and imprecision of human thought in processes of decision making when associated with fuzzy logic.

Chart 7 presents the synthesis of the articles included in the SLR according to Step 9 of the search strategy (Diagram 3). Thus, in the table above, the publications are synthesized according to the problem class, problem, artifact, construction heuristic, contingency heuristic, results, and observations and their respective references.

4. CONCLUSION

This article aimed to update the theoretical ballast of the contribution of the BSC performance measurement system to organizational strategic alignment. Thus, it was possible to verify several approaches rose in the RSL that answer the central research question, such as the BSC’s contribution to strategic alignment, organizational performance improvement, competitive advantage, and the integration and synergy of strategic perspectives. Furthermore, the BSC has been shown to have vertical and horizontal alignment capabilities in organizations, the vertical being the alignment of strategies, objectives, action plans, and decisions across the various levels of the organization and the horizontal being the matrixed and coordinated alignment of efforts across structures at the same level (Ayoup, 2009; Ayoup et al., 2016).

In addition, BSC’s influence on the behavior of managers and employees regarding their motivation as a means of reward was also verified (Quesado et al., 2018). In particular, the contribution of the BSC concerning the ability to communicate strategic priorities, translate and operationalize strategic objectives, and balance and align across areas and departments of an organization toward a common goal is highlighted (Acuña-Carvajal et al., 2019; Asli et al., 2013; Ayoup, 2009; Ayoup et al., 2016; Chopra et al., 2017; Ferreira, 2017; Lee et al., 2008; Joseph, 2009).

Regarding the BSC’s communication capacity, it is inferred that it plays an important role in its strategic communication to its members while generating feedback on the strategic process (Joseph, 2009; Quesado et al., 2018). A relevant finding was the BSC’s ability to establish a greater sense of responsibility among managers (Ferreira, 2017), which is pertinent in organizations that need to establish segregation of duties and greater traceability of results.

Regarding the types of articles surveyed, there is a high incidence of case study publications, most likely due to the need to verify the empirical nature of BSC implementation and its relationship with strategic alignment. Concerning new approaches, one should highlight the recent use of fuzzy logic to capture and quantify the vagueness and imprecision of human thinking and multi-criteria hierarchical analysis for prioritizing organizational strategies (Acuña-Carvajal et al., 2019; Lee et al., 2008).

In turn, the RSL conducted in this research was instrumental in providing a full, more comprehensive view of the research topic. Moreover, the RSL allowed for the publicizaton of more recent and relevant approaches to the relationship between BSC and strategic alignment, a subject published over twenty-five years ago and lacked timely updating (Quesado et al., 2018). Furthermore, as an unfolding of RSL, fuzzy logic has proven to be very useful in translating human perceptions by quantifying human thought and its intrinsic aspects, such as imprecision and vagueness, as opposed to the dichotomous relationships of traditional science.

As for the limiting factors of this research, one can point out that the RSL was performed by only one person rather than a team of researchers. This could contribute to some relevant articles not being considered in the review. In addition, the reviewed articles are of different ontological and epistemological natures, which may limit their comparability.

For future research, it is suggested to search for articles based on methodological approaches more appropriate to the organizational context, such as the RSL, and not preponderantly case studies (Dresch et al., 2015). Furthermore, it is recommended that a team of experienced reviewers is established to conduct a more comprehensive RSL.

REFERENCES


<table>
<thead>
<tr>
<th>Problem Class</th>
<th>Problem</th>
<th>Artifact</th>
<th>Construction Heuristics</th>
<th>Contingential Heuristics</th>
<th>Result</th>
<th>Observation</th>
<th>Reference</th>
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<tbody>
<tr>
<td></td>
<td>Verification of IT's contribution to strategic objectives.</td>
<td>Ruzzy AHP Model.</td>
<td>Imprecision and uncertainty is part of the decision-making process and must be incorporated into the BSC.</td>
<td>From the literature review and expert assessment, 14 most important indicators for IT departments have been defined.</td>
<td>The research proposes a systematic evaluation model to guide strategy evaluation in the IT area.</td>
<td>Study based on a Taiwanese company.</td>
<td>Lee et al. (2008)</td>
</tr>
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<td></td>
<td>Strategy articulation.</td>
<td>Strategic maps (KAPLAN; NORTON, 1997).</td>
<td>Linking key elements of the strategy with the four perspectives of the BSC.</td>
<td>Constant strategic re-evaluation.</td>
<td>BSC's use has provided greater market focus and flexibility, as well as boosting financial gains.</td>
<td>Study based on Tata Steel company.</td>
<td>Joseph (2009)</td>
</tr>
<tr>
<td></td>
<td>Assessing the relationship between strategic alignment and value creation.</td>
<td>PMPIP Model – Performance Management Priorities (FONTEZ, 2004).</td>
<td>Corporate performance is conditioned to the internal arrangement of performance vectors.</td>
<td>Results should be put into perspective due to the use of non-probabilistic samples and the exploratory nature of the research.</td>
<td>The importance of integrated management and the business model for achieving higher total value to be distributed to stakeholders.</td>
<td>Study based on more complex industries, including additional blocks of proposed management mechanisms.</td>
<td>Rezende and Nogueira (2010)</td>
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<td></td>
<td>Categorization and strategic prioritization.</td>
<td>TOPSIS Technique - Technique for Order Preference by Similarity to Ideal Solution (KROHLING; CAMPANHARO, 2011).</td>
<td>The preferred option should be the one that comes closest to the ideal solution.</td>
<td>Disregarding the interrelationship between the BSC perspectives.</td>
<td>Proposition of a strategy prioritization framework to increase the focus on value creation in the organization.</td>
<td>Case study-based research.</td>
<td>Asli et al. (2013)</td>
</tr>
<tr>
<td>Strategic Alignment through BSC</td>
<td>Strategic IT alignment.</td>
<td>IT BSC (KEYES, 2004).</td>
<td>BSC deployment framework.</td>
<td>Expansion of distance education systems according to the organization's vision.</td>
<td>The BSC deployment framework allowed evaluating the strategic gaps of the organization studied.</td>
<td>Case study-based research.</td>
<td>Herdiansyah et al. (2014)</td>
</tr>
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<td></td>
<td>The role of the BSC in organizational strategic alignment.</td>
<td>Qualitative Data Analysis (HILDES, HUBERMAN, 1994).</td>
<td>Organizational Alignment Model.</td>
<td>Assessments and interviews took place over four months with managers at various levels.</td>
<td>The BSC has positive effects on the strategic alignment process in large organizations.</td>
<td>Study-based research in organizations in Malaysia.</td>
<td>Ayup et al. (2016)</td>
</tr>
<tr>
<td></td>
<td>Verification of strategic implementation and communication.</td>
<td>BSC (KAPLAN; NORTON, 1997).</td>
<td>Strategic deployment according to business, operational, and human resource challenges.</td>
<td>Implementation of the BSC in light of sustainable development.</td>
<td>The alignment of individual, departmental, and corporate activities through the BSC has enabled a significant increase in organizational performance.</td>
<td>Study based on Tata Steel company.</td>
<td>Chopra et al. (2017)</td>
</tr>
<tr>
<td></td>
<td>The implications of using the BSC in the strategic implementation process.</td>
<td>Four-laver control framework (SIMONS, 1995, 2000).</td>
<td>Simon’s use of the four levels of control defines the effectiveness of strategy implementation.</td>
<td>Study conducted comparing the consistency between the results of other studies of Simon’s framework with the results obtained in the case study.</td>
<td>The study indicates that when used interactively, the BSC enables an increase in the decision-making power of managers and their commitment to the strategic objectives, as well as promotes strategic learning.</td>
<td>Case study-based research.</td>
<td>Ferrera (2017)</td>
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<td></td>
<td>Inclusion of uncertainty in the strategy formulation process.</td>
<td>Ruzzy DEMATEL (VALMOHAMMADI; SORJAYABADI, 2015; WU, 2012; WU; LEE, 2007; WU et al., 2003).</td>
<td>Metrics of influence, supply, maximum value, and total value-added variables.</td>
<td>The results of the survey can be adapted for different types of organizations.</td>
<td>The study proposes a method to integrate the strategy formulation steps into a single solution that enables the inclusion of uncertainty into decision making.</td>
<td>Future research could use other approaches such as the Delphi technique.</td>
<td>Acuña-Carvajal et al. (2019)</td>
</tr>
</tbody>
</table>

Chart 7. Summary of Publications Included in the RSL

Source: Prepared by the author (2020).


Niven, P. R. (2005), Balanced Scorecard passo-a-passo: Elevar o desempenho e mantendo resultados, Qualymark, Rio de Janeiro.


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