Bibliometric Study: Analysis of Scientific Productions on Balanced Scorecard in The Public Sector

Drielle da Guia Cintra Ribeiro;Artur Virgílio Simpson Martins;Kaio Alexandre da Silva;Ricardo Alves Oliveira;Jorge Washington de Amorim Junior;Higor Cordeiro de Souza;Esiomar Andrade Silva Filho;Alessandro Crispim Macedo;Raul Afonso Pommer Barbosa

Abstract

With the evolution of management practices, new management methods and tools were adopted in public entities in order to optimize the delivery of services to their steakholders. In this scenario, the Balanced Scorecard (BSC) offers an important tool to assist in the strategic management of public entities. Therefore, this work aims to generate a bibliometric analysis of the scientific production on the BSC tool in the public sector in the period of five years (2014-2018), to clarify the functionalities and to survey data through the Web Database of Science. The procedure to perform this review of scientific production involved, initially, access to the database, followed by research by the terms "BSC and Government" and "BSC and Public Management". Afterwards, they were exported and ordered in the matrix in order to perform the analysis of the elements obtained. The methodology used was of a descriptive and quantitative nature. The main results emphasize that the production registered in the database used is scarce, observing that only 27 publications were found in the studied temporal cutout. It also indicates that, in the range comprised, the Brazilian production was on a large scale together with the Australian and Portuguese production equated to other countries contained in the research and, finally, that there is an inconstancy in the publication of articles related to this subject. This article is structured as follows: introduction, theoretical reference, methodology, results and discussions and conclusion.

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ABSTRACT

With the evolution of management practices, new management methods and tools were adopted in public entities in order to optimize the delivery of services to their steakholders. In this scenario, the Balanced Scorecard (BSC) offers an important tool to assist in the strategic management of public entities. Therefore, this work aims to generate a bibliometric analysis of the scientific production on the BSC tool in the public sector in the period of five years (2014-2018), to clarify the functionalities and to survey data through the Web Database of Science. The procedure to perform this review of scientific production involved, initially, access to the database, followed by research by the terms "BSC and Government" and "BSC and Public Management". Afterwards, they were exported and ordered in the matrix in order to perform the analysis of the elements obtained. The methodology used was of a descriptive and quantitative nature. The main results emphasize that the production registered in the database used is scarce, observing that only 27 publications were found in the studied temporal cutout. It also indicates that, in the range comprised, the Brazilian production was on a large scale together with the Australian and Portuguese production equated to other countries contained in the research and, finally, that there is an inconstancy in the publication of articles related to this subject. This article is structured as follows: introduction, theoretical reference, methodology, results and discussions and conclusion.
Keywords: Balanced Scorecard; Indicators; Public Administration; Bibliometry.

INTRODUCTION

As management has progressed, it has become essential to affiliate new practices and coordination tools to public service entities in order to enhance the customer-citizen experience of the services offered. The Balanced Scorecard (BSC) was developed by Roberto Kaplan and David Norton to simplify the measurement of performance in organizations.

The BSC provides a means to facilitate strategic management in the public sector, integrating elements and displays made up of behavior drivers, comprising four perspectives: customer focus; financial; learning and growth; internal processes, whose purpose is to present the strategic planning of public agencies in concrete goals.

In an impersonal way, this study sought to analyze the scientific productions found, with the BSC theme in the public sector, in a bibliometric way, that is, to analyze the technical or scientific activities, through quantitative studies (SILVA, 2004).

To analyze the productions, the Web of Science base was used and, to work the collected data, the following configuration of operationalization was applied: (1) Definition of keywords; (2) Search of terms in the database; (3) Insertion of search filters; (4) Export of data; (5) Preparation of the matrix; and (6) Analysis of results (SILVA, 2016).

Initially, we will clarify the functionality of the BSC in both the public and private sector environments, which is where it originated. We will survey the data in order to obtain the results of the survey.

THEORETICAL FRAMEWORK

With the evolution of management practices, new management methods and tools were adopted in public entities aiming at optimizing the delivery of services to steakholders. In the 1990s, businessman David Norton and academicist Robert Kaplan, perceiving the complexity in generating economic value for organizations, saw the need to develop a new method of business performance (Kaplan & Norton, 1997). According to Kaplan and Norton (1997) the Balanced Scorecard is an integrating system of strategic measures composed of vectors of financial performance that encompasses internal processes, customer focus, and learning and growth. In short, it reproduces the Organization's strategy in objectives and tangible measures.

According to Chiavenato (2014), four basic perspectives constitute the BSC as a management resource focused on organizational balance: Finance to explore organizational behavior in profit generation, investment payback, asset valuation, among others; clients who use a variety of samples to analyze the service from the user's point of view; Internal processes to examine the perspectives of the internal user; Learning/ organizational growth in order to certify stability and fully achieve objectives.

Corroborating Maximiano's (2012) idea, the BSC helps to provide an overview of the critical factors for an organization's success. Figure 1 shows the four important dimensions of a company.

For Maximiano (2012), Kaplan and Norton's technique was an important contribution to the analysis and evaluation of companies' performance, as it results in excellence in organizational results.

In this follow-up, the Balanced Scorecard (BSC) offers an important tool to assist in the strategic management of public agencies, because although it was designed mostly for private companies, soon public institutions realized the advantages of adopting the BSC method in order to improve their processes. Therefore, according to Araújo (2017), over time the BSC has been used as an internal tool to qualify sector operations by assisting in decision-making about budgets and programs. With the arrival of the new public management, the relevance of performance measurement has come to include several sympathizers such as the media, the population and external contribution offices.

The transformations in the public system have demanded a public administration focused on resolutions that satisfy its needs with care. Progressively public management is using strategic planning as the management standard followed by the private sector, always aiming at concise planning with the organization's strategies and objectives. In order to execute this strategic planning more efficiently, it is essential to make use of instruments such as the BSC (ARAÚJO, 2017).

To exemplify the application of the BSC in the public service, two surveys will be used: a unique case study focused on the tactical, planned and programmed performance of the Pernambuco State

Government (ARAÚJO, 2017); and another, to examine the applicability of the Balanced Scorecard in order to determine how the administration of the Regional Electoral Court of the State of Pará (TRE-PA) has assimilated and implemented the tool in order to achieve meticulous results (ARAÚJO, 2017).

According to Araújo (2017), in the case of the public sector, performance measurement encompasses first of all the civil servants and the population to whom the service offered by the entity is directed, and secondly, it appears that the financial perspectives appear in their majority as simplifying the success of the client-citizen or as limitations that the team needs to act. And that, when one is positioned at the highest level of the scorecard, the Mission of the organization expresses in a transparent manner to all those involved the foundation of the body and the achievement to be committed.

For Araújo (2017), the inaugural reference of the use of the BSC as a methodological parameter in the management of public policies of the State Government of Pernambuco was the Single Annex of the Review Law of the 2008-2011 Multiyear Plan (PPA 2008-2011) which listed the ten strategic goals on a map, cataloguing the dilemmas and bridging them with their own resolution, the primary tasks, the bodies responsible for carrying out each act, among other characteristics that led to the evidence of the implementation of the BSC with the aim of measuring the performance of the management of the Government of Pernambuco. Thus it is possible to verify that the basic principles of the Balanced Scorecard were demonstrated: Dimensions, strategic goals and indicators of contingency bond, monetary and non-monetary. As a result, Araújo (2017) lists the Covenants: Pact for Health, Pact for Life, which raised the level of public safety to a level that was recognized by the UN through an award and the Pact for Education with literacy programs, improvement of technical education, policies aimed at the flourishing of languages, for example the "Win the World" program and the development of higher education, these pacts portray a cultural metamorphosis in the idealization of public policies that uses the BSC as a primary tool in conducting state public management in Pernambuco. The challenge perceived was to incorporate into the abstract dimension of those already employed the foundations for proceeding with public policies (ARAÚJO, 2017).

In the case of TRE-PA, according to Araújo (2017), the BSC was introduced as a tool for doubly divided strategic management: the first part being the elucidation of the mission, vision, values and perspectives and the second part being the conception of objectives and shows. As a result, it was observed that the BSC began to be used in the TRE-PA in 2007 and was in use as a strategic planning tool in the 2016-2021 cycle, based on the change of goals for an object, progressing throughout the cycle from now on references for monitoring are obtained.

The latter being non-computerised, designed in the form of manually completed spreadsheets passed on to an organ where a broad view is obtained. Among the challenges observed it is possible to highlight the social, internal processes and human resources, budgetary and technological.

METHODOLOGY

This study is part of a descriptive and quantitative approach, performed with bibliometric variables, with results and discussions based on measurable information provided from a cutout in the scientific literature. The objective was to measure, understand and evaluate the results obtained through the searches

and to expand the knowledge regarding publications related to the Balanced Scorecard theme in the Public Sector (ARAÚJO, 2006).

Without using the interference of the researcher, the aim was to record and analyze the scientific productions found based on the bibliometric study in order to, besides mapping the data, build indicators. The word bibliometry originated from a fusion of the suffix "metria" and bibliography, information, library and science, being close to its nature, applications and objectives. Thus, the bibliometric study is the one that evaluates scientific productions, of specific areas of production, already researched (SILVA et al, 2012).

The descriptive research was carried out by dealing with general and broad aspects of a social context together with the history of the BSC tool and its application in the public organism, allowing the development of an analysis that can bring the identification of different forms of its phenomena (OLIVEIRA, 1999).

The quantitative approach of the article, according to Beuren (2003), is based on the characterization of the use of statistical instruments, in the collection and treatment of data. In order to carry out this research, the data collection was done in the Web of Science, which indexes scientific publications from all over the world, reaching more than 11,000 available journals. In it it is possible, besides identifying citations that were sent, used and records that relate to scientific productions, to analyze the number of productions with bibliometric index calculations and to create rankings by various types of parameters (CAPES, 2011).

In the creation of the bibliographic portfolio, the following operation was used: (1) Definition of keywords; (2) Search of terms in the database; (3) Insertion of search filters; (4) Data export; (5) Preparation of the matrix; and (6) Analysis of results (SILVA, 2016).

For this, from the Web of Science search engine and the choice of theme, the Balanced Scorecard in the Public Sector was used as keywords, thus combined: (1) "BSC" and "Government" and (2) "BSC" and "Public Management", in a 5-year time frame (2014-2018). After searching the database, in the first combination of keywords, 33 scientific productions were found and then the search filters were inserted: In the categories, only those corresponding to the areas of "management", "Business Finance", "Business", "Economics" and "Public Administration" were selected and the drop to 18 scientific productions was obtained; In the types of document, only article formats were selected because, according to Cruz, Curty and Minds (2003), they function as one of the main means of dissemination of studies and research, quickly along with the evolution of each of the constituent areas of human knowledge, and in this refining, the drop to 12 scientific productions was obtained. In the second combination of keywords, 50 scientific productions were found and then, after the insertion of filters, there was a refinement in the categories, in the same areas and there was a drop to 27 productions. After selecting only articles, the number fell to 23 productions.

Finally, the data was exported, selecting the option "print", "complete record and "references cited". Supported by the exported data, and removing the duplicate articles in the research, because of the repetition of the term "BSC", we began the preparation of the matrix, in spreadsheet format, using Excel software, where they underwent treatment and analysis in order to meet research objectives (SANTOS, 2015).

RESULTS AND DISCUSSIONS

According to Macedo et al. (1999), the bibliometric study helps to know the stage in which a research of a certain area is found. Thus, the results of the present work are, after analysis, presented in charts or graphs for better visualization.

Table 1: Total scientific outputs found

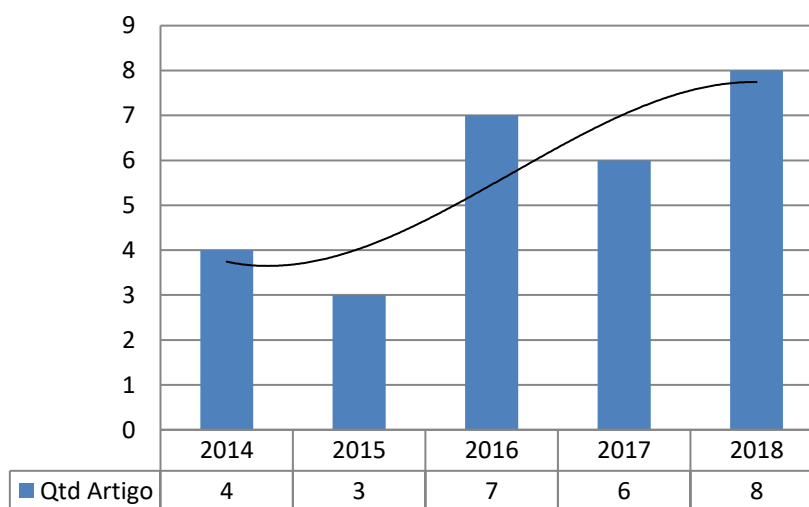| Title	Author	Ano
Resultados de desempenho da aplicação Do Balanced Scorecard na administração hospitalar na China	Lin, Z.J.; Yu, Z.B.; Zhang, L.Q.	2014
Gestão pública estratégica selecionada - experiências com implementação do BSC	Pucek, M.; Spacek, D.	2014
Gerenciamento da qualidade e um Balanced Scorecard como estruturas de suporte para um novo modelo de gerenciamento e mudança organizacional	Pimentel, L.; Major, M.J.	2014
Fatores determinantes da implementação do Balanced Scorecard em Portugal: evidências empíricas em organizações públicas e privadas	Quesado, P.R.; Guzman, B.A.; Rodrigues, L.L.	2014
Gerenciamento de desempenho no setor público: um estudo de caso baseado em pesquisa-ação no Gana	Mensah, W.; George, B.P.	2015
Balanced Scorecard (BSC) de centros de saúde da família vinculados ao departamento municipal de saúde na comuna de Puerto Montt, Chile	Alarcon-Henriquez, N.; Vera-Garnica, J.	2015
Uma avaliação da adoção do BSC pelo Tribunal de Contas do Estado	Afonso, R.W.; Romano, M.; Junior, D.S.D.; Portugal, G.T.	2015
Objetivos prioritários no mapa estratégico da universidade para alocação de recursos	Rahimnia, F.; Kargozar, N.	2016
Uma nova abordagem para projetar os principais indicadores de desempenho da cadeia de suprimentos para atores e	Kusrini, E.; Subagio; Masruroh, N.A.	2016

reguladores: um estudo de caso em produtos inovadores na Indonésia		
Agregando valor ao setor imobiliário: parâmetros, prioridades e intervenções	van der Voordt, T.J.M.	2016
Gerenciando o ajuste estratégico das carteiras de programas nacionais de P&D: o caso da política de economia criativa na Coreia	Kim, J.; Jo, H; Kim, Y; Jeon, J.	2016
Sistema de gerenciamento intelectual da empresa corporativa com o uso do Balanced Scorecard	Khorolskyi, VP; Rybalko, L.P.; Khorolska, O.V.	2016
Estratégia e gestão do judiciário: uma proposta de estudo de práticas sociais relacionadas ao BSC	Sauerbronn, F.F.; Sauerbronn, J.F.R; Gangemi, P.P.D; Fernandes, J.D.	2016
Implementando o Balanced Scorecard em uma organização esportiva do governo local Evidence from Greece	Dimitropoulos, P; Kosmas, I; Douvis, I.	2017
Examinando o processo de projeto e implementação de sistemas de medição de desempenho em duas organizações de serviço público italianas	Bracci, E; Maran, L; Inglis, R.	2017
Reformas do setor público e adoção de um Balanced Scorecard: um estudo de caso etíope	Bobe, B.J.; Mihret, DG ; Obo, D.D.	2017
O papel de controle financeiro na redução de riscos nas entidades do governo local, modelando aspectos de rentabilidade e liquidez	Zeman, Z.	2017
Usando um sistema robusto de medição de desempenho para iluminar o capital intelectual	Ásia, K; Jusoh, R.	2017
Borda do Balanced Scorecard sobre memorando de entendimento para empresas públicas na Índia	Gupta, S; Gupta, V.K.	2017
A incerteza percebida do meio ambiente e o apoio da gestão superior na implementação do Scorecard Balanced	Quesado, P.R.; Rodrigues, L.L.; Guzman, B.A.	2017
Desenvolvimento de um modelo de gestão de desempenho para a implementação de	Mateos-Ronco, A.; Mezquida, J.M.H.	2018

práticas de GQT em centros públicos de educação		
Pesquisa sobre o sistema estratégico de avaliação de desempenho do governo local chinês, promovendo a informatização da governança da comunidade rural: baseada no BSC	Xiong, C.L.; Zhang, Y.L.; Zhang, L.H.; Xie, J.	2018
Operacionalizando o gerenciamento de desempenho no governo local: o uso do Balanced Scorecard	Ndevu, Z.J.; Muller, K.	2018
Estabilidade dos sistemas de gerenciamento de desempenho: revelando o fator humano - um caso do setor público italiano	Maran, L.; Bracci, E.; Inglis, R.	2018
O Balanço do Scorecard do serviço de prosecução pública da união: peculiaridades e interrelações de mapas estratégicos	Bandeira, H.T.; Amorim, T.N.G.F.	2018
Mapeando o ensino superior para o desenvolvimento sustentável em Portugal	Fonseca, L.M.; Portela, A.R.; Duarte, B.; Queiros, J.; Paiva, L.	2018
Um modelo de rede integrado para gerenciamento de desempenho: foco nas organizações de saúde	**Marcarelli, G.**	**2018**

Source: Prepared by the authors.

Table 1 corresponds to all articles found after the use of the terms and refining according to the filters cited in the methodology.

Graph 1 - Distribution of Publications by Year

	2014	2015	2016	2017	2018
Qtd Artigo	4	3	7	6	8

 Source: Prepared by the authors according to data collected from the Web of Science database.

Graph 1 shows an inconstancy in the quantity of scientific productions recorded in the database related to the subject of study between the year 2014 and the year 2018. In the database studied, the year 2014 starts with four published productions and in 2015 decreases to three. In 2016 there is a considerable increase, followed by a small difference in decrease in the following year 2017 and ending 2018 with a rising number.

Table 2: Most cited publications in descending order

Title	Author	Journal	Year	Citations
Resultados de desempenho da aplicação do *Balanced Scorecard* na administração hospitalar na China	Lin, ZJ; Yu, ZB; Zhang, LQ	REVISÃO ECONÔMICA DA CHINA	2014	18
Gerenciamento da qualidade e um *Balanced Scorecard* como estruturas de suporte para um novo modelo de gerenciamento e mudança organizacional	Pimentel, L; Major, MJ.	GESTÃO TOTAL DA QUALIDADE E EXCELÊNCIA EMPRESARIAL	2014	10
Objetivos prioritários no mapa estratégico da universidade para alocação de recursos	Rahimnia, F Kargozar, N.	BENCHMARKING-REVISTA INTERNACIONAL	2016	7
Gestão pública estratégica selecionada - experiências com implementação do BSC	**Pucek, M; Spacek, D**	**REVISÃO TRANSILVANA DE CIÊNCIAS ADMINISTRATIVAS**	**2014**	**4**

Source: Prepared by the authors according to data collected from the Web of Science database.

The most cited article was in the year 2014, with 18 citations as shown in the table. It is possible to note that the amount of use of articles found in the Web of Science database has a discrepancy in the number of use as reference in other articles, with the difference from the first to the second being eight citations.

Table 3 - Most frequent keywords

Keywords	Articles
Balanced Scorecard	9
De indicadores equilibrados	7
BSC	4
Gerenciamento de desempenho	4
Gerenciamento	4
Medição de desempenho	4

Source: Prepared by the authors according to data collected from the Web of Science database.

Table 3 shows that there are only 6 (six) keywords that appear more frequently among the 27 articles studied. These words have a high level of relevance when correlated to the analysis content and show that the authors understand what the target audience needs for the search.

Thus, when starting a new research on the subject, any author will be aware of the need to use these keywords in order to make his article conform to what is most operative, aiming at facilitating the search of those who will enjoy the primary composition to derive a new study in the same area.

It is known that scientific research is not only done on a national level, and so the analysis of article productions by country was carried out as shown in the graph above. Among the 27 articles analyzed, besides Brazilians we have ten other nationalities. In the first place, with 11% of the register of publications are tied Brazil, Australia and Portugal, followed by China, Iran and Spain with 7%, and finally with 4% the other countries.

Table 4: Most cited authors

Authors	Citations
Kaplan, R. S.; Norton, D. P.	23
Niven, P. R.	8
Northcott, D; Taulapapa, T.	6
HOOD, C	5
CHAN, Y.	5

Source: Prepared by the authors according to data collected from the Web of Science database.

The analysis of bibliographic references, whether in quantitative or qualitative aspects is important to develop the continuity of science in order to constitute important sources of information, thus clarifying the literature that is indispensable for the production of scientific products of researchers (NEGRA 2013).

After such analysis was conceived it was identified that five authors have a more evident volume of citation. According to Table 4, the authors who are most prominent in the analyzed articles are Kaplan and Norton, being cited in 23 of the 27 articles used as sample. Thus, it is possible to leave it clear to the reader that, in case he needs to start a research on this strategic management tool approached in this study, the Balanced Scorecard, one should read, mainly, the works referring to this theme, from the authors who appear in this chart.

Corroborating the theoretical reference, which brings the theme of the functionality of using the BSC as an aid tool for the management of performance indicators in public organizations, The results are that the area of greatest study application is Administration, followed by Education and Economics, which are tasks of the public sector.

CONCLUSION

This research described the functionalities of the Balanced Scorecard strategic management tool in private organizations where it was conceived and executed in the foreground. Then, in the public management made explicit in two different examples, in the State Government of Pernambuco that used the BSC to measure the performance of the administration and in the Regional Electoral Court of the State of Pará both to conceive the objectives and indicators to be achieved and to originate the perspectives of mission, vision and values to be recognized.

In the second plan, data were collected in order to compose the bibliometric matrix cataloguing the record of scientific productions in the Web of Science base, in the time cut from 2014 to 2018, with reference to the BSC system in the public sector. We found 27 scientific productions, with a quantitative focus on articles published by year, country, authors and most used as citations by other researches.

The results showed that, based on the refinement terms used to perform the research, an average of 5.4 scientific publications are published per year, practically one every two months over the five years analyzed. Considering not only the importance but also the potential that the BSC has in terms of planning and strategic management, conciliating the processes and tasks with the objectives of the organization, a certain expressiveness was detected concerning this theme incorporated to a competence for eventual developments of scientific productions in the field of administration.

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