International Journal of Advanced Multidisciplinary Research and Studies

Applying the Balanced Scorecard in Universities: A Systematic Review

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Abstract

Today, university autonomy is a global trend in higher education governance. University autonomy, especially the application of the balanced scorecard at public universities, is gradually becoming an inevitable trend in the world as well as in Vietnam. The purpose of this study is to systematize previous studies on the application of the balanced scorecard in public universities, make statistics, evaluate according to authors, and identify the most influential research articles in the study. On applying the balanced scorecard in public universities. Research data was collected and analyzed from Google Scholar data on VOSviewer 1.6.19 software with 500 articles for the keyword "applying the balanced scorecard in public universities" filtered in summary form. The results show that studies on the application of the balanced scorecard in public universities over the past 10 years have always been a topic of interest and investigation by researchers. The study also identifies the most influential authors according to the number of articles and citations. The research results have contributed to synthesizing a system of research documents on applying the balanced scorecard in public universities.

1. Introduction

Karathanos (2005) [1], "Applying the balanced scorecard to education." In recent years, a number of educational institutions have applied the balanced scorecard model and initially achieved achievements. Specifically, the balanced scorecard model has helped Kuzulu-NNatal University establish an evaluation system for annual reporting, providing information for employees in evaluating and assisting employees. Inspection process to ensure quality as set out. Rossier School of Education in Southern California uses this model to evaluate curriculum and instructional planning. Baldrige Education Criteria describes the performance measurement through the Balanced Scorecard model that brings high results as well as compares the differences between applying the Balanced Scorecard for businesses and for educational institutions. Education on budgets, financial results, and markets. Meanwhile, Rollin College in Florida used the Balanced Scorecard model to implement strategic plans by looking at the school's core values from the perspective of students, employees, and student. Managers. Vermak's research also shows that the balanced scorecard model can be used as a planning aid in accounting departments in South African universities.

Sidky (2011) [4], with the topic "The challenges in developing and implementing balanced scorecards as the basis for internal academic benchmarks," proposed five steps to implement the balanced scorecard model in the field of education and training: (1) Identifying assessment aspects can help translate the university vision into operational terms; (2) connecting these aspects to departments within the university; (3) initiating training plans in each internal unit and focusing on resources, priorities, and action time plans with established assessment indicators; (4) getting feedback, reviewing, and adjusting assessment criteria; and (5) establishing internal and external standards for assessment indicators.

Weerasooriya (2013) [5], with the topic "Adoption of the balanced scorecard framework as a method for performance evaluation in Sri Lankan universities," researched the possibility of applying the balanced scorecard model in universities in Sri Lanka. Survey results show that most managers are dissatisfied with the current performance evaluation system in universities and urgently need a new alternative method. The author also proposes a balanced scorecard model with four perspectives: Customers, internal processes, learning and development, and finance. At the same time, the author also tests the cause-and-effect relationship between aspects. The research results also show that the learning and development aspect is given top priority in these schools, and the financial aspect is ranked last.

In 2015, in the article "A Review of Balanced Scorecard Framework in Higher Education Institutions (HEIs)," Fahmi and Saudan summarized and evaluated the use of BSC in higher education institutions in order to justify the suitability of this tool as well as the importance of linking the vision and mission to the map of goals, objectives, and performance. Research shows that while the four conventional perspectives commonly used in BSC are: Financial, customer, internal business process, and learning and growth, in higher education institutions there are also proposals to apply other non-financial perspectives such as community engagement, innovation, strategic partnerships, and scientific research excellence.

Therefore, this study helps readers grasp the development and information quality of balanced scorecard applications in public universities through the frequency of keyword use, number of citations, and number of times the author is cited over time. At the same time, it helps future researchers know the trends of this topic over time.

2. Apply a balanced scorecard to public universities
▪ **The essence of the balanced scorecard model**
In the early 1990s, Kaplan and Norton introduced the Balanced Scorecard as an integrative device that facilitates the formal use of non-financial information in evaluating the performance of organizations (Kaplan and Norton, 1992) [3]. Arguably, there is a "balance" between financial and non-financial measures, between short-term and long-term performance, which is summarized in a BSC report. The concept of the balanced scorecard has been widely popularized and has become a useful tool in the strategic management of businesses. So it can be understood that BSC is a management tool; it helps organizations establish, implement, monitor, and achieve their strategies and goals through the interpretation and development of goals. Strategy into specific goals and action programs based on four aspects: Finance, customers, internal processes, training, and development. (Kaplan and Norton, 1996).

▪ **Financial Aspects**
A public university operates not for profit but to provide a high-quality workforce for society. School leaders can focus all their efforts and abilities on improving the satisfaction of the needs of students, parents, faculty, school staff, the needs of society, or a series of other issues. Other topics, but if it does not show positive impacts on the organization's financial indicators, the organization's efforts will be less valuable. Schools are facing difficult financial problems, but it is necessary for schools to train society with very high-quality students to meet the requirements of the country's industrialization and modernization processes. Must realize that the main task of schools is to capture non-financial values, intellectual values, and intangible contributions to the development of society, not revenue as in scale. training, satisfaction of students and parents with the school, dedication of lecturers to the school, ability to adapt to tasks, new situations, and high creativity of lecturers, the number of articles and scientific research works, technology transfer, cooperative relationships between the school and domestic and foreign universities, with international organizations, and especially the reputation and image of the school. School image for public and non-public educational establishments. For a university, cooperation with businesses and educational institutions is an equally important task. Because that will bring good support to the school in all aspects, from facilities to human resources to finance. At the same time, create output for graduates and expand cooperation on technology transfer and training according to society's needs.

▪ **Customer Perspective**
There are many opinions surrounding the concept of whether learners are customers or not. This is a controversial concept, especially in Vietnam's context, and does not allow the concept of learners as service buyers, but if you think more deeply, no matter what, schools still have to take the initiative and listen to and understand their opinions. The perspective of learners evaluating lecturers is not new to world higher education but is still quite strange to higher education in our country. Learners' evaluation of lecturers will have a positive impact on promoting development and helping lecturers self-adjust and improve their professional capacity.

▪ **Internal Process Aspect**
The indicators in the internal process aspect demonstrate the ability to manage training activities, the ability to manage lecturers and staff, manage learner support activities, and ensure environmental and social factors. This is the step of concretizing actions to realize goals. Plans will become reality when there are specific action programs that can be measured and progress tracked; otherwise, ideas are just ideas. Therefore, school leaders always ask themselves the question: What needs to be done to turn goals and ideas into concrete actions? The important thing is not to design many actions but to know how to choose the most appropriate, measurable, and adjustable method to increase the quality of school development training. To be able to carry out the training task of ensuring good quality and high efficiency, it is necessary to create a working environment favorable for the healthy development of each individual. The working environment here is not only good in terms of facilities and equipment for teaching but also includes organizing and directing activities in the school and the relationship between staff. Units and individuals in the school is the cohesion of all school officials and employees so that we can gather and mobilize the strength of all lecturers and staff into a unified block., strong so that each individual can maximize his or her abilities.

▪ **Training and development aspects**
Metrics for training and development aspects are divided into 3 groups: Indicators on human resource training, indicators on information systems, and indicators on facilities.
Targets for human resource training
Peter Drucker argued that all businesses can perform equally well. And according to him, the only difference is how businesses develop their human resources. Build a team of officials and employees with sufficient quantity, strong quality, and meeting standards of qualifications, capacity, and quality. The staff structure is reasonable, in which the teaching staff is the main force. Universities have policies to attract, recruit, train, and foster comprehensive expertise, skills, pedagogy, foreign languages, information technology, and favorable conditions for teaching staff. Promote their intelligence, capacity, and experience in the processes of training, scientific research, providing services for social development, and participating in the international integration process. The teaching staff has postgraduate qualifications: Professors, associate professors, doctors, and main lecturers.

Information source criteria

Using information systems effectively is an indispensable factor for success in the new economy, and to achieve goals, faculty and staff must have access to the most tangible and intangible tools. Determined to complete his work. Tools to support teaching activities. To ensure effective access to information sources, lecturers need to be fully equipped with the necessary equipment for teaching, such as projectors, speaker systems, microphones, etc. Access information quickly and promptly. Time. Availability of information sources. To be able to use information resources effectively, the information system needs to ensure that they are always available. Equipping an information technology system that is timely with the times will help the school keep pace with advanced knowledge, helping the school enhance the value it creates.

Infrastructure criteria

All training and information sharing will not be effective if faculty and staff are not encouraged to work to their full potential or are not adjusted to the school's goals.

3. Research methods

The author synthesizes previously published overview documents related to the application of the balanced scorecard in public universities from data sources on Google Scholar. The review studies will aim to explain the urgency of the research and point out gaps in the research.

The author used VOSviewer 1.6.19 software to filter data with the keyword "applying balanced scorecards in public universities" filtered in the summary of the Google Scholar database, accessed on December 20., 2023. As a result, there are 328 related articles in the list selected from 500 articles. The collected data is intended to be used to analyze and answer the following research questions:

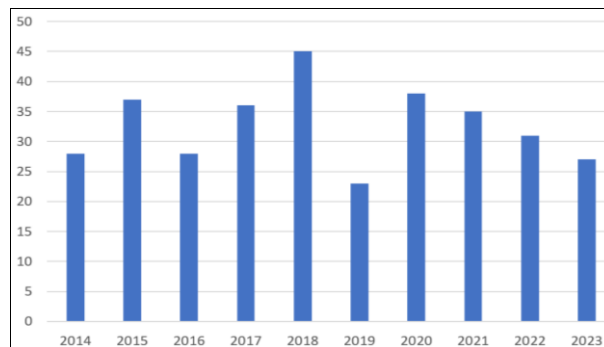Q1: Research on applying the balanced scorecard to public universities from 2014 to December 2023.

Q2: Most influential authors according to number of articles and number of citations in publications on balanced scorecard applications in public universities.

Q3: What topics are the keywords used grouped into?

4. Result

▪ *Published statistics on the application of the balanced scorecard in public universities*

From 2014 to 2023, the authors searched under the condition of returning a maximum of 500 articles, and there were 328 articles on applying the balanced scorecard in public universities indexed in Google Scholar. The authors have excluded articles that are books and citations. On average, 32.8 articles are published each year. This shows that the issue of applying the balanced scorecard to public universities is still a concern for current researchers.

Fig 1: Chart of the number of studies over the years

▪ *Statistics on the most influential authors in research on applying the balanced scorecard in public universities*

To evaluate the most influential authors in research on applying the balanced scorecard in public universities, we consider the number of citations in the article (Table 1) and the number of articles by the authors. (Table 2, Fig 2).

Highest citation according to documents

Table 1 shows the number of citations in the article by the author group M Amin, WKW Ismail, SZA Rasid, and RDA Selemani (2014), "The Impact of Human Resource Management Practices on Performance: Evidence from a Public University," with the number of citations. The most citations (304 times), followed by M. Perkins, A. Gray, and H. Remmers (2014), "What do we really mean by "balanced scorecard?" with 212 citations. G Mehralian, JA Nazari (2018), "The effects of knowledge creation processes on organizational performance using the BSC approach: The mediating role of intellectual capital," has 194 citations. The remaining articles have all been cited more than 50 times.

Table 1: Frequency of the highest citation by documents

Documents	Cites
M Amin, WKW Ismail, SZA Rasid, RDA Selemani (2014)	304
M Perkins, A Grey, H Remmers (2014)	212
G Mehralian, JA Nazari…(2018)	194
JBSO de Andrade, J Garcia, M de Andrade Lima…(2018)	143
F Acuña-Carvajal, L Pinto-Tarazona…(2019)	110
DØ Madsen, T Stenheim (2015)	105
LIN Zhijun, YU Zengbiao, L Zhang (2014)	105
M Massaro, J Dumay, C Bagnoli (2015)	102
M Rafiq, XP Zhang, J Yuan, S Naz, S Maqbool (2020)	96
P Sutheewasinnon, Z Hoque, RO Nyamori (2016)	82
O Alexandra Albertsen, R Lueg (2014)	81
N Chatterji, R Kiran (2017)	79
AP Blass, SEG da Costa, EP de Lima… (2017)	77
M Pietrzak, J Paliszkiewicz, B Klepacki (2015)	77
RU Hasan, TM Chyi (2017)	76
FS Alani, MFR Khan, DF Manuel (2018)	74
H Boudlaie, HA Mahdiraji, S Shamsi…(2020)	67
DF Beard, RL Humphrey (2014)	60
P Coughlan, D Draaijer, J Godsell…(2016)	57

Source: Authors compiled from VOSviewer software

The highest documents by authors

Table 2: Frequency of the highest documents by authors

Selected	Author	Documents
✓	raeissi, p	3
✓	ravaghi, h	3
✓	safarani, s	3
✓	shobaki, mj al	5
✓	chatterji, n	4
✓	kiran, r	4
✓	maqbool, s	3
✓	rafiq, m	3
✓	shehada, ry	3
✓	abu-naser, ss	4
✓	anuforo, pu	3
✓	ayoup, h	3
✓	mateos-ronco, a	3

Source: Authors compiled from VOSviewer software

The authors with the most articles on applying the balanced scorecard in public universities are Shobaki. MJ AL with 5 articles, Chatterji. N with 4 articles, Abu-naser.SS with 4 articles, Kiran. R is 4 songs.

▪ *Co-authorship analysis*
To explore the trend of collaboration in research on applying the balanced scorecard in public universities, this study analyzed co-authorship relationships between individual authors. According to Benoit *et al*. (2018), the analysis results help improve understanding of research collaboration and help discover influential researchers. Fig 1 presents a map of the co-authorship network. The link between two nodes represents the collaborative relationship between the two authors, and the thickness of the link represents the intensity of the collaboration. The group of authors who cooperate most closely are the authors shown in the figure below. This is a collaborative group that has published many articles over the years.
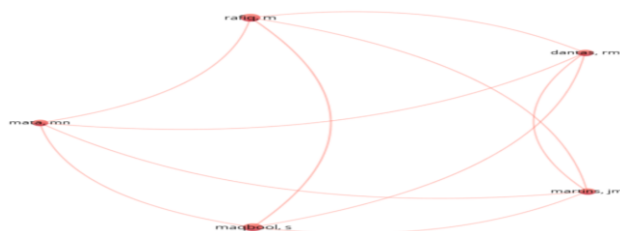
Source: Authors compiled from VOSviewer software

Fig 2: Co-authorship analysis

▪ *Keyword analysis results*
In the keyword analysis section, research and select keywords that appear 15 times or more. Based on the quantity of occurrences and overall link strength, the software evaluates keywords. Word analysis results can be exported into files as images. The keyword analysis results are as follows:
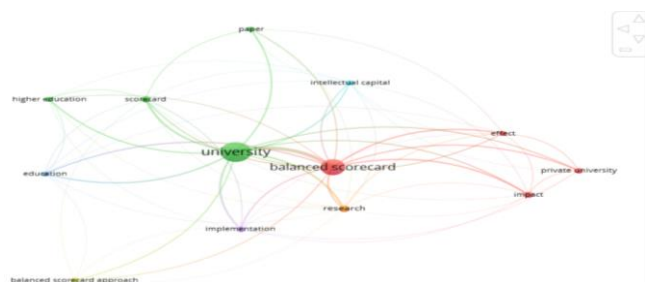

Fig 3: Keyword Co-occurrence Networks

Related keywords are grouped into groups; each group has a separate color. Looking at the image, it can be seen that the keywords are divided into 7 groups. Group 1 is represented by red links combined by 4 keywords, including balanced scorecard, effect, impact, and private university, with the central keyword "balanced scorecard" with 12 links and a total strength of Total link strength is 407; this keyword appears 210 times. Higher education, paper, scorecard, and university are the four keywords that make up Group 2's green links, with "universit" serving as the central keyword and comprising a total of 12 links. The total link strength is 469, and it has appeared 328 times. Group 3 is represented by blue links, including the keyword education, with 8 links and a total link strength of 63, appearing 17 times. Group 4 is represented by a yellow link including 1 keyword, a balanced scorecard with 6 links, and a total link strength of 28, appearing 21 times. Group 5 is represented by purple links, including the keyword implementation with 9 links and a total link strength of 68, appearing 26 times. Group 6 is represented by blue links, including the keyword intellectual capital with 10 links and a total link strength of 45, appearing 21 times. Group 7 is represented by orange links, including the keyword research, with 12 links and a total link strength of 87, appearing 37 times. With 7 research directions and 13 popular keywords, the results show an overall view of the issue of applying the balanced scorecard in public universities. Future studies can base their decisions on that to choose research directions to fill the gap or analyze more deeply.

5. Conclusion
In this study, we conducted a systematic review of studies on balanced scorecard implementation in public universities indexed in the Google Scholar database. These studies were published in the last 10 years, from 2014 to 2023, to provide detailed information about the number of publications, author citation frequency, research citations, keyword networks, etc. The research results have contributed to the general theoretical basis, serving as a basis for reference studies on applying the balanced scorecard in public universities. Data collected from richer sources, such as Scopus and OpenAlex, are also suggestions for further research in the future.

6. References
1. Karathanos D, Karathanos P. Applying the balanced scorecard to education. Journal of Education for Business, March/April, 2005, 222-230.
2. Fahmi and Saudan. A Review of Balanced Scorecard Frameworks in Higher Education Institutions (HEIs). International Review of Management and Marketing. 2015; 5(1):26-35.
3. Kaplan RS, Norton DP. The Balanced Scorecard: Measures That Drive Performance. Harvard Business Review, 1992.
4. Sidky. The challenges in developing and implementing a balanced scorecard as the basis for an internal academic benchmark, publication of the Arab Network for Quality Assessment in Higher Education, 2011.
5. Weerasooriya. Adoption of the balanced scorecard framework as a technique for performance evaluation in Sri Lankan universities, 2013.