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COMPARISON BETWEEN BALANCED SCORECARD AND TRADITIONAL PERFORMANCE MEASURES: BIBLIOMETRIC ANALYSIS

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Abstract

Purpose: This study aims to review the Literature Review about the Comparison between Balanced Scorecard (BSC) and Traditional Performance Measures (TPM).
Theoretical framework: The Literature Review sees that the focus on TPM tends to be too much on lagging indicators that show results only in the past few decades.
Design/methodology/approach: Design/methodology/approach: The main objective of this review was to investigate the historical background of TPM and BSC and to examine the use of BSC over traditional way in Previous literature over 24 years for the period from 1996 to 2024 using bibliometric analysis.
Findings: The study shows that both performance measures mutually agree that every Firm share the same indicators at unit stage from four perspectives which are Financial Perspective, Customer Perspective, Internal Process Perspective, Learning and Growth Perspective.
Research, Practical & Social implications: Both performance measures offer communication and provision of strategy, measuring driver performance and detecting effectiveness.
Originality/value: TPM is model without dimension of time that would establish or follow sequential setup of measures. Therefore, the BSC concept revolutionized the conventional thinking about performance metrics by going beyond the traditional measures of financial performance.
Keywords: Balanced Scorecard; Traditional Performance measures.

1. INTRODUCTION

At first, Kaplan & Norton (1996) introduced and proposed the BSC incorporate non-financial measures and provide managers with more detailed information beyond financial metrics alone to enhance their decision-making. Over the years, through a series of papers and books by Kaplan & Norton (1996), the concept of the scorecard has evolved into a complex Performance Measurement System (PMS), transforming it from an innovative yet relatively simple performance measurement tool (Chen et al., 2022). The primary goal of the BSC is to assess performance across four perspectives: Financial, Customer, Internal Business Process, and Learning and Growth. The introduction of the BSC revolutionized the traditional thinking about performance metrics by considering measures beyond financial aspects (Hegazy et al., 2022). The financial perspective addresses achieve financial success, how should we appear to our shareholders. The internal

business process perspective focuses on the processes in which the Firm should excel, while the customer perspective examines how the Firm is perceived by its customers. Finally, the learning and growth perspective emphasizes continuous improvement and the Firm's ability to adapt to change. Implementing the BSC requires four key processes: translating the vision, communicating, and linking, business planning, and feedback and learning (Hussein et al., 2024). Translating the vision involves clarifying the Firm's vision and gaining consensus. Business planning entails setting targets, aligning strategic objectives, and establishing milestones (Flayyih, Shamukh, et al., 2024). Communicating and linking involves setting goals, educating employees, and linking rewards to performance measures. Feedback and learning provide strategic feedback, facilitate review and learning, and articulate the shared vision (Khatoon & Farooq, 2014). According to Kaplan & Norton (1996), the ability to leverage intangible resources has become more important than managing tangible resources alone. However, determining the most relevant information to include in the BSC poses a challenge. The BSC aims to communicate strategic intent throughout the Firm and track performance against established strategic and operational goals (Flayyih, Hadi, et al., 2024). It translates a Firm's strategic themes and objectives into actionable goals, aligning them with operational activities. The BSC combines financial and non-financial measures, providing both reporting and predictive value. By incorporating three non-financial areas, it creates a Firm framework and offers a broader perspective on the company's activities and overall health. Additionally, it allows for a quick assessment of short, medium, and long-term objectives. The BSC can be utilized for both strategic and operational control. Under operational control, managers monitor and control the delivery of predefined activities to achieve "best practice" performance levels. In contrast, strategic control enables managers to monitor activities necessary for achieving the Firm's strategic objectives. BSC helps facilitate decision-making regarding necessary interventions to ensure strategic goals are met. However, a major challenge of the BSC lies in carefully determining the goals and selecting the appropriate metrics. Thus, managerial meetings are essential for planning which measures align with the Firm's performance requirements. Failure to do so may render the information collected meaningless. Furthermore, since the four perspectives of the BSC do not provide a holistic view of the Firm, it may be necessary to employ additional perspectives. The study includes several bibliometric analyzes regarding keywords, articles, journals, and countries to review the intellectual structure of the literature related to the balanced scorecard and traditional performance. Following similar bibliometric studies, this study addresses the following specific questions: What is the trend in publications related to the balanced scorecard and traditional performance? Which countries are the most productive in relation to the balanced scorecard and traditional performance? What are the prevailing topics in this research area?

2.0 Literature review related concepts

2.2 Concept of BSC

The BSC is more than a mere collection of measures; it functions as a comprehensive strategic management system that aids managers in clarifying and implementing their strategies. According to Kaplan & Norton, (1992, 1996, 2004), the BSC consists of four perspectives: the Learning and Growth Perspective, Internal Business Perspective, Customer Perspective, and Financial Perspective. Each perspective encompasses multiple measures that are interconnected through a series of cause-effect relationships. This cause-and-effect philosophy, also known as leading and lagging indicators, involves measures where a change in the leading measure triggers a subsequent change in the lagging measure. In the new version, two new dimensions were added to the BSC, namely the Environmental and Social Dimension and risk dimension (Hristov et al., 2019; Mio et al., 2022). The design of a BSC involves identifying a small number of financial and non-financial measures and setting targets for them. This allows managers to assess whether current performance meets expectations during review. By highlighting areas where performance deviates from expectations,

managers can be motivated to improve performance in their respective areas of the Firm. The primary objective of a BSC is to provide information that is relevant to the implementation of a strategy. Over time, there has been a merging of traditional strategic planning and control activities in the design of a BSC. Kaplan & Norton's writing in the late 1990s outlines four steps for designing a BSC Translating the vision into operational goals: This involves aligning the strategic vision with specific goals that can be implemented, Communicating the vision and linking it to individual performance: The strategic vision needs to be effectively communicated across the Firm, and individual performance goals should be linked to the overall vision, Business planning, index setting, and feedback: The BSC design process includes creating a detailed business plan, setting key performance indicators, and establishing mechanisms for providing feedback on performance and Learning and adjusting the strategy accordingly: Continuous learning and adjustment of the strategy based on feedback and results are essential for effective BSC implementation. These four steps demonstrate that designing a BSC goes beyond simply identifying a set of measures. It emphasizes the need for a thoughtful integration of the resulting BSC with the broader business management process. These steps help managers focus on strategic issues and the effective management of strategic implementation. It is important to note that a BSC does not play a role in the formation of strategy itself. BSCs can coexist with systems of strategic planning and other tools, but they do not replace them.

2.4 The Components of BSC through TPM

2.4.1 Financial Perspective

Financial topics in most Firms primarily revolve around strategies for increasing revenues, optimizing asset utilization, mitigating risks, and enhancing cost and productivity. These aspects form crucial linkages across all perspectives of the scorecard. The goal is to achieve sustained financial performance over the long term (Abidmuslim Hraiga et al., 2023). Specifically, financial objectives in an innovative company are aligned with achieving revenue growth and improved margins through the introduction of new products and services. Simultaneously, emphasis is placed on cost reduction, encompassing the lowering of disposal, maintenance, and repair costs associated with the products. This perspective is particularly observed in European companies, particularly concerning product environmental issues (Kaplan & Norton, 2004).

2.4.2 Customer Perspective

Numerous companies delineate their chosen customer and market segments within the customer perspective of the BSC. This perspective serves as a representation of the sources that contribute to fulfilling the revenue component of the company's financial objectives. Within the customer perspective, there is a strategic alignment of core customer outcome measures, encompassing satisfaction, loyalty, retention, acquisition, and profitability. This alignment facilitates the identification and measurement of targeted customers and market segments (Nory & Muhsin, 2024). The primary objective for companies is often articulated as the aspiration to be the foremost in delivering value to their customers. However, acknowledging the impossibility for all companies to hold the top position, Firms strive to achieve a desired level of customer satisfaction and attain competitive advantages within their targeted segments. Commonly, key customer measures in many companies include market share, customer retention, customer acquisition, customer satisfaction, and customer profitability (de-Almeida-e-Pais et al., 2023).

2.4.3 Internal Business Perspective

Companies normally develop their objectives and measures for this perspective after creating objectives and measures for the financial and customer perspectives in this part of BSC. Under BSC, it is recommended by (Kaplan & Norton, 1996) that: managers define a complete internal-process value chain that starts with the innovation process – developing of new solutions for these needs,

identifying current and future customers' needs, proceeds through the operations process and delivering existing products and services to existing customers; offering services after the sale that add to the value customers receive from company's product and service offerings and eventually end with post-sale service (Elbanna et al., 2022). The cost, quality, throughput, and time measures would be defined and measured in this perspective. According to Kaplan & Norton (1996), most of the companies on these several points summarized their objectives to: quality improvement, cycle time reduction, increase in yields, maximizing throughput, improving distribution and services, improving innovation and research and development at lower costs as key indicators for their business processes. Managers will know how well their business is running in this process, whether the products and services conform to customer requirements or not. Therefore, they can explore ways of improving the internal system and functions.

2.4.4 Learning and Growth Perspective

In the BSC, companies typically formulate their objectives and metrics for the internal process perspective after establishing objectives and metrics for the financial and customer perspectives. According to Kaplan & Norton (1996), it is advisable for managers to define a comprehensive internal-process value chain. This chain commences with the innovation process, involving the development of new solutions for customer needs and the identification of current and future customers' needs. It then progresses through the operations process, encompassing the delivery of existing products and services to existing customers. Additionally, it involves offering post-sale services that enhance the value customers derive from the company's offerings, ultimately concluding with post-sale service considerations (Elbanna et al., 2022). Within this perspective, measures such as cost, quality, throughput, and time are defined and monitored. Kaplan & Norton (1996) suggest that companies commonly summarize their objectives in terms of quality improvement, cycle time reduction, increased yields, maximized throughput, enhanced distribution and services, and improved innovation and research and development at lower costs as key indicators for their business processes. By focusing on these indicators, managers can assess how effectively their business processes are running, ensuring alignment with customer requirements. This knowledge empowers them to explore avenues for enhancing internal systems and functions.

2.4.5 Environmental and Social Dimension:

The BSC has undergone various developments since its introduction in 1990, and until now, it has undergone several improvements that have made it one of the most important tools for assessing strategic performance, relied upon in evaluating the performance of major global institutions. One of its significant aspects is its inclusion of a set of indicators of great importance in the evaluation process, assisting top management in making most of the strategic decisions that align with the goals and objectives of the Firm. Today, Firms need to incorporate sustainability into their operations to avoid depleting the vegetative green cover through environmentally conscious thinking (Erbasi, 2014). Therefore, Firms distinguish themselves and gain a reputable social and environmental performance, so it is essential to integrate environmental thinking into the Firm culture, including social responsibility, through the design of an effective Environmental BSC to enhance environmental management methods and strategies. The social performance of the institution affects social systems within the locations it operates, while environmental performance involves identifying the most important environmental impacts and demonstrating the connection between the environmental goals of institutions and their strategies (Flayyih, 2015).

2.4.5 Risks Dimension:

There are risks associated with economic units performing their activities. Some researchers have indicated that these risks have negative effects on costs, revenues, profits, and market share. Risks are considered the probability of an undesirable event occurring, and therefore, the likelihood of

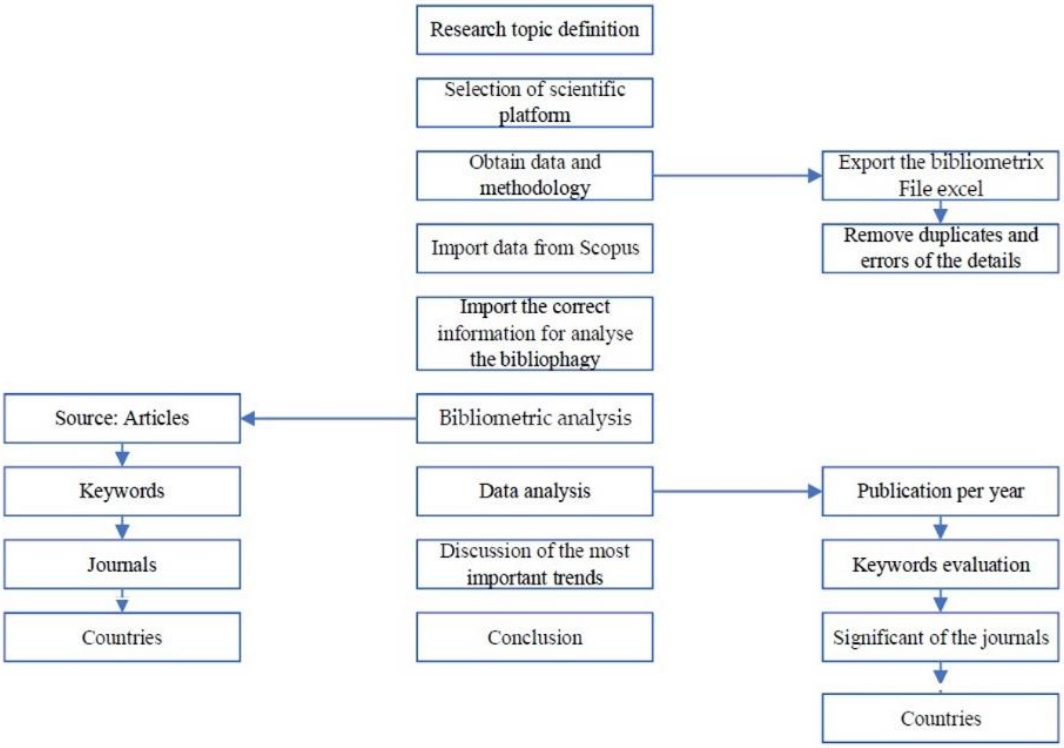
incurring loss, damage, or speculation, or the likelihood of incurring loss due to uncertain conditions. Some researchers, including Chang and Wang, argue for the necessity of adding another perspective to the BSC, namely the risk perspective, to expand its role in the strategic performance evaluation process by setting a set of goals and measures related to this perspective derived from the strategic vision of the economic unit. This helps identify the risks facing this unit and indicates the extent to which these risks are mitigated (Yang & Lee, 2020).

3. METHODOLOGY

3.1 Sample

This study examines BSC and TPM literature using bibliometric methodologies. We used bibliographic methods to quantitatively analyze bibliographic data. Broadus (1987) developed this strategy to analyze past studies. Journal articles on BSC and TPM on April 27, 2024, primarily from the Scopus database, using the following search equation in the “TITLE-ABS-KEY (balanced AND scorecard AND traditional AND performance) AND (LIMIT-TO (EXACTKEYWORD, "BSC") OR LIMIT-TO (EXACTKEYWORD, "BSCs") OR LIMIT-TO (EXACTKEYWORD, "Performance Measurement") OR LIMIT-TO (EXACTKEYWORD, "BSC (BSC)") OR LIMIT-TO (EXACTKEYWORD, "BSC Approach") OR LIMIT-TO (EXACTKEYWORD, "BSC") OR LIMIT-TO (EXACTKEYWORD, "Performance Improvement") OR LIMIT-TO (EXACTKEYWORD, "Balanced Score Card") OR LIMIT-TO (EXACTKEYWORD, "Performance Evaluations") OR LIMIT-TO (EXACTKEYWORD, "Performance Measure"))" approach. It is an important data source for obtaining scientific articles in the literature review at the present time. By relying on the keywords of published articles, the bibliometric study revealed the most important published topics, amounting to 182 documents found. This topic was investigated within specific places in the article, which included “Article title, abstract and keywords.” ". Figure 1 presents the roadmap for bibliometric analysis.

Figure 1. Workflow in bibliometric analysis (see (Al-Khoury et al., 2022)).



3.2 Statistical Approach

VOSviewer was used to examine the bibliographic keywords found in 182 papers. The keywords of the nation or author are one of the elements that are interesting to investigate. A strong relationship can exist between any two elements. Each link has a strength, indicated by a positive numerical

number, the higher the value, the stronger the bond. We overlooked a country's co-authorship relationships with other countries.

4. RESULTS

4.1 Outcomes of Publication and Research Interest growth

Over the course of 28 years, 182 documents and research articles were published (see Figure 2. and Table 1.). As of 1996 (Walker, 1996), the earliest known publication date. interest in the link between BSC and TPM has grown significantly. The overall number of publications climbed from six in 2009 to 15 articles, while the number of articles increased to 12 in 2020, and as of the date of this study, the number of indexed articles had reached 3 for the year 2024. Most papers, however, were open access and accessible through the Scopus database. As of 2020, just 38% (207 papers) had been published in open type. The results also revealed that the papers used in this study were published in six different languages. The current study focused on papers published in English, the most extensively utilized language, totaling 176 items. Figure 2 displays the annual and cumulative number of research articles between BSC and TPM indexed in Scopus from 1996 to 2024.

Figure 2. Annual and cumulative number of research articles in AI and accounting and auditing for the period 1996-2024.

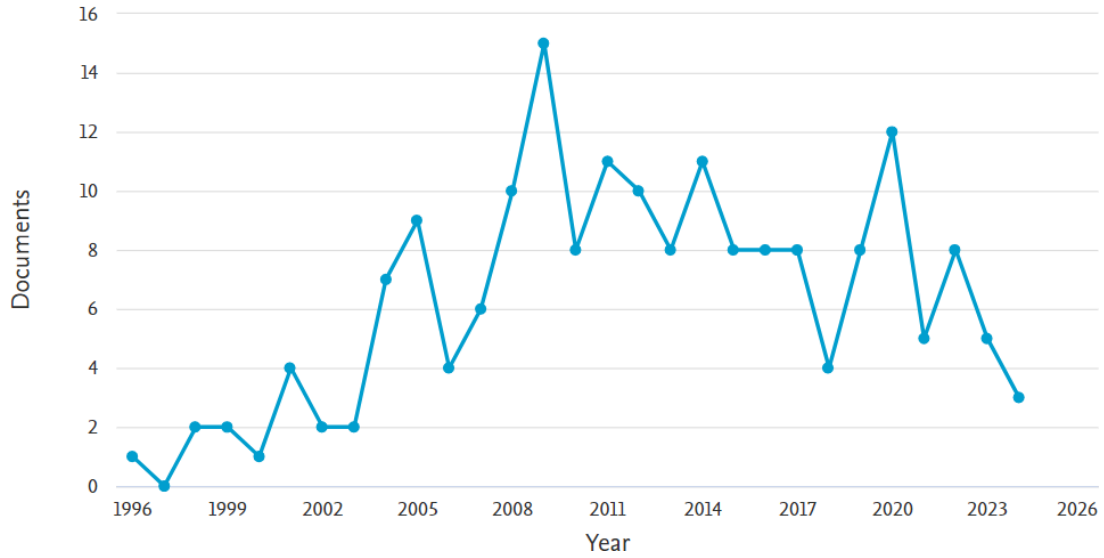


Table 1. shown Number of research studies and growth rate over 28 years from 1996 to 2024.

YEAR	No.	Percentage
2024	3	1.65%
2023	5	2.75%
2022	8	4.40%
2021	5	2.75%
2020	12	6.59%
2019	8	4.40%
2018	4	2.20%
2017	8	4.40%
2016	8	4.40%
2015	8	4.40%
2014	11	6.04%
2013	8	4.40%
2012	10	5.49%
2011	11	6.04%
2010	8	4.40%
2009	15	8.24%
2008	10	5.49%
2007	6	3.30%
2006	4	2.20%
2005	9	4.95%
2004	7	3.85%
2003	2	1.10%
2002	2	1.10%
2001	4	2.20%
2000	1	0.55%

1999	2	1.10%
1998	2	1.10%
1996	1	0.55%

The research contributions of the top ten nations worldwide from 1996 to 2024 are shown in Figure 3. and Table 2. It is observed that the United States of America leads the world in terms of research contributions, accounting for 16% of all studies. China follows with a rate of 15.

Figure 3. Distribution of research articles between BSC and TPM for the ten most published countries for the period 1996-2024.

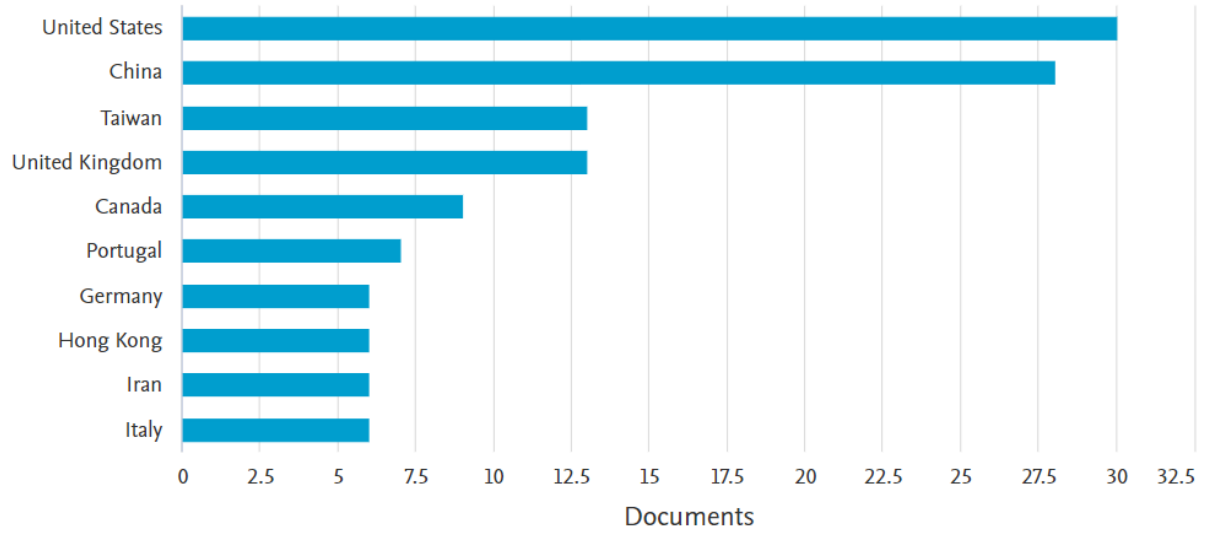
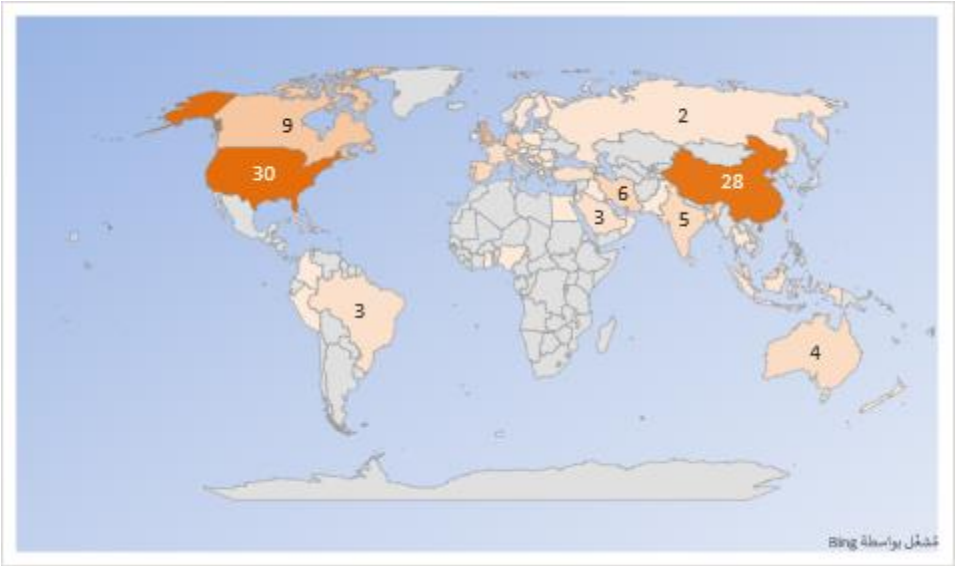


Table 2. Distribution of research articles between BSC and TPM for the ten most published countries for the period 1996-2024.

Country/Territory	Documents	Percentage
United States	30	16.48%
China	28	15.38%
Taiwan	13	7.14%
United Kingdom	13	7.14%
Canada	9	4.95%
Portugal	7	3.85%
Germany	6	3.30%
Hong Kong	6	3.30%
Iran	6	3.30%
Italy	6	3.30%

Saudi Arabia came in first place with three articles, while Iraq, Egypt, Jordan, Qatar, and Oman had only one article for each country. The research article in Iraq was written by (Al-Shaabaney, 2021).

Figure 4. Distribution of research articles between BSC and TPM in world map for the period 1976-2024.



4.1 Research interest in the relationship between the BSC and TPM

Because the research includes the words found in the title of the study, the abstract, and the initial words, it highlights that the cognitive contributions in this field have been distributed among different disciplines. We conducted a comprehensive inventory to investigate the contributions made by more specialized research. Articles published in professional journals were selected based on keywords and open access publications for the years 1996–2024 using the guidelines. Figure 5 shows that most articles published in economic, administrative, financial, and accounting sciences, amounting to 28%, during the selected period. Although the published articles refer to multiple specializations, upon examination it was found that these studies were published in multidisciplinary conferences, the balanced grade card was linked to other scientific topics, such as artificial intelligence, for example, and this enables researchers to publish their research articles in multidisciplinary journals and conferences.

Figure 5. Names of journals that included studies between the BSC and TPM for the period 1996 to 2024.

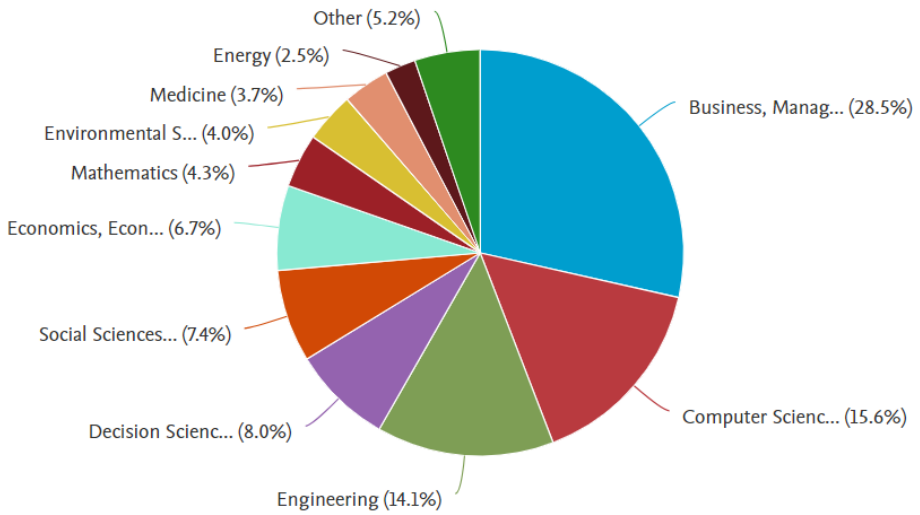


Figure 6. The bibliometric network is created based on knowledge contributions for the period 1996-2024.

Figure 6, created using VOSviewer, shows us. For the years 1996 to 2024, we prepared this grid based on knowledge contributions. We relied mostly on 253 keywords found in the studies we selected. After considering the use of keywords to make knowledge contributions to data identifiers. We can now clearly see that the basic network, which is in green; The second grid is red. It turns out that BSC and performance measurement in the first place, and performance evaluation in the second place, and both are clearly related to each other, given that traditional performance and the

balanced scorecard are among the topics concerned with performance evaluation. The network's primary focus is BSC, which emphasizes its importance in measuring performance compared to traditional performance.

5. DISCOUSIONS OF RESULTS

The BSC system, while widely recognized for its strengths, is not without its limitations. Some theorists, such as Kanji & e Sá (2002), have pointed out challenges in its practical application. One concern is that the BSC is considered a conceptual model and translating it into practice can be challenging without prior practical experience. Additionally, the Total Productive Maintenance (TPM) approach associated with BSC has been criticized for focusing too much on lagging indicators that reveal results only. Another limitation discussed is the perceived imbalance in the attention given to leading and lagging indicators. Measurement systems like the European Foundation for Quality Management are cited as being more balanced, providing equal consideration to both types of indicators. The argument is made that individuals tend to be more focused than balanced, naturally concentrating on a few key aspects rather than trying to manage a comprehensive set of measures. The strength of BSC lies in its claimed strong causal interrelations between different elements mapped using the core strategy of Firm. However, critics argue that the cause-and-effect relationships within BSC are static and lack a dimension of time. According to Nørreklit, the BSC is considered a model without a temporal dimension, and the subjective construction of cause-and-effect relations may not necessarily adhere to a time factor. Despite Kaplan & Norton (1996) suggesting the division of strategic objectives into budgetary measures that can be tracked over time, the method's subjective nature raises questions about the statistical proof of cause and effect. Experimental proofs behind BSC have been connected in various zones of the private division from different assembling Firms (Lohman et al., 2004; Mahmoud, 2014), and the petrochemical business (Varma & Deshmukh, 2009) to electrical retail industry (Neely, 2008) to mention few. In addition, it has been connected not just in extend associations but also in countless of BSC use in a wide range of divisions. Whether the advantages of BSC exceed the time and expenses of a usage, it must be put into consideration. To achieve this, this study shall examine the experimental confirmation behind the BSC in both private and open parts. BSC needs to be analyzed whether there is any confirmation that BSC executions have prompted a change in monetary execution ex-post with a specific end goal to assess the viability of the BSC. It is astounding to note that there is minimal observational exploration performed on the effects of BSC usage by considering the enormous measure of the report here. The two noteworthy ideas of "accomplishment" in the BSC writing are vital independently. According to Boscia & McAfee (2008), one variant achievement may just be an effectively connected BSC to a Firm and being utilized as a PMS. The study contends that

"achievement" ought to be dynamic and multi-dimensional; what is measured as an achievement may not be suitable as time goes on. A fruitful and effective BSC execution will enhance the measurable execution of a firm just like the same way as the usage of some other PMS. Consequently, this shall enhance its capacity to deal with its advantages, whilst in the meantime permitting expenses to be diminished through an expanded comprehension of the business environment where it operates. performed an investigation of Canadian firms that embraced the BSC. As measured by ROA & ROS, the authors inspected the budgetary execution before and after the usage of the scorecard. Their study found that three years after the BSC was executed, there were no critical execution enhancements on either ROA or ROS. The top-down approach employed by the BSC methodology has faced criticism, as highlighted by Kanji & e Sá (2002), for several reasons. Firstly, constructing strategic objectives in a hierarchical manner may not be ideal, as it tends to focus on building a result-driven centralized program rather than addressing the internal needs of the people within the Firm. This approach may result in employees merely providing buy-in decisions without contributing meaningfully, leading to potential motivation problems. A bottom-up approach during the establishment of measures is suggested as a more feasible alternative (Rillo, 2004). This bottom-up method aligns with the performance pyramid methodology proposed by Lynch & Cross (1995). Secondly, the hierarchical setup of both objectives and measures introduces the risk of generating local optimums in individual departments within Firms where work is a process involving multiple departments. This issue is particularly relevant when the Firm's structure involves several departments working collaboratively. The top-down hierarchy may inadvertently lead to suboptimal outcomes at the local level. The theory of constraints emphasizes the importance of following the elaboration of the value chain rather than rigidly adhering to a top-down hierarchy. Laitinen (1998) has proposed a dynamic system for performance measurement as an alternative methodology to address this problem. In summary, the criticism against the top-down approach in BSC methodology revolves around its potential demotivating impact on employees and the risk of generating suboptimal outcomes in collaborative work processes. Advocates for a bottom-up approach and alternative methodologies, such as the performance pyramid and dynamic systems for performance measurement, propose more flexible and adaptive approaches to strategic management and performance measurement.

6. CONCLUSSION

Historically, there was a shift from the industrial age to the information age in the late 1990s. Equipment, plants and machinery are most of the assets in the industrial age. At that time, financial accounting played a crucial role. Notwithstanding, customer relationship, human resources and

innovative process in tangible form are an asset of information age. The size of the Firm, market share and high turnover are factors that influence the adoption of new management system like BSC. BSC communicates the role and relationship of the driver success together with vision and strategy. The four critical success factors in BSC are: Financial (value, growth, and productivity); Customers (value proposition); Process (drivers for performance); and Competence (understanding, expertise, management and collaboration). The top-level scorecard criteria are the driving determinant for lower-level scorecard criteria. Although recent cognitive contributions have introduced the environmental and social dimension, also after risks, we have not found a role for them in the current contributions. This may be because the new dimensions have moved away in their approach from the method of comparing traditional performance and the balanced scorecard. Accordingly, we can present proposals regarding conducting future studies that include a comparison between traditional and modern performance from the perspective of the environmental, social and risk dimensions.

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