

A Thematic Review on Performance-Based Budgeting in the Public Sector Organisation

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Abstract

Purpose: The current thematic review was motivated by the belief that performance-based budgeting (PBB) is an effective tool that can benefit public sector organisations in budgeting practices and assist in improving the efficiency of public spending management. Specifically, a thematic analysis procedure was conducted to identify patterns and construct themes associated with the current trends and issues regarding performance budgeting in public sector organizations. The literature from 2018 to 2023 was systematically reviewed and thematically analysed.

Design/ Methodology/ Approach: The systematic review was conducted to identify pertinent trends and issues in PBB using ATLAS.ti 22 software. A keyword was employed to search the string of the document title, followed by filters via inclusion and exclusion criteria on the SCOPUS and World of Science (WoS) databases. A total of 95 journal articles were identified in the initial stage, with 61 selected articles finalised after the inclusion, exclusion, and duplication removal process.

Findings: The results revealed three PBB themes based on 15 initial codes from 61 selected documents, namely budget practices, implementation, and use of performance information. The identified themes were significant to the current PBB trends and issues in public sector organisations. Successful PBB implementation and effective use of PBB in public sector organisations remain a critical topic requiring further investigations.

Originality/ Value: This study contributed to the evolution of PBB trends within public sector organisations through a thematic analysis. The findings are beneficial to future studies by aiding future researchers in appraising the relevant topic. Additionally, the present study can guide policymakers,

budgetary practitioners, and key stakeholders worldwide to focus on the ambiguous areas of PBB practices.

Keywords: ATLAS.ti, management accounting, performance budget, performance-based budgeting, qualitative methods, thematic review

1.0 Introduction

PBB has been a popular topic among budget professionals for decades, with a surge of interest in relevant practices since the 1990s before becoming widespread as one of the New Public Management (NPM) reform agendas across multiple countries (Mauro et al., 2018). The primary objective is to improve the effectiveness and efficiency of public service delivery as well as public spending management (Postuła & Tomkiewicz, 2019). The PBB implementation is also expected to drive the budgetary practice towards a performance-oriented approach (Joyce, 1997). Ho (2018) demonstrated that PBB implementation encompasses a broader scope of budget allocation decisions focusing on performance and outcomes, which involves “the full budget cycle, from preparation, allocation, and implementation to evaluation, as a platform for achieving various managerial, budgetary, and policy-making goals” (p. 5). Jordan and Hackbart (1999, p. 68–88) also elucidated that “PBB are linking financial resources allocated in the budget period with some kind of information about the expected results of policies. This type of budgeting requires information about strategic planning regarding the objectives of an organisation. It requests quantifiable data together with the allocation of resources providing meaningful information about program outcomes”. Generally, the objective of the targeted budget programmes is predicated on the outcomes (Pratolo et al., 2020; Hager et al., 2001), with PBB serving as a budgetary system ideally linking programmes to the targeted outcomes or results (Amini et al., 2019). Ellul and Hodges (2019) also explicated that the PBB acronym could account for performance budgeting, outcome-based budgeting, or result-based budgeting.

Figure 1 illustrates the ranking of 35 Organisation for Economic Co-operation and Development (OECD) member countries based on a composite index of PBB implementation (Sapała-Gazda, 2018). Sapała-Gazda (2018) indicated the extensive PBB use across OECD nations despite significantly varying approaches employed. Nonetheless, the implementation process remains unsatisfactory (Marsus, 2020) as Ho (2018) discovered that PBB implementation did not entirely substitute the traditional budgetary system among budget preparers. Therefore, various challenges have been encountered by organisations in ensuring PBB effectiveness in budgetary processes and practices (Ho, 2018; Clark et al., 2017), on top of multiple difficulties during the adoption and implementation phases (Clark et al., 2017). The effective use remains ambiguous due to different areas requiring further exploration and improvement in relevant implementation (Mauro et al., 2018). Moreover, limited studies concentrated on thematic analysis to appraise PBB issues and trends among public sector organisations and examine the prominent topics and subtopics, especially in emerging countries. Insufficient systematic review analysis has also been observed to identify the primary themes across public sector entities in terms of the use of performance information (Martínez-Guzmán, 2020) and the impacts of budgetary monitoring and evaluation on effective use (Martí, 2019).

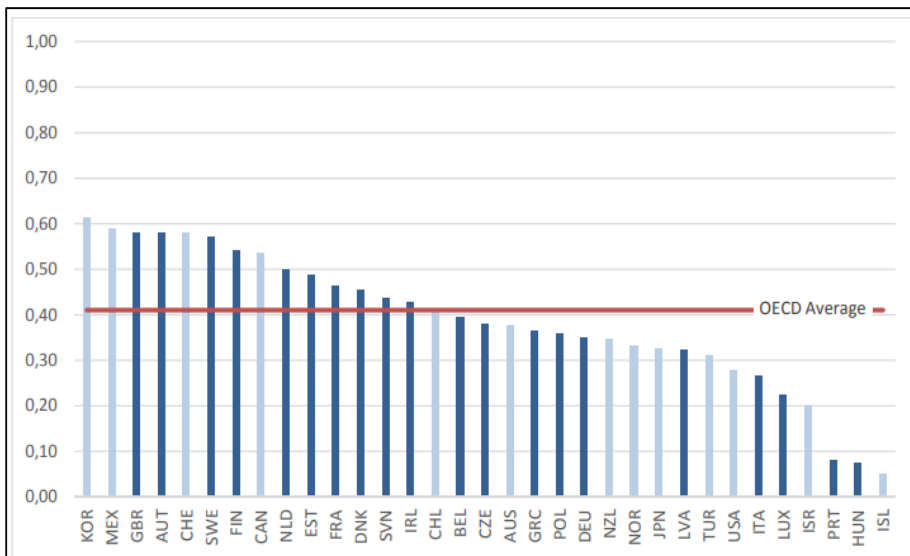


Figure 1: The OECD Index of PBB Practices

Source: Sapała-Gazda, 2018

Despite its popularity, there are limited review papers focusing on thematic analysis, discussing issues and trends of PBB within public sector organizations, and examining the prominent topics and subtopics of the PBB study field, especially in emerging countries. Additionally, there is a lack of systematic review analysis conducted to identify the main themes in the PBB studies area within the public sector organizations. How the performance information is used (Martinez Guzmán, 2020) and how the monitoring and evaluation of the budget have been done would affect the effective uses of PBB in budgetary processes and practice in the organizations (Martí, 2019). This review was motivated by the belief that the PBB is an effective tool that can benefit public sector organizations in budgetary practices and help the organizations enhance the efficiency of public spending management. Furthermore, this study discusses the current trends and issues globally based on the following research questions:

- i. What are the current trends of publications, geographical dispersal, and prominent source titles of the PBB studies field in the literature from 2018 to 2023?
- ii. What are the trends of the research setting, methodology used, and prominent theory used in the PBB studies area from 2018 to 2023?
- iii. What are the current trends and issues discussed by scholars on the topics and subtopics of the PBB studies field in the literature from 2018 to 2023?
- iv. What are the main themes involving the current trends and issues in the PBB studies in the literature from 2018 to 2023?

The present study aimed to systematically review the literature from 2018 to 2023 by conducting a thematic analysis of PBB among public sector organisations. Simultaneously, the current trends and issues in PBB practices were also identified. This study uses a systematic approach (ATLAS.ti software) to identify important trends and challenges in the PBB research. Thematic analysis is a rare technique in systematic PBB literature reviews to provide a more

comprehensive picture of the existing trends and issues. Furthermore, the Scopus and Web of Science (WoS) databases were employed to select the primary documents. A total of 95 journal articles were determined in the initial stage, with only 61 retained as final documents for subsequent reviews following the inclusion, exclusion, and duplication removal process. Three (3) key themes related to PBB issues and challenges were pinpointed, namely budget practices, implementation, and use of performance information. The findings can guide policymakers, budgetary practitioners, and key stakeholders globally to resolve the ambiguous areas of PBB practices, especially to align existing budgetary practices to PBB and promote higher performance information utilisation among public sector stakeholders and government officials. The findings would also benefit future studies and aid future researchers in the current topic and context by identifying research gaps and suggesting potential directions.

2.0 Materials and Methodology

The current study employed a thematic analysis procedure in the literature review and the term ‘thematic review’ using ATLAS.ti 22 software (Zairul, 2020). The thematic analysis identifies patterns and constructs themes related to the current PBB trends and issues among public sector organisations (Clarke & Braun, 2013). The next step is to identify the patterns and form categories in order to understand the current trends and issues of performance budgeting in public sector organization. Literature selection was performed according to selected inclusion criteria encompassing 1) publication years from 2018 to 2023, 2) containing at least the keyword(s) of performance budget, performance-based budget or outcome-based budget, or outcome budget, or result-based budget, and 3) focusing on performance budget trends and issues in public sector organisations. The publication years between 2018 and 2023 were selected to capture the recent PBB studies and leverage a surge in research for rich data analysis, which offered a rich data source for analyses and valuable insights. In addition, articles in English were selected as English is a universal language understood by most researchers. The decision to limit subject areas and document types with full paper available was made to clearly define the current trends and issues among other scholars.

Table 1: Search Strings from the Scopus and WoS Databases

Database	Process/ Method	Results
Scopus	TITLE-ABS-KEY (("performance budget*" OR "performance-based budget*" OR "outcome-based budget*" OR "outcome budget*" OR "result-based budget*")) AND PUBYEAR > 2017 AND (LIMIT-TO (PUBSTAGE, "final")) AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "ECON")) AND (LIMIT-TO (DOCTYPE, "ar") OR LIMIT-TO (DOCTYPE, "cp")) AND (LIMIT-TO (LANGUAGE, "English"))	60 documents
Year: 2018 – 2023		

Table 1: Search Strings from the Scopus and WoS Databases (continued)

Database	Process/ Method	Results
Web of Science (WoS)	TI=(("performance budget*" OR "performance-based budget*" OR "outcome-based budget*" OR "outcome budget*" OR "result-based budget*")) and Article or Proceeding Paper or Review Article (Document Types) and 2018 or 2019 or 2020 or 2021 or 2022 or 2023 (Publication Years) and Article or Review Article or Proceeding Paper or Book Chapters (Document Types) and English (Languages) and Public Administration or Business Economics or Environmental Sciences Ecology or Operations Research Management Science or Education Educational Research or Government Law or Social Sciences Other Topics (Research Areas) and Early Access (Exclude – Document Types) and Article (Document Types)	35 documents
Year: 2018 – 2023		

While significant growth in available data sources and bibliographic metrics has been observed over the past decade, the WoS and Scopus databases remain the primary and most popular sources owing to the complete publication metadata and impact indicators. Therefore, both databases serve as significant tools for various tasks ranging from journal and literature selection or personal career tracking to large-scale bibliometric analyses and research assessment practices at all possible levels. Both databases offer broad coverage of high-quality journals and additional analysis tools for swift publication journals and citations across various disciplines. The initial searches produced 60 related documents from the Scopus database and 35 documents from the WoS database, spanning from 2018 to December 2023. However, 22 documents from the WoS database were excluded due to overlapping articles between the two (2) databases. Another 12 documents were removed due to the irrelevance to PBB, the study scope not covering public sector organisations, incomplete metadata, inaccessible full articles, and anecdotes or PBB trends and issues not being discussed. Resultantly, only 61 articles were reviewed after the inclusion, exclusion, and duplication process. Figure 2 illustrates the entire inclusion and exclusion process for the thematic review, as indicated by Zairul's (2020) flow chart. The final 61 articles were uploaded to the ATLAS.ti 22 software as the primary documents, with each paper grouped based on 1) the author, 2) issue number, 3) periodic, 4) publishers, 5) volume, and 6) publication year (see Figure 3). Discussion patterns were analysed according to the publication year.

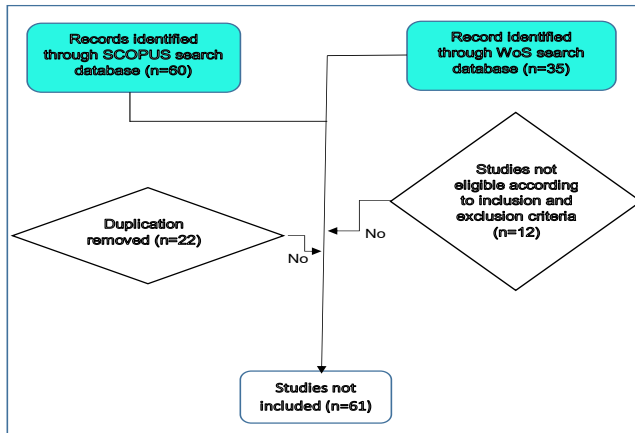


Figure 2: Inclusion and Exclusion Criteria in the Thematic Review
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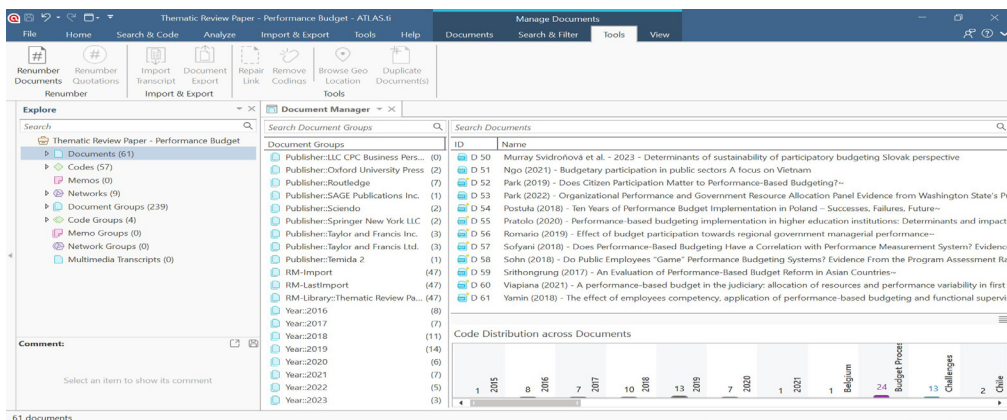


Figure 3: ATLAS.ti Document Groups
 Source: Authors own creation

3.0 Literature Gaps

Two (2) published documents conducted the review of PBB studies among public sector organisations from 2018 to November 2023. Particularly, Musso and Weare (2020) reviewed existing PBB studies on transaction-cost analysis of incentive intensity in performance regimes. Conversely, Ho (2018) reviewed the PBB theory and corresponding practices. Nevertheless, previous scholars investigating the PBB subtopic did not comprehensively analyse the current trends and issues. None of the prior PBB studies conducted the literature review by applying the thematic analysis technique to identify recurring themes. Hence, the present study serves as the first systematic literature review employing the thematic analysis technique (2018-2023), which provides an alternative perspective and unique insights to acquire a deeper PBB understanding in the current public sector landscape. The present findings would also aid future academicians in determining the potential study area to focus on. Table 2 depicts the two (2) previous systematic PBB literature reviews.

Table 2: The Two Previous Systematic PBB Literature Reviews

Author	Article Title	Publication Year
Musso J.A.; Weare C.	Performance Management Goldilocks Style: A Transaction Cost Analysis of Incentive Intensity in Performance Regimes	2020
Ho A.T.-K.	From Performance Budgeting to Performance Budget Management: Theory and Practice	2018

4.0 Results and Discussion

The current section presents the descriptive analysis of primary documents from the selected databases in the study period to answer the first research question related to the current trends of PBB publications, geographical dispersal, and prominent source titles. The analysis also answered the second research question about the trends of the research setting, employed methodology, and prominent theory applied to PBB studies from 2018 to 2023. Moreover, the co-occurrence author's keywords analysis was performed to discuss the current trends and issues on the primary topic and subtopics to answer the third research question. Research Question 4 was answered by assessing and developing the final themes after pinpointing the major themes involving the current trends and issues in PBB studies in the literature between 2018 and 2023.

4.1 Descriptive Analysis

This subsection describes the descriptive analysis of the trends in PBB studies within public sector organisations. The analysis commenced by evaluating the total trends of PBB publications by year, followed by the top 10 countries of affiliation and the prominent source titles in the PBB studies field based on the study domain and study period. Subsequently, the popular research setting in the study area was investigated, and the methodologies employed by prior scholars were highlighted. The primary theories applied by past researchers in the PBB study area were also discussed and presented.

4.1.1 Publications

The average number of PBB publications within the public sector organisations from 2018 to 2023 is 10 articles. Figure 4 demonstrates that the total publications in the study area slightly increased from 10 to 13 from 2018 to 2019, although the number decreased to eight (8) in 2020. The total number of publications in 2020 was the lowest throughout the study period. Conversely, the total number of publications gradually increased from 2020 to 2023, with 11 documents published in 2022 and 10 in 2023. The analysis was according to the extraction date of articles from the selected database (3rd November 2023). The decrease in the PBB study from 2019 to 2020 could be due to the coronavirus disease (COVID-19) outbreaks, which significantly impacted the academic world tremendously from 2020 to 2022. The results posited that PBB discussions related to the performance budget among scholars peaked in 2019 before the COVID-19 pandemic. Figure 4 also portrays that PBB studies have continuously highlighted relevant issues across public sector organisations, which postulates that this area remains relevant and pertinent among researchers.

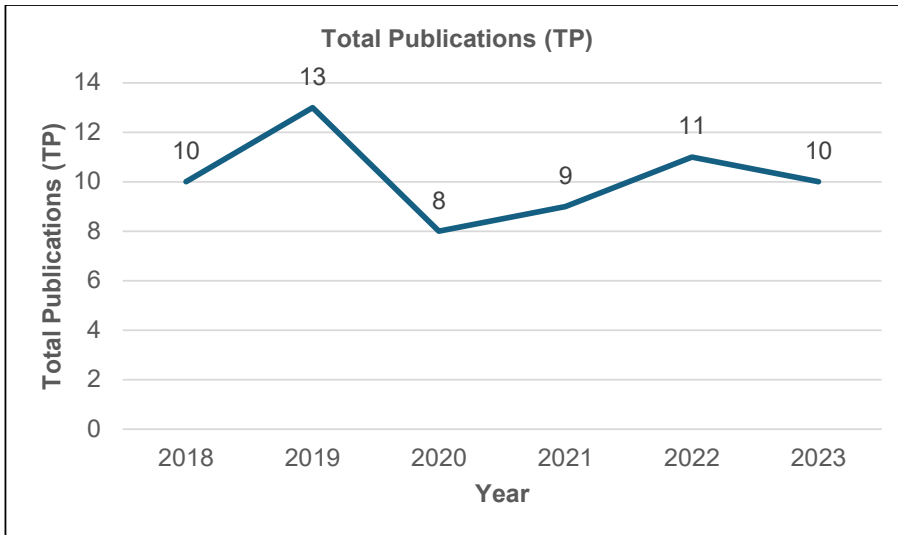


Figure 4: Total Publications by Year

Source: Authors own creation

4.1.2 Country

The analysis of countries based on the authors' affiliation was conducted. Figure 5 depicts the geographical dispersal of previous PBB studies. According to Clark et al. (2017), PBB adoption was initiated from 1985 to 1995 before experiencing rapid growth during the subsequent 15 years. The leading pioneer innovators included four (4) Western nations, namely the United States of America (USA), Canada, Australia, and New Zealand. Table 3 also demonstrates that the USA constantly publishes PBB studies, which is the country with the most publications. The results also revealed that the PBB topic from 2018 to 2023 became the focus of Asian countries, such as Iran, Indonesia, Malaysia, Korea, and Vietnam. The trend could be attributed to the diffusion of the NPM and the budgetary system reform in developing countries (Srithongrung, 2018). Nonetheless, the budgetary reform encounters institutional issues and challenges, which would significantly influence the effectiveness and success of the PBB implementation (Mauro et al., 2018). Additionally, part of the research context conducted in Indonesia pertained to budgetary practices, performance, and PBB implementation, with PBB being implemented across Indonesian government agencies for over a decade. According to Marsus and Mas'udin (2020), Indonesian PBB implementation has not delivered satisfactory results, and Indonesian government agencies have continuously experienced challenges and issues for over a decade. The PBB implementation has also not transformed and positively impacted the budgetary practices across public sector organisations in Asian countries (Srithongrung, 2018).

Studies from developed countries, such as Italy, Australia, Netherlands, Russia, and the UK, were generally used as a reference among researchers from other nations. While Malaysia was one of the top 10 countries actively contributing to the study area, none of the study scopes was focused on Malaysian public sector organisations. The three (3) latest Malaysian studies concentrated on public universities in China (Liyang & Ismail, 2023) and the highest educational level in Indonesia (Sofyani et al., 2023). Generally, PBB leads to temporary changes in the

spending scale of certain programmes. Nonetheless, the changes are not permanent owing to no significant restructuring in the baseline budget (Srithongrung, 2018). The circumstance suggests further investigations are required on the issues related to PBB implementation and the critical success factors among government agencies (Pratolo et al., 2020), particularly in developing countries like Malaysia.

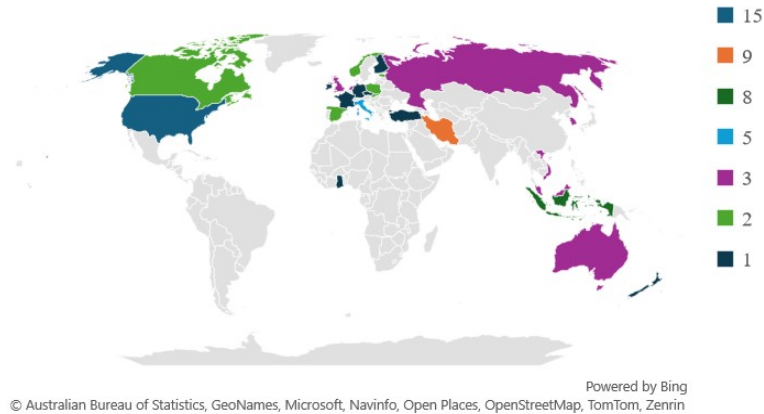


Figure 5: Geographical Dispersal

Source: Authors own creation

Table 3: The List of Publication Countries

Country	Total Publication (TP)	Percentage (%)
USA	15	18
Iran	9	11
Indonesia	8	10
Italy	5	6
Australia	3	4
Malaysia	3	4
Netherlands	3	4
Russian Federation	3	4
South Korea	3	4
United Kingdom	3	4
Vietnam	3	4

4.1.3 Source Title

Table 4 demonstrates the top 10 most active source titles across various PBB studies based on the study period and selected databases. Multiple PBB publications have garnered significant traction among academicians, primarily in the fields of accounting, financial management, corporate management, and public administration. The PBB topic has also attracted interest from other sources, such as scientific and technology research. Specifically, the Journal of Public Budgeting Accounting and Financial Management is the top source title, with five (5)

articles published during the study period. Mauro et al. (2019) examined the role played by key organisational actors in PBB practices. Similarly, Jalali Aliabadi et al. (2019) explored the underlying factors for PBB implementation failure in public sector organisations by focusing on the actors participating in the budget processes and respective perceptions. Comparatively, Ellul and Hodges (2019) assessed the pre-adoption phase of PBB implementation by analysing the introduction and use of performance information in budgeting from the politicians' and civil servants' perspectives. Viapiana (2021) also concentrated on the effect of the criteria adopted on resource allocation and performance variability by public sector organisations, while Budding, Faber, and Schoute (2022) explored non-performance indicators and integrated budget documents. Meanwhile, publications in other sources, such as *Public Money and Management*, focused on the use of performance information in PBB practices (Jethon & Reichard, 2022; Raudla, 2022; Raudla & Bur, 2023) and examined the policy control in PBB (Fitz Verploegh et al., 2023). Jeong and Oh (2019) also appraised the development of integrated financial management information systems on PBB.

Table 4: The List of Most Active Source Titles

Source Title	Total Publication (TP)	Percentage (%)
Journal of Public Budgeting Accounting and Financial Management	5	8
Public Money and Management	5	8
Public Performance and Management Review	4	7
International Journal of Public Administration	2	3
International Journal of Scientific and Technology Research	2	3
Public Administration Review	2	3
Public Budgeting and Finance	2	3
Qualitative Research in Accounting and Management	2	3
Accounting Auditing and Accountability Journal	1	2
Administrative Sciences	1	2

4.1.4 Research Setting

Public sector organisations in most countries are generally structured into four (4) tiers, including the central government, state government, local government, and government agencies. Numerous research settings have emerged for PBB studies, as depicted in Figure 6. Past literature reviews revealed that the PBB topic in the central government was most explored from 2018 to 2019, which contributed to 37% of the total publications (Clark et al., 2017; Grossi et al., 2018; Mauro et al., 2018; Mauro et al., 2019; Martí, 2019). Research in the Central Government settings continues to catch scholars' interest, where 37% of the documents fall under this scope. Nevertheless, the trend altered when the topic was evaluated in the context of government agencies, such as public universities, the healthcare sector, and

higher educational institutions, which accounted for 33% in 2021 (Pratolo et al., 2020; Jalali Aliabadi, 2021; Viapiana, 2021; Decker et al., 2023) while 24% of the publications were related to the local government (e.g., Sofyani, 2018; Yamin & Ishak, 2018; Park, 2019). Meanwhile, only 6% were associated with the state government (Jang et al., 2021), whereas a total of 15 articles examined public sector organisations without specific tiers in the research setting. The most discussed topic regarding the central government was PBB implementation, which underscored the difficulties experienced by government officials in transitioning PBB theories into actual practices. In addition, government agencies encountered challenges from a multi-dimensional institutional framework (Ho, 2018). There are 15 documents focusing on the public sector organization as a general without specific tiers in their research setting. However, the study's scope meets the current study's inclusion criteria. The trend analysis disclosed that the study context has gradually evolved, which addressed the issues and challenges within the public sector organizations.

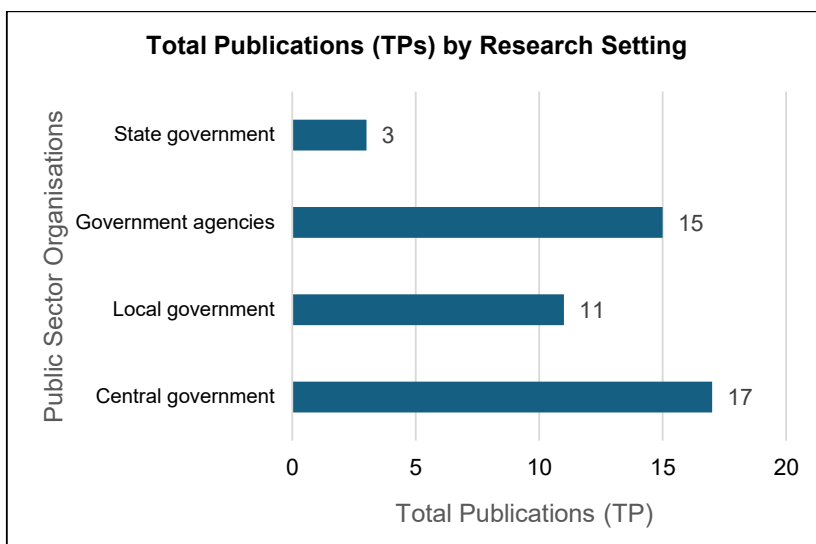


Figure 6: Total Publications by Research Setting

Source: Authors own creation

4.1.5 Methodology

Figure 7 illustrates the methodologies employed in the selected articles, wherein 51% applied quantitative approaches, followed by 46% utilising qualitative methods, and the remaining 3% employed the mixed method. Quantitative content analysis was the most popular approach when analysing performance (Park, 2022; He & Ismail, 2023) due to the structured method for quantifying qualitative or interpretative data concisely and understandably in a highly repeatable format (Liyang & Ismail, 2023). Additionally, the approach provides additional support in generalising the findings to a significant portion of the population despite collecting data from a relatively limited sample size. The quantitative methodology is also comparatively straightforward due to its inherent advantage in terms of objectivity compared to qualitative methods (Leavy, 2022). Thus, quantitative content analysis is an appropriate technique for measuring PBB to evaluate different performance levels. Certain scholars applied quantitative methods by distributing questionnaires to obtain respondents' perceptions of budget

participation (Junita et al., 2018) and the role of employees' competency on PBB implementation and success (Yamin & Ishak, 2018) while simultaneously constructing pertinent measurement instruments to assess the budget reform (Ellul & Hodges, 2019). Furthermore, the qualitative approach was discovered to be the second most frequently utilised methodology used by researchers in the study area of PBB (Clark et al., 2017; Grossi et al., 2018; Kholeif & Jack, 2019). Nonetheless, the present study revealed a scarcity of PBB studies that used mixed methods due to methodological challenges, established research practices, and preference for single methods perceived as more reliable and providing sufficient insights.

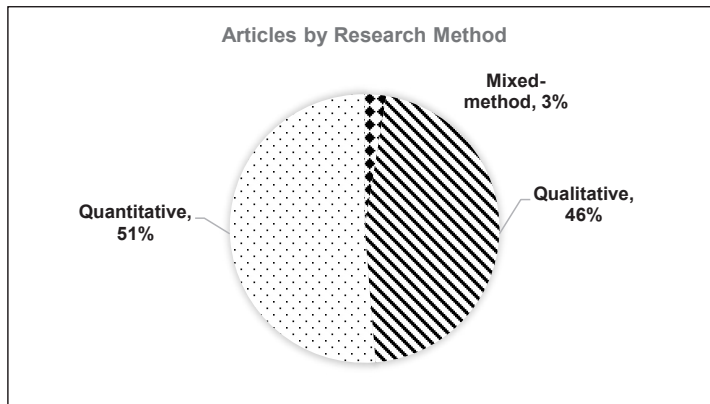


Figure 7: Employed Methodologies in Previous PBB Studies

Source: Authors own creation

4.1.6 Theory

The results indicated that the institutional theory was the most popular across various PBB studies from 2018 to 2023. The results were also supported by prior study findings demonstrating the prominence of the theory in management accounting (Ribeiro & Scapens, 2006; Van Helden et al., 2008; Modell, 2009). The Institutional theory framework has been frequently employed to identify potential contributing factors that might influence and promote the introduction of PBB and lead to a future positive decision on PBB adoption among public sector organisations (Ellul & Hodges, 2019). The goal-setting theory is also frequently applied by PBB scholars (Locke et al., 1981), which posits that organisational goal-setting significantly influences performance and highlights the significance between goal-setting and performance outcomes (Sofyani, 2018). Pratolo et al. (2020) applied the theory to delineate the relationship between PBB implementation and higher educational institutional (HEI) quality. Meanwhile, Locke's goal-setting theory elucidates that the characteristics of budgetary goals can develop employee motivation and improve performance (Le & Nguyen, 2020), which suggests that budget involvement will increase employee commitment to budget targets or organisational performance objectives (Junita et al., 2018). Other theories, including grounded theory (Jalali Aliabadi et al., 2021), structuration theory (Kholeif & Jack, 2019), and resource dependency theory (He & Ismail, 2023) were among the top five (5) theoretical frameworks (see Table 5).

Table 5: The Top Five Theories

Theory	Total	Percentage (%)
Institutional Theory	8	23%
Goal Setting Theory	4	11%
Grounded Theory	3	9%
Structuration Theory	2	6%
Resource Dependency Theory	2	6%

4.2 Co-Occurrence Author Keyword Analysis

In this subsection, the co-occurrence author keyword analysis was performed to answer the third research question: “What are the current trends and issues discussed by the scholars on the topics and subtopics of the PBB studies field in the literature from 2018 to 2023?”. The word cloud was generated from the ATLAS.ti 22 software to determine the most frequently employed terms from articles between 2018 and 2023. Subsequently, the VOS-viewer software was utilised to map the authors’ keywords and conduct a co-occurrence analysis to reveal clusters.

4.2.1 World Cloud

Figure 8 depicts the word cloud generated from 61 primary documents uploaded to the ATLAS.ti software. The results demonstrated the frequency of employed terms, with the popular terms as performance, budgeting, public, budget, and management. Other relevant words universally used in articles associated with the PBB issues were implementation, information, process, accounting, policy, use, accountability, practice, reform, organisational, political, institutional, budgetary, change, actors, and practice. All these words are discussed further according to the themes.



Figure 8: World Cloud Generated from ATLAS.ti

Source: Authors own creation

4.2.2 Primary PBB Topics and Subtopics in Public Sector Organisations

Next, the main topic and subtopics within the PBB studies in public sector organizations were analyzed. Figure 9 portrays a network visualisation of the authors' keywords through colours, square sizes, and line thickness to represent the connection and relationships with other keywords. Keywords with the same colour were grouped based on the relationships. For example, reform, impact, incentives, and politics frequently co-occurred and highly correlated to implementation, which were grouped and represented in yellow. The current study discovered and categorised five (5) clusters into respective colours (see Figure 9). The most frequent author keywords were included in Clusters 1, 2, and 3. The results and keyword appearances in each cluster are also listed in Table 6. While overlapping keywords existed within the evolving cluster, the clusters could be defined in a broader context. Cluster 1 (red) is a cluster involving PBB, which strongly correlates with the NPM, public sector, public management, design, corruption, and success (Alsharari, 2022; Balážová et al., 2022; Mauro et al., 2021; Savignon et al., 2019; Mauro et al., 2018). Cluster 2 (green) comprises accountability highly associated with the performance budget, local government, public sector, decision-making, information, and politicians (Decker et al., 2023; Raudla & Bur, 2023; Viapiana, 2021; Aleksandrov et al., 2020; Sofyani, 2018).

Cluster 3 (blue) encompasses the relationship between performance budget, innovation, management, organisations, and systems (Balážová et al., 2022; Flink, 2019; Hijal-Moghrabi, 2019) while Cluster 4 (yellow) comprises reform and implementation linked with impact, incentives, and politics (Haliah, 2021; Mauro et al., 2021; Aleksandrov et al., 2020; Musso & Weare, 2020). Cluster 5 (purple) contains performance management connected with government, state, and strategic management (Ohemeng et al., 2022; Musso & Weare, 2020; Savignon et al., 2019). The emergence of the five clusters represented the primary PBB trends among public sector organisations. Nevertheless, co-occurrence analysis did not provide definitive distinctions between the discussion subtopics. The list of authors' keywords could enhance the comprehension of PBB studies in public sector organisations by providing a deeper of the study area.

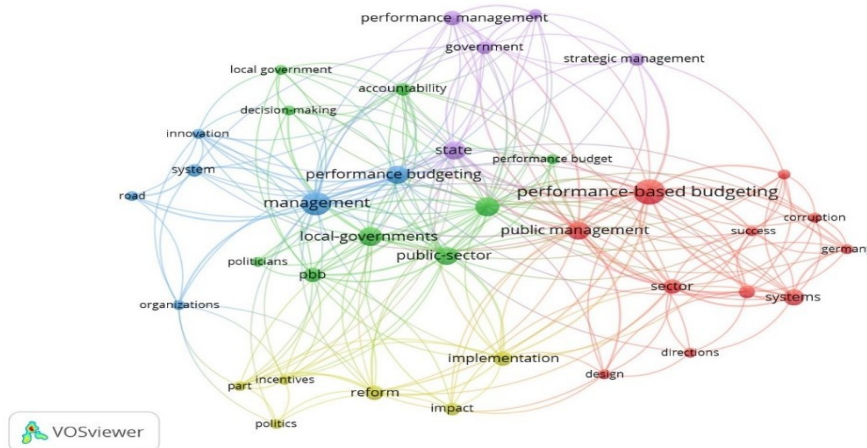


Figure 9: The Author Keyword Co-occurrence Network

Source: Authors own creation

Table 6: The Five Primary Clusters and List of Authors' Keywords

Cluster	Keywords
Cluster 1 (Red)	Corruption, design, directions, NPM, PBB, public management, public sector, success, systems
Cluster 2 (Green)	Accountability, decision-making, information, local government, PBB, performance budget, politicians, public sector
Cluster 3 (Blue)	Innovation, management, organisations, performance budgeting, system
Cluster 4 (Yellow)	Impact, implementation, incentives, politics, reform, success
Cluster 5 (Purple)	Future, government, performance management, state, strategic management

Even though there is confirmation of overlapping keywords within the evolving cluster, these clusters may still be defined in a broader context. Cluster 1 (red) is a cluster involving performance-based budgeting (PBB), which firmly correlates with New Public Management (NPM), public sector, public management, design, corruption, and success (Balážová et al., 2022; Alsharari, 2022; Mauro et al., 2021; Savignon et al., 2019; Mauro et al., 2018). Cluster 2 (green) comprises accountability that strongly connects with the performance budget, local government, public sector, decision-making, information, and politicians (Raudla & Bur, 2023; Decker et al., 2023; Aleksandrov et al., 2020; Viapiana, 2021; Sofyani, 2018). Cluster 3 (blue) involves the relationship between performance budget, innovation, management, organizations, and systems (Balážová et al., 2022; Hijal-Moghrabi, 2019; Flink, 2019). Cluster 4 (yellow) comprises reform and implementation linked with impact, incentives, and politics (Mauro et al., 2021; Haliah, 2021; Aleksandrov et al., 2020; Musso & Weare, 2020). Finally, Cluster 5 (purple) contains performance management connected with government, state, and strategic management (Ohemeng et al., 2022; Musso & Weare, 2020; Savignon et al., 2019).

The emergence of five (5) clusters showed the main trends in the study field of PBB in public sector organizations. The frequently used words generated from ATLAS.ti 22 related to the PBB issues are implementation, information, process, accounting, policy, use, accountability, practice, reform, organizational, political, institutional, budgetary, change, actors, and practice. These frequently used words by the scholars supported the list of clusters and are interrelated. Nevertheless, it is essential to highlight that co-occurrence analysis does not give definitive distinctions between the discussion subtopics. Thus, the list of authors' keywords enhances comprehension of the PBB studies in public sector organizations by providing a more intense understanding of the study area.

4.3 Thematic Analysis

The evolving clusters from co-occurrence author keyword analysis and most frequently employed terms from the word cloud were integrated and synchronised to develop final themes. The emerging final themes were subsequently analysed and discussed to answer Research Question 4: What are the main themes involving the current trends and issues in PBB studies in the literature from 2018 to 2023?

4.3.1 Final Themes and Sub-Themes

The final themes were formulated based on the emerged cluster groups, co-occurrence authors' keyword networks, and literature review from 61 primary articles within the study period. A total of 15 sub-themes were also pinpointed and grouped according to the three (3) final emerging themes. The three (3) final themes consisted of budget practices, implementation, and use of performance information. The first theme was related to actors, budgetary processes, decision-making, and policy, whereas the second theme was associated with the impact of reforms, resistance to change, political interference, information systems, organisational performance, and success. The third theme was connected to accountability, culture, actor dynamics, resistance to use, and institutional barriers. Table 7 summarises the three (3) final themes on the current PBB trends and issues among public sector organisations.

Table 7: The Three Final Themes of the Current PBB Trends and Issues

Theme	Sub-Theme
Budget Practices	Actors, budgetary processes, decision-making, policy
Implementation	Impact of reform, resistance to change, political interference, information system, organisational performance, success
Use of Performance Information	Culture, accountability, actor dynamic, resistance to use, institutional barriers

4.3.2 Budget Practices

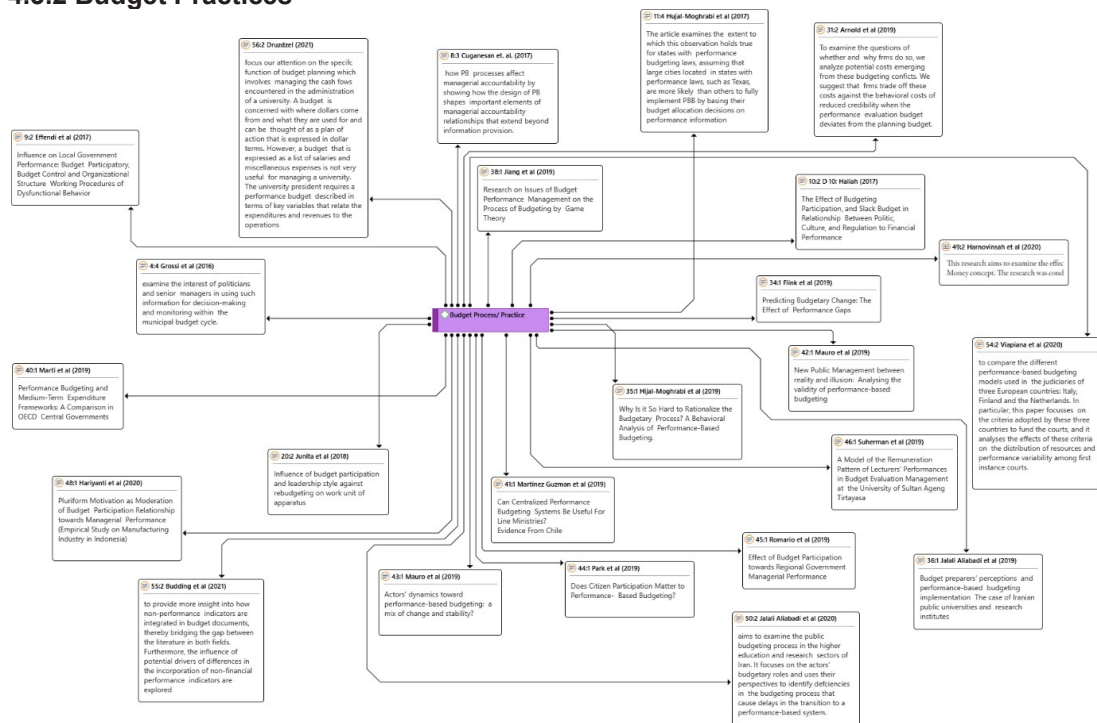


Figure 10: The Network of the First Theme (Budget Practices)

Source: Authors own creation

The PBB objective is to improve budget practices by enhancing the allocation of resources, improving the efficiency and effectiveness of government agencies in managing budgets and public spending, improving the decision-making process, achieving the cost-saving target, and strengthening transparency and accountability. The PBB implementation process would temporarily impact the expenditure for certain programmes but not permanently alter the budget structure (Srithongrung, 2018). Budget practices were one of the popular PBB topics (Jang, 2021; Ho, 2018). This study discovered that the theme was highly connected to the actors, budgetary processes, decision-making processes, and policy based on existing PBB studies (Fitz Verploegh et al., 2023; Raudla, 2022; Jalali Aliabadi et al., 2021, 2019; Martínez-Guzmán, 2020; Hijal-Moghrabi, 2019; Mauro et al., 2018). Jalali Aliabadi et al. (2019) explicated that the focus on budgetary processes is critical for public sector organisations as a lack of strong connection between the regulated and budgetary processes would lead to budgetary slack, which hinders the legitimate information flow and PBB implementation. The significance of budgeting and involved individuals' perspectives should also be considered while comprehending the intricacies of the budgeting process and the evolution of budgetary procedures (Jalali Aliabadi et al., 2019). Therefore, every individual in the organisation is responsible for ensuring that every budget item is successful and accountable for every component of the budgetary process (Mauro et al., 2019). Contrarily, Hijal-Moghrabi (2019) stated that budgetary decisions in the budgetary process are the output of interactions among the external and internal organisational actors without following a linear path. The presence of nonlinearity accounts for the difficulty in rationalising the budgetary process (Hijal-Moghrabi, 2019). Sohn and Bae (2018) also highlighted that PBB practices in public sector organisations compel government officials to participate in "gaming" behaviours in budgetary processes.

The PBB is recognised for assisting organisations in enhancing decision-making processes. Several efforts have been performed to rationalise the government's budgetary decision-making process since the mid-20th century. Nevertheless, Hijal-Moghrabi (2019) delineated that most efforts were either incomplete or a failure, which postulated that budget participation involved is essential to inform decision-making and employee involvement in decision-making is vital when the budgetary decision-making process is complex (Mauro et al., 2019). According to Flink (2019), decision-making is not only based on the PBB framework but also performance gaps. Nonetheless, public managers possess limited decision-making authority (organisational constraints) in developing countries due to political interference. Likewise, Mauro et al. (2019) argued that political, legislative, and organisational involvement renders the benefits of PBB to be ineffective. Meanwhile, Park (2019) recommended that budget decisions cannot be dominated by professionals but are required to merge with citizen inputs. The efficiency of PBB practices also depends on the actors' interplay within the institutional processes, although different internal perceptions and practices with similar external pressures would significantly impact relevant processes (Jalali Aliabadi et al., 2019; Mauro et al., 2018). Various interests, values, and perceptions of actors within the organisation would lead to significant variations in PBB implementation and internalisation. Mauro et al. (2018) elucidated that the alignment of external pressures and internal dynamics would ensure the resolution of a continuous institutionalisation process on PBB implementation. Furthermore, Jalali Aliabadi et al. (2019) emphasised that understanding the interaction between different actors in institutional activities is crucial to understanding different goal attainment approaches and corresponding influences on budgetary reforms in public sector organizations. Nonetheless, inadequate mutual reinforcement across different organisational levels will impede PBB implementation, which posits that in public sector organizations. Hence, in the context of establishing budgetary

norms in PBB, the public sector organisations should develop mutual strategies for change to mitigate the resistance from different actors involved (Jalali Aliabadi et al., 2021).

The institutional structure associated with the policy formulation influences changes in budgetary practices through varying friction degrees in the process due to the accumulation of pressure in the policy system (Flink, 2019). More effective leadership skills are essential to resolving the shortcomings and ambiguities of alternative budgeting rules and processes in the organisation. The actors involved in implementing PBB are also required to possess a clear understanding of the alternative budgetary policy and sufficient competencies and skills in implementing PBB practices and processes. According to Alkaraan (2018), sound performance management in budgeting is assessed through competencies and leadership skills. Hijal-Maghrabi (2019) also contended that a budget encompasses not only numbers but also serves as a fiscal plan that determines and details the government's priorities, which shapes how revenues are utilised for a specific fiscal year. A budget also functions as a strategic plan, a statement of preferences, and a document of political economy. In addition, a budget reflects the attitudes, ideologies, and preferences of dominant power elites (Hijal-Maghrabi, 2019). Jalali Aliabadi et al. (2019) also explicated that government officials' attitudes and perspectives towards PBB practices in public sector organisations are pivotal to addressing any losses caused by internal, external, and behavioural factors. Therefore, more studies on organisational actors' behaviours and participation towards PBB practices are integral when relevant subtopics are limited, and further studies are needed to enhance the understanding of the PBB studies in public sector organizations.

4.3.3 Implementation

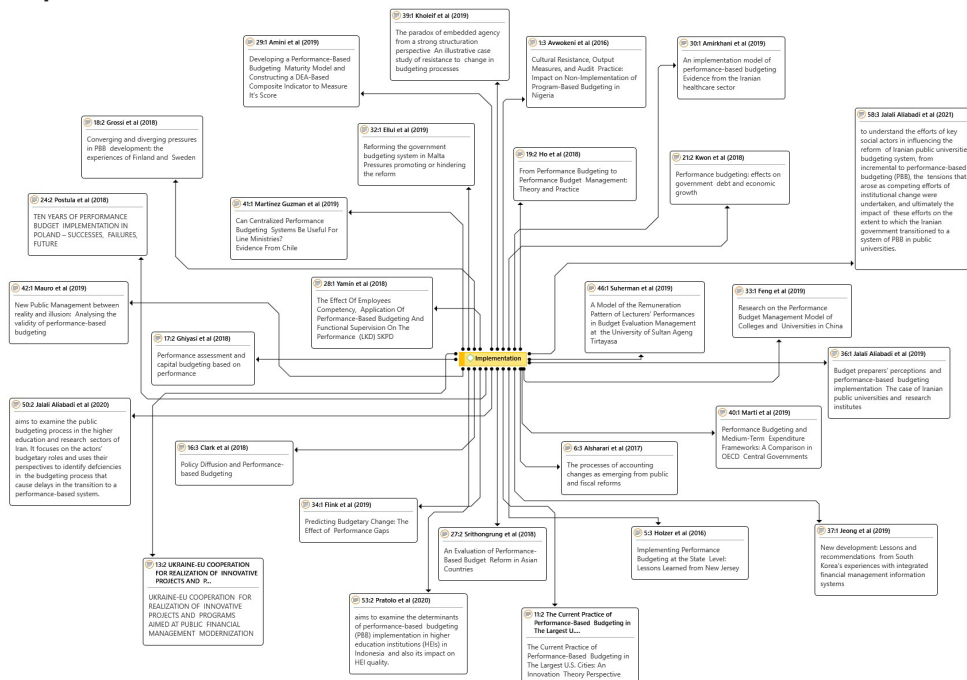


Figure 11: The Network of the Second Theme (Implementation)

Source: Authors own creation

The budgeting system is consistently the subject of major reform in public sector organisations to ensure that relevant practices and policies are aligned with international best practices (Alsharari, 2022). Previous researchers demonstrated various issues and challenges during the PBB adoption and implementation phases among public sector organisations. Numerous studies have emphasised the issues associated with external pressures, particularly from international institutions, such as the World Bank and the International Monetary Fund (Marsus & Mas'udin, 2020; Kholeif & Jack, 2019; Mauro et al., 2018; Sofyani, 2018). Public sector organisations receiving significant influences from international institutions would be compelled (coercive pressures) to adopt and emulate PBB practices in the budgetary system in less prepared circumstances (Alsharari, 2022; Jang et al., 2021; Mauro et al., 2018; Sofyani, 2018). In addition, PBB implementation requires support from top management (He & Ismail, 2023; Bandiyono & Al Fikri, 2020) and involvement and support from all organisational actors (Haliah, 2021; Park, 2019; Junita et al., 2018) to ensure efficient public spending and organisational performance. Likewise, the availability of the latest technologies and information systems is also essential to support the PBB reform (Sofyani, 2018). Meanwhile, resistance to change (Jalali Aliabadi et al., 2021; Mauro et al., 2019) and reform (Srithongrung, 2018) are among the notable issues examined in the PBB implementation studies area. Martínez Guzmán (2020) revealed that one of the major impediments to the PBB implementation was the absence of support from certain key stakeholders (political). The acceptance of PBB implementation also varied among government officials. Certain actors were voluntarily involved in the reform process, whereas other counterparts resisted changes (Handayani et al., 2023; Kholeif & Jack, 2019; Mauro et al., 2019).

Past scholars underscored the obstacles that caused delays in the transition to a PBB system (Jalali Aliabadi et al., 2021; Holzer et al., 2016). Therefore, the budgetary roles and perception (Jalali Aliabadi et al., 2020) are crucial to identify deficiencies in the budgeting process that delay the PBB transition among public sector organisations. Cultural issues (Ho, 2018), the effect of political interference, and the mimetic forces from other organisations (Ellul & Hodges, 2019) were also significant issues that negatively impacted the effectiveness of PBB implementation. Meanwhile, Huy and Phuc (2022) aimed to adopt PBB during the COVID-19 pandemic and focused on the critical success factors (CSFs) of government officials' behavioural intentions. While the legislation influences the effectiveness of the alternative budget system structure in multiple countries, the legislation does not guarantee that the PBB will be fully implemented according to the established law and guidelines (Grossi et al., 2018). Nevertheless, Prikhodchenko et al. (2018) argued that the policy development and legislation in PBB implementation necessitate synthesising international and domestic experiences, which propounds that the policy and legislation are vital to improving the efficiency of budget planning among public sector organisations (Jang et al., 2021; Clark et al., 2017; Ho, 2018).

Jalali Aliabadi et al. (2021) delineated that PBB in public sector organisations has only achieved minimal success as incremental budgeting or traditional budget practices remain prevalent in the budget allocation formula and processes. Legislative participation from internal and external audits is also essential to ensure the efficiency and effectiveness of PBB practices and processes at the organisational level. The activities of the legislative body, such as performance audit, will aid in determining the effectiveness of PBB monitoring and evaluation mechanisms. Programme monitoring and evaluation elements are also equally essential to ensuring the effectiveness of PBB implementation (Feng, 2019; Martí, 2019; Ho, 2018; Postuła, 2018). Ho (2018) also emphasised that check-and-balance is one of the effective

mechanisms in the PBB monitoring process. Nonetheless, relevant PBB discourse is limited in terms of the effectiveness of PBB monitoring and evaluation and legislative participation, which necessitates a deeper understanding of PBB subtopics to ensure the success of PBB implementation.

4.3.4 Use of Performance Information

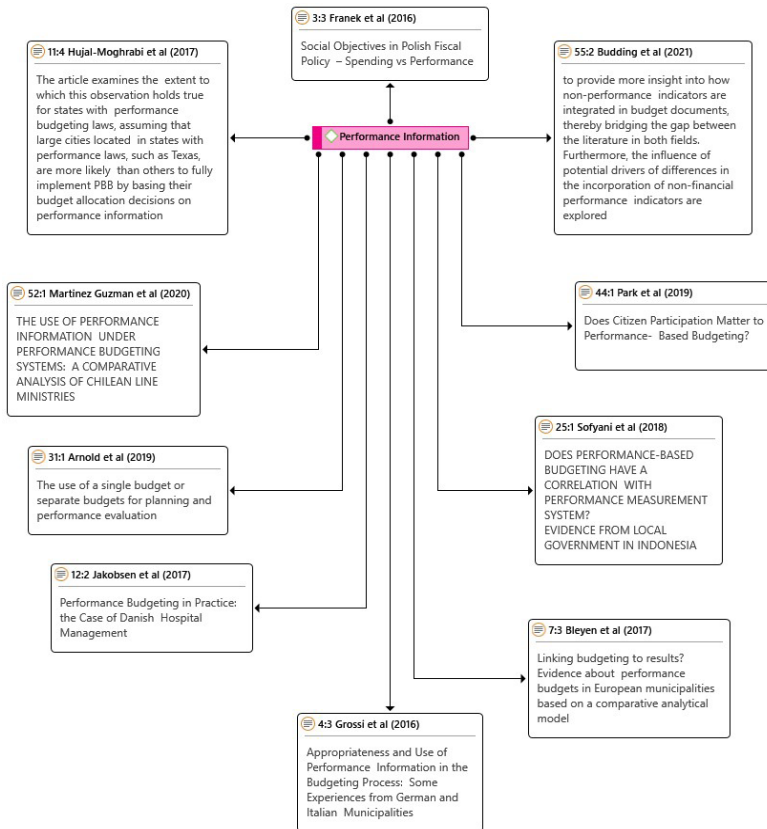


Figure 12: The Network of the Third Theme (Performance Information)

Source: Authors own creation

Performance information is a non-financial report and an integral tool in different public management phases and concepts (Grossi et al., 2016). The performance information systematically informs performance budgeting and offers indirect linkages between the budget allocation and targeted results (Grossi et al., 2016). Nevertheless, Kwon (2017) indicated no consensus on the effective approach to linking the performance information with the budget process and budget allocation (Kwon, 2017), owing to the nature of performance information in rationalising PBB (Hijal-Moghrabi, 2019). The utilisation of performance information in budgeting processes and practices remains minimal despite the extensive development and use of performance measures in budget presentations. While Sofyani (2018) highlighted that accountability would significantly influence the use of performance information as a practice for PPB, the budgetary processes and practices do not include performance

information in the PBB framework owing to organisational barriers (Ho, 2018; Hijal-Moghrabi, 2017). The reasons are limited knowledge and understanding of the PBB concept. The use of performance information in the PBB framework is also minimal among budget practitioners, who also perceive PBB in terms of outcomes and outputs of programmes funded through the budget as irrelevant during the budget process (Grossi et al., 2018; Ho, 2018). The scarcity of positive dynamics among budget practitioners also creates limitations and the full utilisation of performance information in the budgetary process and practice (Mauro et al., 2018). Resultantly, the limited use of performance information in budgetary processes and practices has rendered PBB implementation an ambiguous area with a certain resistance to corresponding changes (Mauro et al., 2019).

Efficacious performance information in the budgetary process and practice will improve the decision-making process. Ellul and Hodges (2019) elucidated that complete and comprehensive performance information will assist in appropriate decision-making, especially during budget preparation and budget execution. Contrastingly, Hijal-Moghrabi (2019) delineated that the budgetary decisions inherent in the political process are difficult to differentiate between the budget process and political authority, which does not support the use of performance information. Nonetheless, Grossi et al. (2016) argued that the reluctance to use performance information would dissipate after acquiring certain working experience with the new budget model and when the budget participants become familiar with the new budgetary system. Thus, continuous training and clarification on PBB will elevate the knowledge and understanding of relevant processes and practices. Contemporary discussions on how the performance information in PBB practices is effectively used and how the performance results link to the budgetary allocation decision-making remain scarce. The issue has become a critical topic and still represents an issue that needs further clarification.

5.0 Discussion

The PBB is a budgetary tool or system employed in various countries worldwide. International bodies, such as the World Bank and the International Monetary Fund (IMF), recommended public sector organisations adopt and implement PBB in the budgetary system (Budding et al., 2022; Mauro et al., 2019) as PBB is perceived to deliver the benefit of improving the efficiency and effectiveness of organisational and budgetary management. Like other reforms, PBB was implemented among public sector organisations and is expected to gradual and incremental changes to enhance public service and delivery. In addition, PBB implementation is significant as a modern budgetary system that aids in improving budget management efficiency, although ensuring effectiveness in PBB implementation is challenging (Hijal-Moghrabi, 2019). Hence, the present study conducted a thematic analysis of the primary articles related to PBB in public sector organisations. The thematic analysis contributed valuable insights into several crucial research questions, which assisted in grasping the evolving landscape of budgetary reform in public sector organisations, PBB implementation, and budget practices. Thematic analysis included descriptive and qualitative analyses. Descriptive analysis assessed the publication quantity, quality, geographical distribution, dissemination, and the global impact of PBB implementation in budget practices. The qualitative analysis examined the primary PBB topics and subtopics of PBB studies to identify patterns and construct relevant themes (Clarke & Braun, 2013).

The current PBB publication trend of PBB in public sector organizations indicated a steady increase over the years, with 61 articles published between 2018 and 2023. The annual growth rate of total publications remained relatively stable, with an average of 10 articles per year. The USA consistently contributed a significant number of studies, which exceeded other countries in terms of the publication volume. Notably, the PBB studies also garnered significant interest from Asian nations, including Iran, Indonesia, Malaysia, Korea, and Vietnam. The most active source title in PBB within public sector organizations was the *Journal of Public Budgeting Accounting and Financial Management* and *Public Money and Management*, with five (5) documents published by each journal, respectively. The second research question relates to the trends of the research setting, employed methodology, and prominent theories applied in the PBB studies area, which is vital to understanding the previous phenomenon, the scope of prior studies, research setting trends, and the interest area. The insight regarding the research setting is valuable for understanding the current knowledge state and pinpointing areas for further investigations. Particularly, the scope at the state government was limited (Park, 2022; Jang, 2021). The present study also revealed a scarcity of PBB studies employing mixed methods. Future researchers can focus on the state government and consider utilising the mixed method to increase the knowledge depth while improving the credibility and consistency of research findings. Future scholars may also explore different factors based on other theoretical frameworks to determine unexplored areas to ensure a conceptual understanding of PBB.

Moving to research question 3, a co-occurrence analysis of the authors' keywords revealed numerous prominent topics and subtopics that addressed the clusters related to PBB within public sector organisations. Understanding the emerging clusters is crucial to identifying the current PBB trends and issues, which would assist researchers in aligning further studies with the most pertinent issues to ensure relevance and contributions to the existing knowledge corpus. The topics and subtopics that received significant attention from scholars were NPM, success, accountability, performance, decision-making, information, politicians, innovation, organisations, systems, reform, implementation, impact, and incentives.

Finally, research question 4 develops the final themes based on emerging cluster groups and most frequently employed terms generated from the world cloud via the ATLAS.ti 22 software. The final themes were vital to gaining a deeper understanding of the patterns and issues associated with PBB in public sector organisations. A total of 15 sub-themes were discovered and categorised according to the three (3) final emerging themes. The three (3) final themes comprised (i) budget practices connected with actors, budgetary processes, decision-making, and policy, (ii) implementation associated with the impact of reform, resistance to change, political interference, information systems, and organisational performance and success, and (iii) performance information linked to accountability, culture, actor dynamics, resistance to use, and institutional barriers. The final themes would guide future researchers in scrutinising the PBB topic within public sector organisations.

The current study contributed to the evolution of PBB trends within public sector organisations by deepening the comprehension of PBB variations on the issue of the same PBB practices, which might not be implemented and internalised similarly across different government agencies (Grossi et al., 2018). Srithongrung (2018) underscored that PBB practices might not be different from other budget reforms. The effectiveness of budgetary practices in public sector organisations also requires full involvement and participation from internal and external

stakeholders, including actors, institutions, organisations, legislators, politicians, and citizens. Participation in the budgetary process reflects the organisational involvement in budget preparation (Haliah, 2021). Furthermore, Park (2019) elucidated that participation from citizens in the PBB process could aid in realising the acceptance of fiscal policies while demonstrating external support for budgetary institutions. Balážová et al. (2022) also highlighted that participatory budgeting contained a significant linkage that could assist in sustaining PBB practices in public sector organisations. Nevertheless, PBB studies related to stakeholders' participation in budgetary practices within public sector organisations remain scarce.

While PBB has been widespread as one of the reform agendas under NPM, diverse approaches and outcomes exist across countries. The variation degree within specific countries has also remained relatively underexplored (Mauro et al., 2018). Hijal-Moghrabi (2019) underscored that PBB is one of the examples of a budget innovation that has been proposed for over 50 years to streamline the budget process by associating allocations with performance outcomes. Nevertheless, PBB has not been fully implemented and a gap remains between PBB practices and implementation, which necessitates further investigations. The PBB implementation is also anticipated to produce performance information for utilisation in the budgetary process and practices despite the budgetary reform not substantially reshaping the actual budget practices (Grossi et al., 2018). Despite the lengthy experiences with PBB, key actors' limited use of performance information hinders PBB's effectiveness. Hence, the reform is situated in an ambiguous area between the full adoption and opposition to PBB implementation (Mauro et al., 2019). Nonetheless, the discussion on the PBB function and execution in budgetary practices would effectively aid in comprehending the PBB budgetary reform and implementation among public sector organisations (Jalali Aliabadi et al., 2020).

6.0 Conclusion

The current study reviewed existing PBB research focusing on public sector organisations by analysing publications between 2018 and 2023 to pinpoint the current trends and issues. The results revealed a positive trend, with the USA leading the growth and Asian countries demonstrating significant and increasing interest in PBB. While the analysis reveals a positive trend of growing research on PBB, the analysis also exposed critical gaps in the PBB understanding. Limited studies exploring PBB implementation in Malaysia emphasised the need for more studies across Asian countries. The present study employed thematic analysis, which was a technique less frequently employed in PBB research, to gain a deeper understanding. Three (3) key themes were identified, namely budget practices, implementation, and the use of performance information. The first theme explored how PBB was integrated into existing budgeting processes within public sector organisations. The second theme delves into the challenges and strategies associated with PBB practices. The third theme investigated the effective use of performance information to inform budgetary decisions and monitor progress toward outcomes.

Several limitations exist in this study. Specifically, selecting published articles from only two (2) databases and the year of selected articles from 2018 to 2023 (up to 8 September 2023). We found several relevant studies published in different databases; however, the scope of the relevant studies was beyond our review. The identified trends and issues and the outlined research direction were based on the authors' perspectives during the review parameters setting, although the results emphasised the need for further research in several areas,

particularly the effectiveness of PBB implementation. Additionally, the highlighted themes were the outcome of the endeavour to review prior PBB studies through thematic analysis, in which PBB implementation success and effective use of PBB in public sector organisations require further clarification to resolve existing issues in budget practices while improving public spending management, especially in Asia. The present study also identified crucial knowledge gaps, including PBB implementation within state governments. Research in this area is currently limited, which hinders a comprehensive understanding of PBB effectiveness. Future researchers should also adopt more mixed methods by combining qualitative and quantitative data for a more nuanced understanding of PBB practices and their corresponding impacts. Other essential but underexplored PBB aspects, including effective governance practices, stakeholder participation, and the long-term sustainability of PBB efforts, are also the key literature gaps. Summarily, this study significantly contributed valuable insights into PBB trends and issues in public sector organisations. Identifying research gaps and suggesting future research directions could also encourage further exploration. Practically, the findings are valuable to policymakers, budget practitioners, and stakeholders globally who seek to improve public spending management, particularly in Asian regions.

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