PROCUREMENT IN INDONESIA: A SYSTEMATIC LITERATURE REVIEW OF PRACTICES AND CHALLENGES

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INFO ARTIKEL	ABSTRAK
	Procurement berperan penting untuk perkembangan ekonomi dan efisiensi organisasi baik di sektor publik maupun swasta. Pengadaan yang efektif sangat vital untuk pertumbuhan yang berkelanjutan di Indonesia, meskipun dengan tantangan yang berkelanjutan. Artikel ini meninjau literatur Procurement di Indonesia dari tahun 2004 hingga 2023, menganalisis 121 publikasi internasional bereputsi yang dipilih melalui kriteria yang ketat. Dengan menggunakan teknik PRISMA (*Preferred Reporting Items for Systematic Reviews and Meta-Analyses*), data sekunder tentang Procurement di Indonesia diambil dari SCOPUS. Hasil studi ini menemukan pentingnya etika dan e-procurement dalam menanggulangi *fraud* dan korupsi serta mengidentifikasi tantangan implementasi yang sedang berlangsung. Peluang penelitian masa depan termasuk mengeksplorasi dampak kemajuan teknologi dan kebijakan pemerintah terhadap praktik procurement. *Procurement is essential for economic development and organizational efficiency in both public and private sectors. Effective procurement is particularly vital for sustainable growth in Indonesia, despite persistent challenges. This paper reviews Procurement in Indonesia literature from 2004 to 2023, analyzing 121 international reputable publications selected through rigorous criteria. Using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) technique, secondary data on Indonesian procurement are retrieved from SCOPUS. The study results find the importance of ethics and e-procurement in combating fraud and corruption while identifying ongoing implementation challenges. Future research opportunities include exploring the effects of technological advancements and government policies on procurement practices.*

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1. Introduction

Procurement, as a critical aspect of public and private sector operations, plays a pivotal role in shaping economic development and organizational efficiency. In Indonesia, a country characterized by its dynamic socio-economic landscape and burgeoning infrastructure demands, the effectiveness of procurement practices significantly impacts the nation's progress and sustainable growth.

Indonesia's procurement landscape is influenced by a myriad of factors, ranging from regulatory frameworks to cultural norms and technological advancements. The country's transition towards a more transparent and efficient procurement system has been guided by various legislative reforms and policy initiatives. Despite these efforts, the implementation of procurement practices in Indonesia remains subject to multifaceted challenges. One prominent issue revolves around the complexity of regulatory compliance, with discrepancies often arising between legal mandates and operational realities (Wankmüller & Reiner, 2021). Additionally, the lack of capacity and expertise among procurement professionals poses a significant obstacle to effective implementation (Aminah et al., 2018). Such challenges not only hinder the timely delivery of public services but also pose obstacles to private sector investment and economic growth.

Jay Heizer, in his influential research on operations management, highlights the importance of effective procurement strategies in achieving operational excellence and competitive advantage (Heizer, Jay; Render, Barry; Munson, 2017) . Stevenson also underscores the significance of procurement efficiency in enhancing organizational performance, stressing the need for streamlined processes and strategic supplier partnerships (Stevenson & Chuong, 2018)

This literature review aims to summarize existing research on procurement practices and challenges in Indonesia, providing valuable insights for policymakers, practitioners, and researchers. By examining how procurement is changing in Indonesia, this study hopes to find gaps in our knowledge and suggest ideas for future research and practical improvements. We'll first explain how we conducted the literature review, then analyze key themes and findings from the studies we selected. Ultimately, this research aims to help us better understand procurement in Indonesia and make better decisions for sustainable development and organizational success.

2. Literature Review

Procurement is a fundamental aspect characterized by the acquisition of goods and services, as well as infrastructure provision, on favorable terms. Distinguishing between procurement in general and public procurement specifically, the latter refers to the acquisition of goods and services by public bodies using public funds. The process of public procurement comprises a series of steps, starting from needs assessment, through contract awards, to contract management and final payment. This process typically adheres to a cyclical pattern dictated by legislative mandates, administrative protocols, and budgetary timelines in most countries (Fourie & Malan, 2021). Essential to a robust procurement system are principles such as accountability, competitive supply, and consistency. When integrated with ethics and good governance, these principles form the foundation of an effective, transparent, and reliable procurement mechanism.

The United Nations has delineated various stages of the procurement process in a published flowchart (United Nations, 2020), depicted in Figure 1 below. Directives or standard operating procedures offer guidance to procurement officials, serving as a reference tool for coordinated actions that aim to achieve openness, efficiency, effectiveness, and transparency. These directives are tailored to each procuring entity, aligning with their vision, mission, and service delivery mandate.

Fig. 1: The stages of the procurement process (Fourie & Malan, 2021)
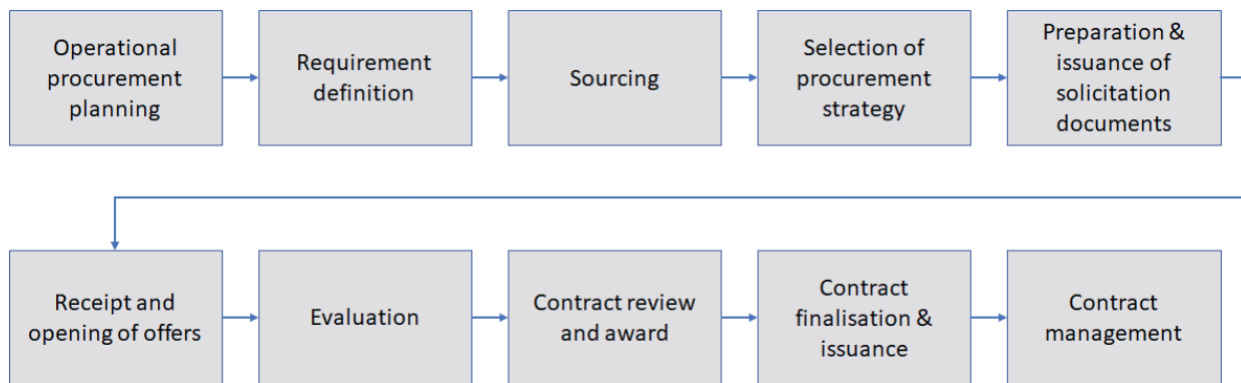
Within the Indonesian context, the procurement landscape is regulated and facilitated by the Procurement Agency, LKPP (Lembaga Kebijakan Pengadaan Barang/Jasa Pemerintah), which oversees the procurement of goods and services by public entities. The existence of online platforms for e-catalogs and government tender information streamlines the procurement process,

yet challenges persist in ensuring transparency, accountability, and integrity in procurement practices.

Despite efforts to enhance procurement governance, ethical risks remain inherent in the procurement process. However, the advent of e-procurement has emerged as a potent tool to mitigate fraud, corruption, and unethical behavior, bolstering transparency and accountability in procurement functions. While e-procurement presents numerous benefits, its adoption has encountered challenges, necessitating a comprehensive understanding of its implementation dynamics within the Indonesian context.

Given the significance of procurement practices and the challenges faced within the Indonesian landscape, this study aims to conduct a systematic literature review to provide insights into the current state of procurement practices and challenges in Indonesia. By synthesizing existing research findings, the study seeks to identify key trends, gaps, and areas for further investigation. The methodological approach employed in this study is outlined below, delineating the systematic process utilized to collect, analyze, and interpret relevant literature on procurement in Indonesia.

3. Method

The objective of this research is to conduct a bibliometric analysis of recent procurement literature concerning procurement in Indonesia. Our methodology involves identifying patterns and trends within published materials through statistical and quantitative analysis, aimed at obtaining a comprehensive overview of the subject and pinpointing areas lacking in research for future inquiries (Donthu et al., 2021). We utilize SCOPUS databases alongside Microsoft Excel for statistical analysis and VOSviewer for constructing and visualizing bibliometric networks. Our review methodology is structured based on the guidelines provided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework (Page et al., 2021) ensuring a systematic and transparent approach. Additionally, our review encompasses a comprehensive analysis of literature spanning from 2004 to 2023, enabling us to capture and evaluate a wide range of relevant studies conducted during this timeframe.

Identification of studies via databases and registers

Identification

Records identified from*:
Databases (n = 507)
Registers (n =)

→

Records removed *before screening*:
Duplicate records removed (n = 3)
Records marked as ineligible by automation tools (n = 376)
Records removed for other reasons (n =)

Screening

Records screened
(n = 131)

→

Records excluded**
(n = 6)

Reports sought for retrieval
(n = 125)

→

Reports not retrieved
(n = 3)

Reports assessed for eligibility
(n = 123)

→

Reports excluded:
Not relevant (n =2)

Included

Studies included in review
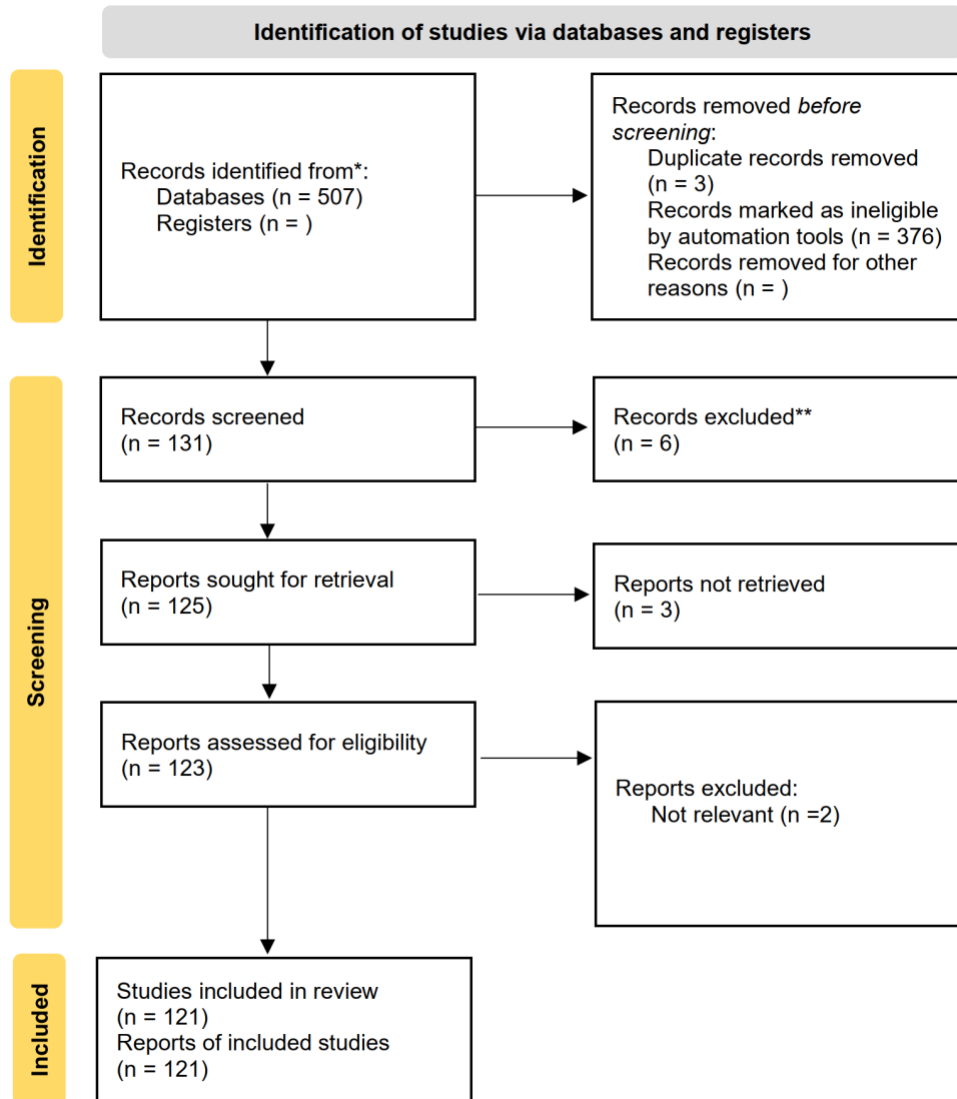(n = 121)
Reports of included studies
(n = 121)

Fig. 2: PRISMA Phases of Literature Review (Page et al., 2021)

Step 1 : The first step in conducting a bibliometric analysis involves selecting the methodologies to be utilized. In bibliometric studies, researchers commonly employ two main approaches: performance analysis and science mapping (Donthu et al., 2021). Performance analysis aims to evaluate the contributions made by various researchers to a specific subject area, providing insights into their impact and productivity. Conversely, science mapping focuses on exploring the interconnections and relationships between publications, shedding light on the broader landscape of research within a given field.

Step 2 : In this stage, the keywords and criteria utilized for paper selection are delineated. Given the extensive coverage of SCOPUS, this study employs the keywords 'procurement' and 'Indonesia' for its search query. The scope of the study encompasses literature published between 2004 and 2023. Following the elimination of duplicate entries, the findings lead to 121 relevant articles.

Step 3: Data were analyzed using Microsoft Excel Microsoft Excel to conduct performance analysis, focusing on assessing the contributions of various researchers to the subject matter. Additionally, VOSviewer was employed for scientific mapping, aiming to explore the relationships and connections between publications within the research domain. This combination of analytical tools facilitated a comprehensive examination of the bibliometric data, enabling us to derive meaningful insights and visualize the research landscape effectively.

Step 4: The results are analyzed by reviewing the pattern of growth in procurement research in Indonesia and an overview of procurement research topics seen since 2004 to 2023, as shown in Figure 2. Gaps in procurement research in Indonesia are identified and presented.

4. Results and Discussion

This research examines 121 publications focused on procurement in Indonesia. In 2019, there was a peak in procurement research activity in Indonesia, with 20 publications. Interestingly, there was minimal activity in 2004, 2008, and 2009, each with only one publication related to procurement. However, there was a notable uptick in publications between 2015 and 2019. However, in 2020, there was a sharp decline, with only 10 publications on procurement in Indonesia. Nevertheless, there appears to be a resurgence in 2023, with 18 articles published on the topic. These fluctuations suggest shifts in research interest and focus within the field of procurement in Indonesia over time, as seen on figure 3.
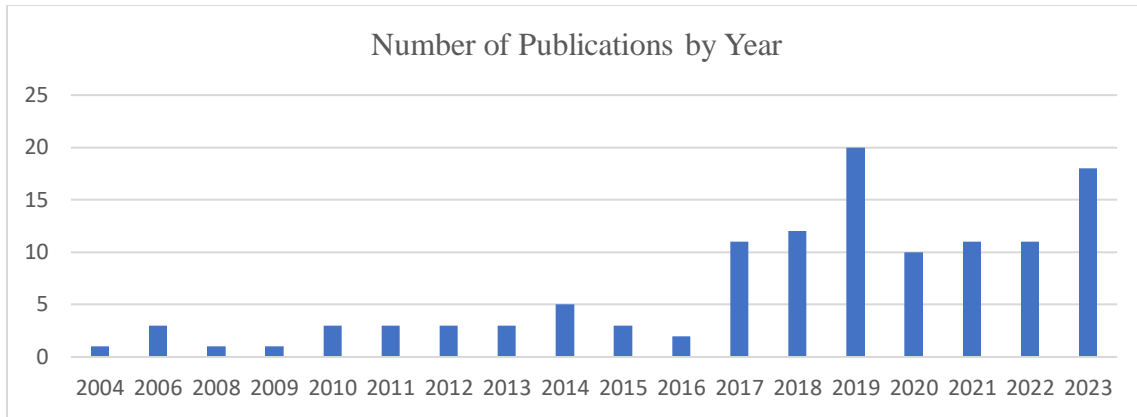
Fig. 3: Number of Publications by Year

Source: Processed by Researchers, 2024

Table 1 illustrates the fluctuating growth in the quantity of publications since 2004. Notably, 2016 stands out as the year with the highest number of citations, totaling 87. Additionally, the table provides data on the distribution of research publications receiving varying numbers of citations, including those with none, as well as those with more than 1, 5, 10, 20, and 50 citations.

Table 1. Annual citation structure of publications

YEAR	0	≥ 1	≥ 5	≥ 10	≥ 20	≥ 50	Paper	Citations
2004		0	0	0	1	0	1	20
2006	3	0	0	0	0	0	3	0
2008		0	0	1	0	0	1	13
2009		0	0	0	0	1	1	51
2010	1	1	1	0	0	0	3	7
2011		1	1	0	1	0	3	54
2012		1	2	0	0	0	3	12
2013	2	1	0	0	0	0	3	1
2014		4	0	1	0	0	5	27
2015		1	1	0	1	0	3	40
2016		1	0	0	0	1	2	87
2017	3	6	2	1	1	0	11	66
2018	4	4	1	3	1	0	12	85
2019	7	11	2	2	0	0	20	52
2020		9	0	1	0	0	10	35
2021	1	6	3	1	0	0	11	41
2022	8	2	0	1	0	0	11	18
2023	17	2	0	0	0	0	18	2
TOTAL	46	50	13	11	5	2	121	611

Abbreviations: 0, ≥ 1, ≥ 5, ≥ 10, ≥ 20, ≥ 50 = Number of papers with 0 and more than 1, 5, 10, 20, 50 citations.

Source: Processed by Researchers, 2024

Table 2 provides a breakdown of the top 10 journals that have published papers on Procurement in Indonesia. Leading the list is the IOP Conference Series: Materials Science and Engineering, which has the highest number of articles on this subject.

On the other hand, the ACM International Conference Proceeding Series holds the second position for the most articles published in this domain. Notably, the American Economic Journal: Economic Policy stands out for its significant average number of citations per article annually within this category, with an average of 11 citations per year. This data sheds light on the key journals contributing to the literature on procurement in Indonesia, with insights into their publication frequency and impact through citation analysis.

Table 2. Top 15 journals

No.	Journal / Publisher	> 2015	2016	2017	2018	2019	2020	2021	2022	2023	Total Publication
1	IOP Conference Series: Materials Science and Engineering			3		1	3				7
2	ACM International Conference Proceeding Series				1	2	1		1	1	6
3	E3S Web of Conferences				2	1				1	4
4	International Journal of Procurement Management					1	1		1	1	4
5	International Journal of Supply Chain Management			1		2	1				4
6	MATEC Web of Conferences				4						4
7	IOP Conference Series: Earth and Environmental Science						1	2			3
8	Journal of Physics: Conference Series			1				2			3
9	AIP Conference Proceedings									2	2
10	Economic Annals-XXI							1		1	2
11	Innovative Marketing								1	1	2
12	International Journal of Advanced Science and Technology					2					2
13	International Journal of Data and Network Science							1	1		2
14	International Journal of Innovation, Creativity and Change					2					2
15	International Journal of Public Sector Management	1			1						2

This study aims to identify the most influential articles on procurement in Indonesia. Further details on the top ten citations in this field are provided in Table 3.

Table 3 presents the top ten most cited papers from the time of their publication up to the present. Among these, the paper titled "Can electronic procurement improve infrastructure provision? Evidence from public works in India and Indonesia" (Lewis-Faupel, 2016) stands out with the highest number of citations, totaling 85.

The research investigates the impact of electronic procurement (e-procurement) on procurement outcomes by enhancing access to information and reducing interactions with potentially corrupt officials. Unique datasets from India and Indonesia are utilized, and the study

examines the variation in e-procurement adoption within both countries. While no evidence of reduced prices is found, the study does reveal improvements in quality associated with e-procurement. In Indonesia specifically, e-procurement is linked to reduced delays, and regions with e-procurement are more likely to attract contractors from outside the region. Overall, the findings suggest that e-procurement facilitates the participation of higher-quality contractors. This paper was published in Volume 8 of the American Economic Journal: Economic Policy.

Table 3. The 15 most cited documents

No.	Total Citation	Title	First Author	Journal / Publisher	Year	Cites / Year
1	85	Can electronic procurement improve infrastructure provision? Evidence from public works in India and Indonesia	S. Lewis-Faupel	American Economic Journal: Economic Policy	2016	10.63
2	51	A project management prospective in achieving a sustainable supply chain for timber procurement in Banda Aceh, Indonesia	K. Zuo	International Journal of Managing Projects in Business	2009	3.4
3	28	Making e-procurement work in a decentralized procurement system: A comparison of three Indonesian cities	A. Nurmandi	International Journal of Public Sector Management	2015	3.11
4	21	Comparative performance of PPPs and traditional procurement projects in Indonesia	G.U. Atmo	International Journal of Public Sector Management	2017	3
5	20	Raw material procurement, industrial upgrading and labor recruitment: Intermediaries in Indonesia's clothing industry	M. Hassler	Geoforum	2004	1
6	18	Vendor satisfaction of E-government procurement systems in developing countries: an empirical research in Indonesia	D.B. Seo	Information Technology for Development	2018	3
7	15	The Impact of Pharmaceutical Policies on Medicine Procurement Pricing in Indonesia Under the Implementation of Indonesia's Social Health Insurance System	Y. Anggriani	Value in Health Regional Issues	2020	3.75
8	13	Fraud triangle in public procurement: evidence from Indonesia	N.W. Rustiarini	Journal of Financial Crime	2019	2.6
9	13	Does e-procurement solve Indonesia local government budgetary slack through it adaptive culture?	F. Zahra	International Journal of Civil Engineering and Technology	2017	1.86
10	11	Calculation method of state financial losses in the procurement of medical devices in Indonesia	P.B. Murdi	International Journal of Advanced Science and Technology	2019	2.2
11	10	Preventing Procurement Fraud in E-purchasing for Indonesian Local Governments	F. Zahra	Journal of Asian Finance, Economics and Business	2021	3.33
12	8	The impact of e-Procurement practice in Indonesia government: A Preliminary Study (The case of Electronic Procurement Service at Bekasi District)	S. Candra	Journal of Physics: Conference Series	2017	1.14
13	7	Framework Development Methodology for Sustainable Procurement of Construction Works in Indonesia	M. Abduh	MATEC Web of Conferences	2018	1.17
14	6	Making dual procurement and supply chain operations: Cases in the indonesian higher education	A.S. Sulaeman	International Journal of Supply Chain Management	2019	1.2
15	6	Examining adoption of e-procurement in public sector using the Perceived Characteristics of Innovating: Indonesian perspective	F. Wahid	Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering	2010	0.43

Citations play a crucial role in establishing a journal's standing within the scientific community, providing insight into its influence on the advancement of knowledge (Di Bitetti & Ferreras, 2017). Given that the number of citations serves as a measure of article quality, journal management must prioritize factors that affect citation rates within the text (Bai et al., 2019). This consideration is closely tied to the journal's core focus and scope.

Previous research has examined or forecasted future citation trends (Adankon et al., 2009); (Willayat et al., 2022). Furthermore, studies employing generative models have demonstrated the assumption that publications with longer publication histories tend to receive more citations (Newman, 2009). Moreover, as Table 4 shows, the analyzed papers are categorized based on the authors who contributed to their publication on the topic of Procurement in Indonesia.

Table 4. Top 10 leading authors

No.	Author	Total Publication	Total Citation	Average Citation
1	F. Wahid	5	12	2.4
2	H. Nanang	4	9	2.3
3	H. Suliantoro	4	11	2.8
4	F. Zahra	3	26	8.7
5	D.A. Alfazah	2	9	4.5
6	J. Grevatt	2	0	0.0
7	L. Francis	2	0	0.0
8	M. Dachyar	2	6	3.0
9	P.V. Sandi	2	1	0.5
10	S.U.W. Prakasa	2	12	6.0

Source: Processed by Researchers, 2024

As shown in the table, a single author has authored five papers on the topic of Procurement in Indonesia. Fathul Wahid, the writer with the highest number of publications, has authored all five papers with the following titles: "Examining adoption of e-procurement in public sector using the Perceived Characteristics of Innovating: Indonesian perspective", "Steering institutionalization through institutional work: The case of an e-Procurement system in Indonesian local government", "The green e-Procurement infrastructure in the Indonesian public sector: Its antecedents and impacts on the triple bottom line", "Power Exercise in the Institutionalization of an e-Procurement System in Indonesian Local Government", and "The antecedents and impacts of green e-Procurement infrastructure: Evidence from the Indonesian public sector".

We retrieved 59 keywords with a minimum of two co-occurrence. Keyword co-occurrence analysis is employed to illustrate the frequency of terms utilized in publications (Gaviria-Marin et al., 2018). Figure 4 presents a visualization of the keyword co-occurrence data.
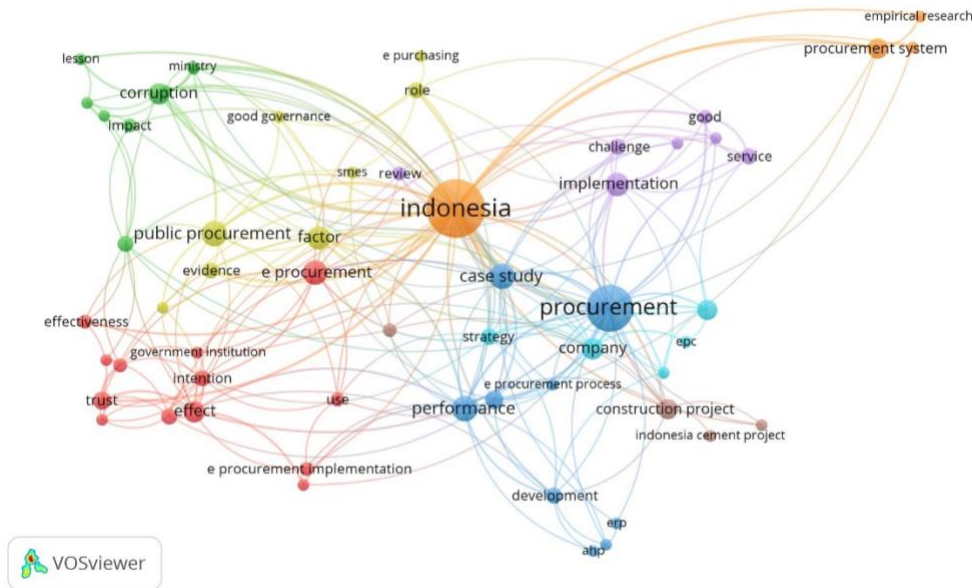

Fig. 4: Co-Occurrence (Keywords)
Source: Processed by Researchers Using VoSviewer, 2024

Figure 4 illustrates the frequency of usage of different phrases, represented by the size of the circles. It provides a combined mapping and grouping of the subject structure of procurement research in Indonesia. Each group is distinguished by a unique color, highlighting variations in prominence, affinity, and relatedness. This implies that the density of elements increases as the number of nearby elements grows and decreases as the distance between them and the focal point diminishes (Van Eck & Waltman, 2010). Based on the keywords derived from co-occurrence analysis, as depicted in Figure 4, the most frequently appearing phrases include 'Indonesia', 'Procurement', 'Procurement System', 'Public Procurement', and 'e-Procurement'.

Fig. 5: Overlay Visualization Co-Assurance (Keywords)
Source: Processed by Researchers Using VoSviewer, 2024

The visualization in Figure 5 provides insights into the evolution of keywords over time. The intensity of the yellow color in the cluster indicates the recency of the study, with brighter shades representing more recent years. It is evident from Figure 5 that the development of keywords in recent years has experienced significant growth, as indicated by the predominance of yellow-shaded keywords. This suggests a notable evolution in keywords since 2020. These findings can serve as valuable input for future studies aiming to identify essential procurement system keywords in Indonesia.

Fig. 6: Density Visualization Co-Assurance (Keywords)
Source: Processed by Researchers Using VoSviewer, 2024

Figure 6 depicts the density of keywords that appear together as well as the number of nodes that are adjacent to each other (Pradana et al., 2023). A yellow node indicates the level of saturation and the number of phrases that appear frequently. The keywords 'procurement' and 'Indonesia' that appear most often are in the yellow node, indicating that this issue has been researched most. The keywords in the green colors, such as 'e-purchasing', 'supply chain innovation', 'good governance' and 'e-procurement implementation' are different. Green areas indicate topics that have not been studied extensively.

Figure 6 shows density visualization which illustrates the clustering of co-occurring keywords and the proximity of nodes (Pradana et al., 2023). A yellow node signifies the level of saturation and the frequency of commonly appearing phrases. The keywords 'procurement' and 'Indonesia', which appear most frequently, are situated within the yellow node, indicating extensive research on these topics. In contrast, keywords highlighted in green, such as 'e-purchasing', 'supply chain innovation', 'good governance', and 'e-procurement implementation', represent distinct areas. Green regions indicate topics that have not been extensively explored.

The editor will evaluate whether the topic aligns with the discipline specified by the reviewer, with a focus on the size of the yellow nodes, indicating frequently occurring issues. If the scholarly interests of the reviewers do not match, the quality of their work, particularly in terms of substance, may be affected. The assessment data presented in this introduction to the subject will assist editors in refining and specializing in the journal's focus. Furthermore, editors utilize this density visualization to select editors and reviewers whose scientific expertise aligns with the challenges depicted in Figure 6.

Numerous studies have highlighted a positive correlation between public procurement practices and a country's economic performance, encompassing aspects such as value for money, improved human welfare, and enhanced economic growth. In response to the increasingly intricate nature of procurement processes, disruptive innovations and rapid advancements in digitalization are reshaping global supply chains (Fourie & Malan, 2021).

A robust procurement system is founded on principles such as accountability, competitive sourcing, and consistency. When coupled with ethical considerations and good governance practices, these principles form the bedrock of an effective, efficient, transparent, and dependable procurement framework.

Ethical risks can occur at every stage of the procurement process; however, e-procurement has emerged as a potent tool in mitigating fraud, corruption, and unethical conduct in public procurement. By reinforcing the values of transparency, accountability, and integrity, e-procurement enhances ethical standards within procurement operations. Despite the documented benefits of electronic procurement methods, transitioning to e-procurement has encountered several challenges. While the global adoption of e-procurement has been gradual, there is a growing momentum in Southeast Asia to leverage e-governance for bolstering transparency and anti-corruption efforts. In the Indonesian context, there is a pressing need to consolidate comprehensive data on procurement practices across government departments. (United Nation, 2020)

5. Conclusion

In this study, co-authorship, co-occurrence, and citation emerged as significant factors identified through bibliometric analysis. The data were extracted from the SCOPUS database covering the period from 2004 to 2023. To ensure data integrity, we applied strict criteria, excluding studies that were irrelevant, repetitive, lacked relevant keywords in their abstracts, keywords, or titles, or were not in the correct document format, such as book chapters. Ultimately, 121 items meeting the specified criteria and restrictions were collected for analysis. This rigorous selection process aimed to ensure that only relevant and high-quality data were included in the study, enhancing the reliability and validity of the findings.

This study highlights the critical role of ethical considerations, transparency, and accountability in procurement practices. While e-procurement has shown promise in mitigating fraud and corruption, challenges persist in its implementation, warranting further research and concerted efforts to address them.

However, it is important to acknowledge the limitations of this study. The findings are based on a systematic literature review, which may not capture all relevant studies or emerging trends in the field. Additionally, variations in the quality and reliability of the included studies may influence the validity of the findings.

Looking ahead, there is a clear need for further research to deepen our understanding of procurement practices in Indonesia. Future studies could explore emerging issues such as the impact of technological advancements, the role of government policies and regulations, and the effectiveness of procurement strategies in achieving sustainable development goals. By building on the findings of this study and conducting rigorous empirical research, policymakers, practitioners, and researchers can collaborate to advance procurement practices in Indonesia and contribute to positive socio-economic outcomes.

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