

Research landscape of satisfaction in the public procurement context: a bibliometric analysis

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Abstract

This study conducts a bibliometric analysis of publications in the context of satisfaction in public procurement research, as retrieved from the Scopus database on 8th July 2024. The study includes publications that link aspects of satisfaction and public procurement. Data were analysed using VOSviewer and Harzing's Publish or Perish software to conduct both performance analysis and science mapping. These are relevant for analysing performance metrics and visualisation of patterns from keyword co-occurrence analysis and bibliographic coupling. The findings reveal limited research publications related to satisfaction in the context of public procurement, with only 54 publications retrieved during the search. The trend shows fluctuations in the number of publications from 1997 to 2024. Key contributors include authors such as Kalinzi, C.; Muhwezi, M.; Munene, J.K.; and Warman, G., and institutions like Universitas Indonesia, alongside global participation from countries like China, Indonesia, and the United States. Keyword analysis highlights themes related to customer satisfaction, public procurement, and e-Government, emphasizing the pursuit of enhanced service quality and efficiency. Bibliographic coupling reveals interconnected research clusters focusing on impact of e-procurement system on satisfaction, influence of technology on performance, and user satisfaction with e-procurement system implementation. This structured analysis underscores diverse global contributions and identifies pathways for future research in the research domains of satisfaction in public procurement undertakings.

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1. Introduction

Generally, satisfaction reflects the degree to which stakeholders' expectations and needs are met or exceeded. The stakeholders in this case are mainly represented by customers, suppliers, employees, and the public (Stribbell & Duangekanong, 2022). Thus, satisfaction is equally crucial, as it directly influences productivity as well as employees working morale under job perspectives (Rashvand & Abd Majid, 2014). Moreover, factors such as a chance for career development, work-life balance, compensation and conducive work environment contribute to an employee's overall job satisfaction in the realm of organisational management research (Eryürük et al., 2021). In a business context, satisfaction typically results from delivering high-quality products, effective customer service, reliability, and the value perceived by the customer (Sypniewska et al., 2023; Tegambwage & Kasoga, 2024). Similarly, satisfied customers are more likely to contribute to long-term business success (Ismail, 2023; Tegambwage & Kasoga, 2023). Hence, prioritizing satisfaction fosters positive relationships, enhances performance, and strengthens the organization's competitive edge in the market (Malhotra et al., 2023). It should further be noted that, in the business context, the term "satisfaction" involves the quality aspects, value, and service provided by a company, which impact individual behaviours in relation to the product or work (Elte et al., 2023; Tegambwage, 2023).

In the public procurement context, the procedures within the public procurement process are structured to ensure that internal customers' or users' needs are met by focusing on timely delivery, right place, right quality and quantity, and sourcing from the right suppliers, which are regarded as fundamental objectives of procurement functions and indicators for enhancing satisfaction (Changalima et al., 2023; Tamarabra & Askia, 2020). In this regard, the public procurement perspective of the term "satisfaction" may refer to the extent to which the needs and expectations of all stakeholders, including government agencies, suppliers, and the public, are met or exceeded (Changalima, 2024; Madondo & Manzini, 2020). This involves the efficient and effectiveness in public procurement operations that meet the required standards of quality, timeliness, and cost-effectiveness (Kakwezi & Nyeko, 2019). Satisfaction in public procurement is crucial as it determines the way public funds are utilized effectively to enhance effective delivery of service and enhanced trust from the public. This means, success of public procurement outcomes is determined by users' perceived expectations regarding the products, services, or works under considerations (Mushi et al., 2024a). This calls for a more approach to guarantee that procurement undertakings are done in a manner that meets procurement objectives and users' desires in a procuring entity (Changalima et al., 2021; Fernandes et al., 2018; Mushi et al., 2024b).

Satisfaction in public procurement has increasingly gained attention, primarily due to the emphasis placed on value creation and enhanced service delivery (Mushi et al., 2024b). This shift is a result of changes in the procurement environment, which have led to evolving user requirements (Malacina et al., 2022). Various studies have researched on satisfaction from different perspectives. For example, research by Bitzidis et al. (2020b), Maagi and Mwakalobo (2023), and Sharabati (2015) focused on assessing user satisfaction with e-procurement information systems. These studies highlight the critical role of technology in shaping satisfaction levels among procurement stakeholders. On the other hand, Tamarabra and Askia (2020) explored how user involvement in public procurement operations influences satisfaction. Their findings underscored the importance of stakeholder engagement in shaping perceptions of satisfaction in procurement processes. From the supplier's perspective, Kelly et al. (2021) examined factors influencing satisfaction, revealing that fairness, clarity, relevance of information, and responsiveness significantly impact supplier satisfaction levels. Similarly, Glas (2018) found that, supplier satisfaction is closely tied to the quality of procurement organization, effective communication practices, and efficient time management. These studies collectively emphasize the multifaceted nature of satisfaction in public procurement, influenced by both operational processes and interpersonal dynamics. Overall, achieving satisfaction in public procurement is pivotal as it fosters trust and commitment among stakeholders (Changalima et al., 2023; Maswai & Paul, 2017).

However, despite these insights, still a gap persists regarding knowledge and existing development of research on satisfaction within the public procurement context. One among notable reasons reported by different authors based on the fact that, public procurement involves diverse stakeholders with varying priorities (Marius, 2017; Sofian et al., 2024; Torvinen & Haukipuro, 2018). This diversity complicates efforts to develop universally applicable satisfaction measures that accurately capture the multifaceted nature of stakeholder experiences. Also, the complexity and diversity of public procurement environments affect the way desired outcomes are achieved (Li & Cao, 2023). Bibliometric analysis is a research method used to quantitatively analyse scientific and academic literature (Azarian et al., 2023; Donthu et al., 2021). This method involves the use of statistical tools to evaluate the impact, structure, and development of research across various disciplines. Previous studies that have employed bibliometric analysis in the context of public procurement have concentrated on green public procurement (Galán-Valdivieso et al., 2024), emerging technologies (Mavidis et al., 2024), ethics (Ma'ruf et al., 2024), sustainable procurement (Jain & Gupta, 2024), and other topics. Despite these existing studies, research development and trends regarding the aspects of satisfaction in public procurement remain scant. To fill this gap, the current study aims to conduct a bibliometric analysis on the research landscape of satisfaction in the context of public procurement. To do this, the following research questions will be addressed:

RQ1: What is the trend of publications on research in satisfaction within the context of public procurement?

RQ2: Who are the most prolific stakeholders, i.e., authors, institutions, countries, and sources of publications, in research related to satisfaction in the public procurement context?

RQ3: What are the prominent keywords and topics in publications related to satisfaction in the public procurement context?

RQ4: What are the common knowledge themes in publications related to satisfaction in the public procurement context?

Answering these research questions is significant because understanding the trend of publications (RQ1) reveals how interest and focus on satisfaction within public procurement have evolved over time. Identifying the most prolific stakeholders (RQ2) helps pinpoint key contributors, institutions, and countries driving the research, facilitating potential collaborations and acknowledging influential sources. Analysing prominent author keywords (RQ3) provides insights into the main topics and issues being addressed, reflecting the research community's priorities. Lastly, uncovering common knowledge themes (RQ4) helps synthesize the body of literature, offering a comprehensive understanding of the current state of research on satisfaction in public procurement and guiding future studies. This is crucial so as to highlight areas and potential gaps in the literature within the research landscape.

2. Methods

2.1 Data collection

A systematic search of publications was followed in this study with data collected from the Scopus database based on 8th July 2024. This was effectively done to compile a thorough collection of relevant publications on satisfaction in the context of public procurement. To ensure that the comprehensive lists of documents are involved, experts in public procurement were consulted to provide relevant concepts and terms. In this regard, a search string: "satisfaction" AND "public procurement" OR "Public sector procurement" OR "Public purchas*" or "government procurement" or "government purchas*" or "public buy*" or "government contract*" was included during the search. The combination of these words, along with the asterisk (*), was considered crucial for achieving the desired number of relevant documents from the database. The use of asterisk has been recommended as the wildcard symbol so as to broaden the search (Donthu et al., 2021; Sedghi et al., 2010). In the Scopus database, the search

strategy was done on the “article title, abstract, and keyword” fields. This was done deliberately to include all relevant publications related to the subject matter. Scopus was chosen due to a number of reasons. First, Scopus is considered as one of the largest databases of peer-reviewed literature, it spans numerous disciplines, ensuring comprehensive access to relevant publications (Baas et al., 2020; Pranckutė, 2021). Its strict inclusion criteria guarantee high-quality sources, enhancing credibility and reliability. Also, it offers advanced search capabilities, allowing for detailed searches in fields such as article title, abstract, and keywords, which helps in accurately identifying relevant studies. Additionally, it supports interdisciplinary research, enabling exploration across various fields (Echchakoui, 2020).

As presented in Figure 1, the search was open to all fields except for the publication language, which was limited to English. Initially, the search strategy produced 63 publications dated between 1997 and 2024, as of 8th July 2024. Then, during the screening phase, 6 publications were removed for various reasons: 4 conference reviews were errata, 1 document was retracted, and 1 was a short survey. Therefore, out of 63 publications, 57 were retained. Furthermore, after restricting the search to English-language publications, 54 remained, as 3 documents published in Spanish, French, and Portuguese were excluded. These criteria resulted in the study including 54 publications in the final data analysis. The included publications presented information regarding satisfaction and public procurement in various dimensions.

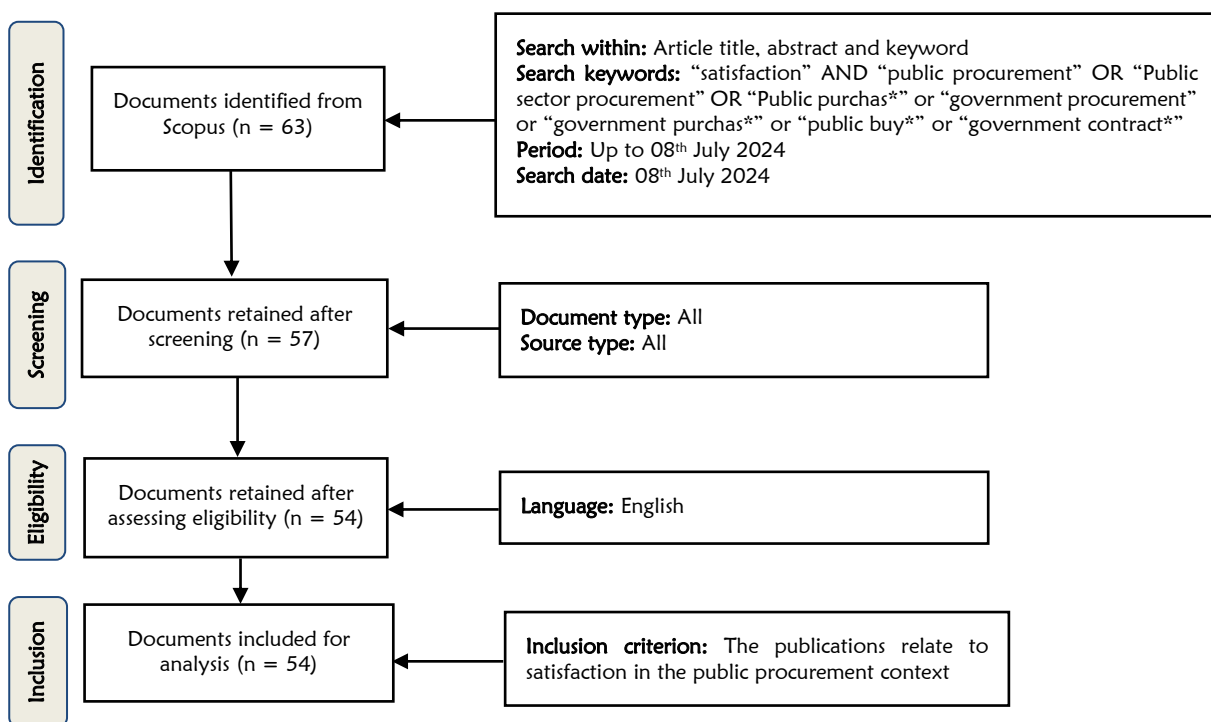


Figure 1. The procedures in data collection

Source: Adapted from Moher et al. (2010)

2.2 Data analysis

Two files were downloaded from the Scopus database: the CSV file and the RIS file formatted for data analysis in VOSviewer (Van Eck & Waltman, 2017), and Harzing’s Publish or Perish software (Harzing, 2010), respectively. The retrieved 54 publications were subjected to bibliometric analysis from which both performance analysis and science mapping were conducted so as to satisfy the research questions. Therefore, the study employed performance analysis to identify the most prolific stakeholders including authors, institutions, countries, journals, and funding agencies in the field. On the other hand, science mapping through bibliographic coupling was conducted in VOSviewer. Bibliographic coupling is the analysis of the relationships between publications based on their shared references (Donthu et al., 2021; Lwesya & Mwakalobo, 2023; Tan, 2022). This method identifies connections between documents that cite similar works, revealing clusters of related research in the field (Abdullah et al., 2022). Therefore, through this analysis, it was possible to uncover the intellectual structure of a domain which aids in highlighting key themes in the field.

3. Findings and discussion

3.1 The trend of publications

Initially, the study analysed the included publications. The analysed dataset, as retrieved from Scopus, included a total of 54 publications published between 1997 and 2024. These publications were classified as follows: 37 (68.5%) articles, 12 (22.2%) conference papers, 4 (7.4%) book chapters, and 1 (1.9%) review. All of them were classified in the “final” stage of publication. Regarding the subject area, “social sciences” included 18 publications, “business, management and accounting” included 14 publications, and “computer sciences” included 12 publications. These three are the most represented subject areas in the publications within the research domain. This classification represents the overall picture of the aspect of public procurement, which is classified as a “business and management” area and a “social science” area in terms of public administration. Lastly, regarding the source type, journals account for 38 publications, followed by conference proceedings with 9 publications, book series with 5 publications, and books with 2 publications. The diversification of publications across several sources reveals the spread of documents in various scholarly platforms, indicating a broad interest and engagement from different academic communities. This distribution highlights the prominence of journal articles as the primary medium for disseminating research on satisfaction in public procurement. Journals are often considered the most prestigious and rigorous sources, suggesting that a significant amount of high-quality research is being conducted in this field.

The RQ1 centres on analysing the trend of publications on the research domain related to satisfaction in public procurement. The results in Figure 2 show that the number of publications has varied over the years, indicating fluctuating research interest in this domain (satisfaction in the public procurement context). From the presented results in Figure 2, the early years, especially from 1997 to 2010, show a relatively low and steady number of publications, with typically 1 or 2 publications per year. This period likely represents the foundational phase of research in this domain, where initial studies and frameworks were being established. On the other hand, it is clear that there was a notable increase in publications from 2011 onwards, peaking in 2018 with 7 publications. This suggests a growing academic interest in the topic “satisfaction in the context of public procurement” during this period. The year 2021 also saw a relatively high number of publications, with 6 indicating sustained interest. However, the following years, 2022 to 2024, show a slight decline, with 3 publications in 2022 and 2024, and only 1 in 2023. This could suggest either a saturation in the research or a shift in focus to other emerging areas within public procurement.

Generally, the trend analysis reveals that research on satisfaction in public procurement has experienced periods of both growth and decline. Understanding these trends can help identify gaps in the literature and potential areas for future research. For instance, the decline in recent years could be an opportunity to explore new dimensions of satisfaction in public procurement or to revisit and reassess previous findings in light of new data or methodologies that could be more relevant in advancing the research landscape. This is relevant as the examination of the publications in the research area based on the publication years reveals some dormant periods as from the first publication in 1997 up to 1999, the period experienced 1 publication per year and the publications were inactive until 2005 from which the trend presents a single publication per year up to 2008.

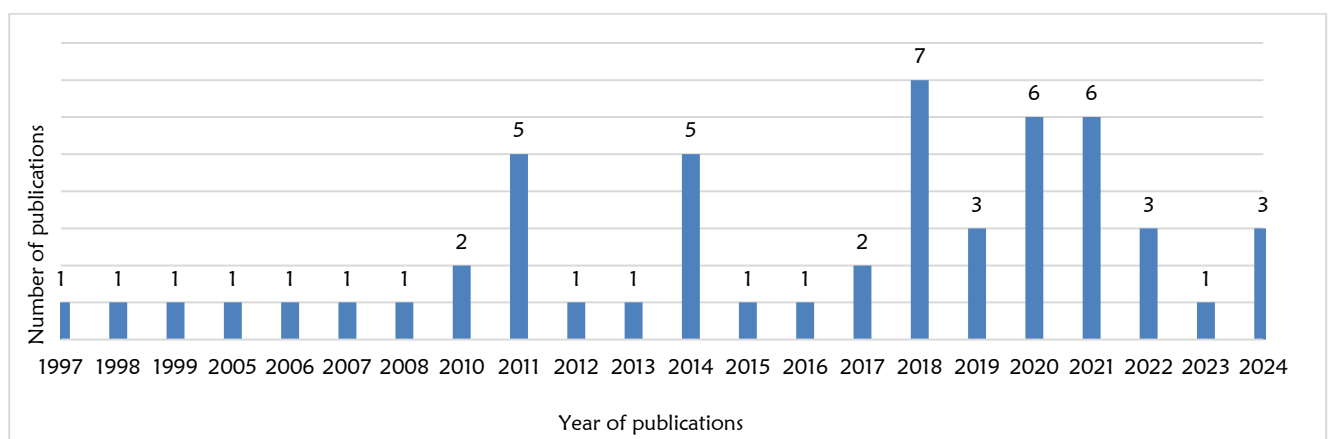


Figure 2. The trend of publications

Source: Figure by authors

3.2 The most prolific stakeholders

The RQ2 focuses on examining the most prolific stakeholders in terms of authors, institutions, countries, and sources of publications relevant to the research landscape. The study aimed to analyse the number of publications per author to determine author productivity in the field. The findings in Table 1 present the most prolific authors, each

of whom has published two publications over the period. Specifically, four authors, Kalinzi, C.; Muhwezi, M.; Munene, J.K.; and Warman, G., have each contributed 2 publications related to satisfaction in public procurement, summing to a total of 8 publications. This suggests a moderate level of research activity and a focused interest in this specific area. This consistency highlights the importance of satisfaction in public procurement, potentially covering several aspects. Also, the findings reveal a varied institutional contribution to research on satisfaction in public procurement, with Universitas Indonesia leading with 3 publications, followed by the Ministry of Communication and Information Technology (Indonesia), Aalborg University, Makerere University, Kyambogo University, International Hellenic University, and Makerere University Business School, each with 2 publications.

Table 1. The most prolific stakeholders

Author	Publications	Institution	Publications
Kalinzi, C.	2	Universitas Indonesia	3
Muhwezi, M.	2	Ministry of Communication and Information Technology (Indonesia)	2
Munene, J.K.	2	Aalborg University	2
Warman, G.	2	Makerere University	2
		Kyambogo University	2
		International Hellenic University	2
		Makerere University Business School	2
Country	Publications	Sources	Publications
China	6	Journal of Public Procurement	3
Indonesia	6	ACM International Conference Proceeding Series	2
United States	6	Australasian Journal of Construction Economics and Building	2
Russia	4	International Journal of Procurement Management	2
United Kingdom	4	International Journal of Public Sector Management	2
Australia	3	Journal of Cleaner Production	2
Denmark	3	Lecture Notes in Networks and Systems	2
France	3		
Greece	3		
Netherlands	3		
Sweden	3		

Source: Table by the authors

Furthermore, the findings in Table 1 show the contribution of publications made by each country. The findings unveil a robust global engagement in researching satisfaction within public procurement processes, with China, Indonesia, and the United States leading with 6 publications each. Following closely, Russia and the United Kingdom contribute 4 publications each, while Australia, Denmark, France, Greece, the Netherlands, and Sweden each present 3 publications. This distribution underscores a widespread interest across diverse regions, suggesting both regional focuses and broader international collaborations in understanding and improving research on satisfaction in the public procurement undertakings. Conversely, the findings reveal a diverse array of academic journals and conference proceedings contributing to the discourse on public procurement satisfaction. Leading the publications is the Journal of Public Procurement with 3 articles, followed by the ACM International Conference Proceeding Series, Australasian Journal of Construction Economics and Building, International Journal of Procurement Management, International Journal of Public Sector Management, Journal of Cleaner Production, and Lecture Notes in Networks and Systems, each having 2 articles. This distribution highlights a concentrated effort within specialised academic platforms, indicating a robust scholarly interest in exploring and improving satisfaction within public procurement practices.

3.3. The prominent keywords and topics

The findings in Table 2 presents the most frequently occurring keywords in publications linked to satisfaction in public procurement research as retrieved from Scopus. Customer satisfaction and public procurement leading with 13 and 12 occurrences respectively, and having total link strengths of 40 and 36 respectively, imply that these topics are highly interconnected and central to the research focus. The high frequency and link strength suggest that customer satisfaction is a crucial outcome and consideration within public procurement processes. This prominence indicates that ensuring satisfaction among customers or stakeholders is a key priority in the public procurement domain, reflecting the importance of delivering quality services and efficient procurement practices that meet public needs and expectations. These findings underscore the significance of integrating customer satisfaction metrics into public procurement strategies to enhance service delivery and optimize procurement outcomes.

Table 2. The prominent keywords

Keywords	Occurrences	Total link strength
Customer satisfaction	13	40
Public procurement	12	36
Human	9	49
Article	7	40
Satisfaction	6	34
e-Government	6	32
e-Procurement	6	21
User satisfaction	5	32
Humans	5	30
Purchasing	5	19
Government data processing	4	27
Health care quality	4	27
Information systems	4	25
Efficiency	4	10
Organization and management	3	23

Source: Table by the authors

Furthermore, the keyword "human" appears 9 times with the highest total link strength of 49, suggesting a strong interconnectedness with other terms, which might indicate the human element's importance in these processes. This is relevant, as satisfaction focuses on meeting human desires. Therefore, in the context of public procurement research, this keyword remains important. "Article" also shows a significant presence with 7 occurrences and a link strength of 40, suggesting a focus on scholarly discussion and publication. Other notable keywords include "satisfaction" and "e-Government," both with 6 occurrences, emphasizing their relevance in enhancing public procurement and service quality through digital means. "e-Procurement" and "user satisfaction" appear with 6 and 5 occurrences, respectively, underscoring the role of digital procurement systems in achieving user satisfaction. Additionally, keywords related to healthcare, such as "health care quality" and "organization and management," reflect a focus on the quality and management of healthcare services. Overall, the high occurrence and link strength of these keywords imply that customer satisfaction, digital procurement, and the human element are critical themes in the study of public procurement, service quality, and satisfaction.

The study conducted keyword analysis in VOSviewer based on the criterion that at least 2 times a keyword to appear and 59 keywords met this threshold with 57 connected to each other in all keywords as a unit of analysis. The findings reveal that there are 5 clusters with the largest cluster having 15 items and smallest one having 8 items. These clusters are presented with different colours in Figure 3. The red cluster includes most occurred keywords such as public procurement, e-procurement, e-government and government data processing as presented with the nodes in the red colour within the cluster. Also, the purple cluster includes keywords such as information analysis, quality of service, supply chain and Indonesia while, the yellow cluster includes words such as quality control, supplier satisfaction, purchasing, environmental impact and public administration. Additionally, the blue cluster includes words such as procurement, public sector, satisfaction, customer satisfaction, competition, decision making, efficiency and structural equation modelling. The green cluster on the other hand, includes relevant keywords such as patient satisfaction, health care quality, human, organization and management, quality of health care, and health care policy.

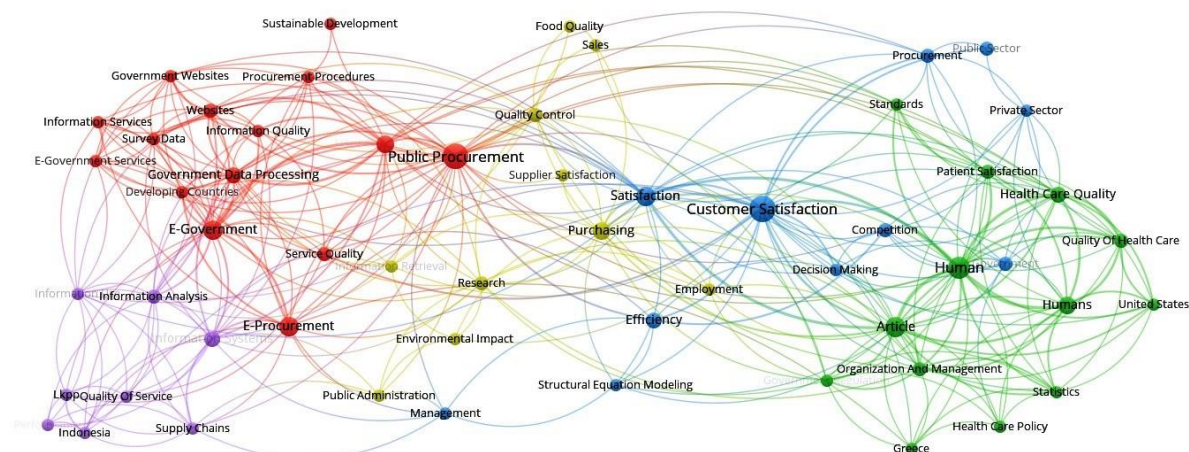


Figure 3. Network visualisation of the prominent keywords

Source: Figure by authors

The identified keyword clusters as presented in Figure 3 highlight distinct thematic areas within the broader context of procurement and service quality. The red cluster underscores the digital transformation in public sector procurement processes. The purple cluster indicates a regional and analytical focus on supply chain and service quality. The yellow cluster, encompassing quality control, supplier satisfaction, purchasing, environmental impact, and public administration, points to the intersections between procurement practices and environmental as well as administrative considerations. The blue cluster emphasizes the importance of satisfaction, competition, and decision-making efficiency in public sector procurement. Finally, the green cluster is relevant to the healthcare sector, focusing on quality and policy in healthcare management in relation to aspects of satisfaction which may be crucial for public purchasers.

Based on the identified clusters and topics from a keyword co-occurrence analysis in the aspects of public procurement satisfaction research, Table 3 presents the potential research gaps and relevant study areas for future researchers.

Table 3. The research gaps and study areas based on a keyword co-occurrence analysis

Thematic area	Research gaps	Study focus
Digital transformation in public procurement	<ul style="list-style-type: none"> Specific impacts of digital technologies on procurement efficiency, transparency, and stakeholder satisfaction 	<ul style="list-style-type: none"> Barriers and enablers of digital transformation in public procurement - effectiveness of different e-procurement systems - role of digital tools in enhancing transparency and reducing corruption
Customer and stakeholder satisfaction	<ul style="list-style-type: none"> How different procurement practices influence satisfaction levels among various stakeholder groups 	<ul style="list-style-type: none"> Determinants of customer and stakeholder satisfaction - developing and validating metrics for measuring satisfaction - relationship between procurement practices and public trust
Human element in public procurement	<ul style="list-style-type: none"> Roles, competencies, and behaviours of procurement professionals and their impact on outcomes 	<ul style="list-style-type: none"> Competencies required for effective public procurement - impact of training and professional development on performance Influence of organizational culture on procurement practices
Healthcare procurement	<ul style="list-style-type: none"> Procurement practices improving healthcare quality and patient satisfaction 	<ul style="list-style-type: none"> Procurement processes in healthcare - impact on healthcare delivery and patient outcomes - strategies for optimizing procurement in the health sector
Environmental and administrative considerations	<ul style="list-style-type: none"> Intersection between procurement practices and environmental/administrative factors 	<ul style="list-style-type: none"> Environmental impacts of public procurement Effectiveness of sustainable procurement practices Administrative challenges and solutions in implementing green procurement policies
Regional and supply chain focus	<ul style="list-style-type: none"> Localized studies on procurement practices in specific regions 	<ul style="list-style-type: none"> Comparative studies of procurement practices in different regions Unique challenges and opportunities in regional public procurement Integration of local supply chains
Decision-making and efficiency	<ul style="list-style-type: none"> Strategies and models for improving decision-making in public procurement 	<ul style="list-style-type: none"> Decision-making processes in public procurement Developing and testing models for improving procurement efficiency Use of data analytics and ai in decision-making
Quality control and supplier satisfaction	<ul style="list-style-type: none"> Connection between quality control, supplier satisfaction, and procurement outcomes 	<ul style="list-style-type: none"> Impact of quality control mechanisms on procurement outcomes Factors influencing supplier satisfaction Strategies for fostering long-term relationships with suppliers

Source: Table by the authors

3.4. The common knowledge themes

Bibliographic coupling was conducted using VOSviewer with a minimum citation threshold set at 0, allowing all 54 documents to be included in the analysis. However, only 11 of these documents (20.4%) were found to be interconnected, forming 5 clusters as presented in Table 4. The largest cluster comprised 3 items, while the smallest cluster consisted of 2 items (see Figure 4). The formed clusters are distinct and represent the intellectual structure or knowledge themes in the research field. These clusters provide insights into the interconnected groupings of related research articles based on their shared bibliographic references. Each cluster signifies a distinct thematic focus within the broader field of satisfaction in the context of public procurement, offering a visual representation of the interconnectedness and thematic coherence among the documents as retrieved from Scopus. The findings in Table 4 clearly present the insights of the publications that have been included in the bibliographic coupling. The discussion of the presented themes is as follow:

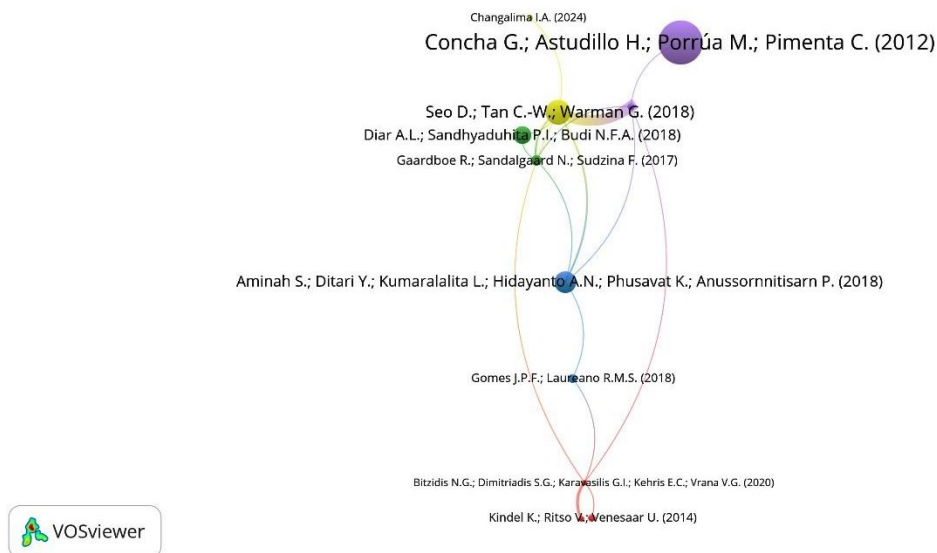


Figure 4. Network visualisation of clusters through bibliographic coupling
Source: Figure by authors

The first cluster (red) consists of 3 items, prominently featuring publications that focus on “internal customer satisfaction and e-procurement system usage”. The theme under this cluster emphasizes research works that have established insights on the context of electronic public procurement systems and their impact on internal customer satisfaction and how the system is crucial in enhancing entrepreneurs (Bitzidis et al., 2020a, 2020b; Kindel et al., 2014). This theme is relevant as usage of electronic public procurement systems is crucial on user satisfaction (internal customer satisfaction). Therefore, internal customers, such as user departments, benefit from a more straightforward and faster procurement process. This leads to increased transparency, reduced processing times, and enhanced overall efficiency. Consequently, internal customers experience greater satisfaction due to the reduced administrative burden and the more predictable procurement cycle. Specifically, Bitzidis et al. (2020b) examine internal customer satisfaction with the electronic public procurement system in Greece, assessing user perceptions and the factors influencing satisfaction. Bitzidis et al. (2020a) discuss how the same system enhances entrepreneurship, focusing on internal customer opinions regarding the system's benefits and challenges. Furthermore, the study conducted by Kindel et al. (2014) explore business satisfaction with e-government services in the Baltic Sea region. Based on data obtained from Estonia and Germany, the study investigated on how SMEs perceive the efficiency and effectiveness of these services relating to accessibility of necessary information on government websites and access to public procurement opportunities. Generally, the cluster presents intriguing information that address topics of electronic public procurement systems and their implications for user satisfaction and business efficiency.

Cluster 2 (green) has 2 items with publications centring on “the impact of technology on individual performance and success within organizational contexts”. This theme is relevant in the research field as it reflects some insights on the ways technology align with tasks of employees within the context of public sector and e-government systems. Diar et al. (2018) examine determinants on performance at the individual level based on the task technology fit based on the public procurement plan information system. The task-technology fit is relevant as it suggests that users are more likely to perform effectively when the technology is better in supporting the tasks. On the other hand, Gaardboe et al. (2017) centres on the web-enabled business intelligence success in electronic government based on the importance of task compatibility. Both studies have presented information which are relevant in exploring determinants for the success and effectiveness of information systems in public sector contexts, specifically focusing on task-technology fit and individual performance. Therefore, the cluster present intriguing information on the evidence-based conclusions on designing and implementing information systems that enhance user performance and achieve success in public sector applications.

The third cluster as presented by colour blue in Figure 4 include 2 items. The publications in this cluster delves into “user satisfaction in the implementation and impact of e-procurement systems within the public sector”. This is also crucial as it is relevant in considering satisfaction of users in aspects related to usage of e-procurement systems. A study conducted by Gomes and Laureano (2018) presents insights on the impacts of e-public procurement in construction sector in Portugal. The study also investigates the level of satisfaction among users on e-public procurement system platforms. Furthermore, Aminah et al. (2018) considers the aspects of transparency from the perspective of suppliers when examining success factors for e-procurement system. Based on the initial analysis, the

two publications underscore the need for technological advancements in public procurement processes by considering user satisfaction and supplier transparency perceptions.

Cluster 4 (yellow) include 2 items which focuses on “buyer and vendor satisfaction on public procurement practices”. The cluster is crucial in the research field as it presents intriguing information on the link between public procurement practices and satisfaction of relevant stakeholders including buyers (Changalima, 2024), and suppliers (Seo et al., 2018). Specifically, Changalima (2024) examines the link between supplier management practices on buyer satisfaction based on the perspectives of procuring entities. On the other hand, Seo et al. (2018) investigate on vendor satisfaction in the context of electronic government procurement systems based on the research conducted in Indonesia. Both studies are important as they highlight key aspects of procurement systems and practices and stakeholder satisfaction, helping organizations improve efficiency and effectiveness. This is the case as the way supplier management practices in public sector influence buyer satisfaction remain relevant for the effective management leading to the better procurement processes and stronger supplier relationships (Changalima, 2024). Furthermore, exploring vendor satisfaction in e-government procurement systems may remain relevant and crucial in supporting local businesses and stimulates economic growth (Seo et al., 2018).

The last cluster, cluster 5 (purple) also include two publications that centres on “various aspects of e-government procurement systems”. The cluster provides intriguing information on relevant issues linked to e-public procurement systems. Concha et al. (2012) contribute a maturity model and early measurement framework aimed at assessing the development stages and initial effectiveness metrics of e-government procurement initiatives. Furthermore, Seo and Warman (2011) rely on the data collected in Indonesia and investigate on user satisfaction of e-government procurement systems. Their work is based on data collected from vendors as users of e-government procurement system. The study presents information regarding relevant factors influencing user (vendor) perceptions, highlighting challenges and opportunities for enhancing system usability and effectiveness. Based on this discussion, the cluster represents publications that offer insights into the multifaceted dimensions of e-government procurement, spanning from strategic maturity assessments to user-centric evaluations in different contexts.

Table 4. The common themes and clusters through bibliographic coupling

Cluster/Theme	Publication	Title	Total citations
Cluster 1(red): The impact of technology on individual performance and success within organizational contexts	Bitzidis et al. (2020b)	Internal customer satisfaction from an e-procurement information system: the case of Greek electronic public procurement system (ESIDIS)	1
	Bitzidis et al. (2020a)	Enhancing entrepreneurship: the Greek national electronic public procurement system – internal customer opinions	0
	Kindel et al. (2014)	Business satisfaction with e-government services in Baltic sea region	2
Cluster 2 (green): The impact of technology on individual performance and success within organizational contexts	Diar et al. (2018)	The determinant factors of individual performance from task technology fit and IS success model perspectives: a case of public procurement plan information system (SIRUP)	11
	Gaardboe et al. (2017)	The importance of task compatibility for web-enabled business intelligence success in e-government	4
Cluster 3 (blue): User satisfaction in the implementation and impact of e-procurement systems within the public sector	Aminah et al. (2018)	E-procurement system success factors and their impact on transparency perceptions: perspectives from the supplier side	17
	Gomes and Laureano (2018)	Impacts of electronic public procurement in the Portuguese construction sector: several years after implementation	3
Cluster 4 (yellow): Buyer and vendor satisfaction on public procurement practices	Changalima (2024)	It's fine for them, but what about us? Exploring the role of supplier management practices on public buyer satisfaction	1
	Seo et al. (2018)	Vendor satisfaction of e-government procurement systems in developing countries: an empirical research in Indonesia	21
Cluster 5 (purple): Various aspects of e-government procurement systems	Concha et al. (2012)	E-government procurement observatory, maturity model and early measurements	66
	Seo and Warman (2011)	User satisfaction of e-government procurement systems in developing countries: an empirical research in Indonesia	2

Source: Table by the authors

Based on the identified clusters through bibliographic coupling in aspects of public procurement satisfaction research, Table 5 presents the potential research gaps and relevant study areas for future researchers.

Table 5. The research gaps and study areas based on bibliographic coupling

Thematic Cluster	Research Gaps	Study focus
Cluster 1	Impact of different e-procurement systems on internal customer satisfaction across sectors and countries	<ul style="list-style-type: none"> • Factors influencing internal customer satisfaction with e-procurement systems • Comparative effectiveness of e-procurement systems in public vs. private sectors • Long-term impacts on organizational efficiency and stakeholder relationships
Cluster 2	Mechanisms through which technology affects individual performance in public procurement contexts	<ul style="list-style-type: none"> • Role of task-technology fit in enhancing user performance • Factors influencing successful technology adoption in public procurement • Impact of digital skills and training on performance outcomes
Cluster 3	Determinants of user satisfaction in e-procurement system implementation	<ul style="list-style-type: none"> • Usability and user experience of e-procurement platforms • Barriers to adoption and strategies for improving user satisfaction • Comparison of satisfaction across different procurement process stages
Cluster 4	Influence of buyer and vendor satisfaction on procurement effectiveness and stakeholder relationships	<ul style="list-style-type: none"> • Impact of procurement practices on buyer, user and vendor satisfaction • Strategies for enhancing satisfaction through improved procurement processes • Role of trust and communication in supplier relationships
Cluster 5	Strategic maturity and effectiveness of e-government procurement initiatives	<ul style="list-style-type: none"> • Development and validation of maturity models for assessing e-government procurement systems • Factors influencing user perceptions and adoption rates • Best practices for enhancing system usability and effectiveness

Source: Table by the authors

4. Conclusion and implications

4.1 Conclusion

The analysis of publications on satisfaction in public procurement reveals a dynamic landscape spanning over the years. Initially, from 1997 to 2010, research growth was gradual, indicating foundational work in the field. A notable surge in publications from 2011 to 2018 signifies increased academic interest, followed by a recent decline in subsequent years. This trend suggests evolving research priorities and potential areas for further exploration within the realm of public procurement satisfaction. Regarding relevant stakeholders, key contributors to research on satisfaction in public procurement include authors such as Kalinzi, C.; Muhwezi, M.; Munene, J.K.; and Warman, G., alongside institutions like Universitas Indonesia and others globally. Leading countries in publication output include China, Indonesia, and the United States, highlighting substantial international engagement. This section underscores the diverse contributions from institutions and regions globally, reflecting a robust research community dedicated to advancing knowledge in public procurement satisfaction.

The keyword analysis unveils critical aspects such as customer satisfaction, public procurement, and e-Government, underscoring research emphasis on improving service quality and efficiency in procurement processes. Keyword clusters also highlight areas like digital transformation, supply chain management, and healthcare quality, illustrating the multifaceted nature of research interests within this domain. Moreover, bibliographic coupling analysis identifies interconnected clusters of research articles in satisfaction in public procurement. These clusters focus on themes such as the impact of e-procurement systems on internal customer satisfaction, technology's influence on individual performance, and user satisfaction with e-procurement implementation. This part provides structured insights into the thematic coherence and interconnectedness of research within the broader field, offering pathways for future research and development.

4.2 Theoretical implications

The findings from this study provide a number of theoretical implications. The study emphasises theory development and validation regarding satisfaction in the context of public procurement. The identification of thematic clusters and keyword analysis contributes to developing and validating theoretical frameworks in public procurement. For instance, clusters focusing on the impact of e-procurement systems on satisfaction validate existing theories on technology adoption within public procurement contexts (Aminah et al., 2018; Gomes & Laureano, 2018). Therefore, expanding these frameworks to accommodate new findings and adapting them to specific procurement contexts is necessary. This is crucial, as e-procurement systems continue to play a relevant role in public procurement (Aminah et al., 2018; Kit et al., 2021; Maagi & Mwakalobo, 2023; Rutatola et al., 2024).

Additionally, the study calls for more interdisciplinary integration, as there are opportunities to integrate diverse subject areas (such as social sciences, business, management, and computer sciences) represented in the literature. Synthesizing insights from these disciplines is needed to develop comprehensive models that account for the multifaceted nature of satisfaction in public procurement. This integration could foster new theoretical perspectives that bridge disciplinary boundaries, providing holistic explanations of public procurement phenomena. Networking theory could also be considered in this context, emphasizing the importance of relationships and interactions among stakeholders, such as suppliers, procurement officers, and government agencies.

The study acknowledges empirical evidence emphasizing stakeholder satisfaction, highlighting the relevance of stakeholder theory in public procurement research (Bitzidis et al., 2020b; Chagalima et al., 2021). Thus, to deepen our understanding of stakeholder dynamics, power relations, and their influence on procurement outcomes, more studies are needed to address aspects of satisfaction. Public procurement involves various stakeholders, including individual public buyers, SMEs, suppliers, public agencies, government bodies, and funders (Gidigah et al., 2022; Kit et al., 2021; Matto, 2017; Ntangeki et al., 2023). Studies should explore how different stakeholder perspectives interact and impact satisfaction levels, thereby refining applications of stakeholder theory in public procurement contexts.

4.3 Practical implications

This study provides insights into satisfaction within public procurement, highlighting several key areas for action. Public procurement practitioners should actively pursue measures such as enhancing compliance and collaborating with external stakeholders to improve procurement-related outcomes. Collaborative efforts with key players, such as suppliers and funding agencies, are crucial for ensuring the smooth conduct of procurement functions. Additionally, practitioners should consider developing and applying sector-specific guidelines and standards to address unique procurement challenges. Integrating specialized metrics for satisfaction and performance evaluation into procurement practices can help ensure that outcomes align with sectoral goals and priorities. This approach is also relevant for improving electronic public procurement systems, which have been shown to influence satisfaction in public procurement contexts. By applying these insights, practitioners can enhance procurement practices, leading to greater efficiency, transparency, and stakeholder satisfaction. Ultimately, these improvements contribute to better service delivery and increased public trust in procurement processes.

4.4 Policy implications

The main findings presented in this study provide three key policy implications for public procurement practices. Firstly, the study encourages support for international collaboration among academic communities. Policymakers could facilitate international partnerships and knowledge-sharing platforms to promote best practices and innovation across borders. This is relevant due to the involvement of multiple countries and institutions in research on satisfaction within public procurement processes, highlighting the global nature of procurement challenges and solutions. Secondly, the need to encourage research and publication diversity is paramount. This is necessary given the fluctuating trends in publication output. Policymakers could incentivize and support a diverse range of research initiatives, including fostering collaboration between different academic disciplines (such as social sciences, business, management, and computer sciences) to enrich the understanding of satisfaction in public procurement. Policies could promote interdisciplinary research funding and encourage cross-sector collaboration to address emerging issues and improve procurement practices.

Lastly, addressing sector-specific needs such as healthcare is crucial. This is relevant as the identification of thematic clusters, such as healthcare quality and environmental impact, suggests tailored approaches for different sectors. Policymakers could develop sector-specific guidelines and standards to address unique procurement challenges and optimize outcomes. This includes integrating sector-specific metrics for satisfaction and performance evaluation into procurement practices to ensure alignment with sectoral goals and priorities. These policy implications aim to leverage research insights to enhance public procurement practices, promote efficiency, transparency, and stakeholder satisfaction, ultimately contributing to improved service delivery and public trust.

5. Limitations and future research directions

Despite the fact that the study contributes to the literature on the conduct of bibliometric analysis on research publications related to satisfaction in public procurement contexts, it has some limitations worth noting. The study's reliance on the Scopus database poses a limitation. While Scopus is a comprehensive and widely used database, it may not include all relevant publications from other databases such as Web of Science and Google Scholar. This can lead to the omission of important studies not indexed in Scopus. Additionally, the search was limited to publications up to 8th July 2024, which introduces a temporal bias. Any relevant studies published after this date are excluded, potentially missing the most recent findings in the field. Furthermore, the exclusion of certain

document types, such as conference reviews, errata, retracted documents, and short surveys, may eliminate relevant data that could provide additional insights or support the findings. The data analysis method utilises specific software tools, namely VOSviewer and Harzing's Publish or Perish. Results depend on the algorithms and functionalities of these tools, and different tools might yield slightly different results or visualisations. While these tools are powerful, they may have limitations in accurately representing complex relationships and may oversimplify some aspects of the data. Lastly, bibliometric analysis, which focuses on quantitative aspects such as the number of publications and citations, may not capture qualitative nuances like the depth of insights of the research. Thus, the combination of other review approaches such as systematic literature review and scoping review may be crucial to overcome these limitations.

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