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## Public Procurement Outcomes: Aligning Process, Policy, and Impact

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### Abstract

*This analysis of public procurement outcomes research, based on Scopus data from 1976 to December 2023, provides valuable insights into the thematic structure, trends, and collaborative networks within the field. By mapping PPO's intellectual landscape, this study identifies core themes and developments in sustainable procurement, public-private partnerships, and e-procurement practices. A thorough bibliometric investigation—based on co-citation, keyword analysis, and thematic clustering—was accomplished with the software VOSviewer and Biblioshiny and brought to light linkages between respondents and institutions in relation to various research themes. The analysis of 582 Scopus-indexed publications provides a significant sense of clustering around themes such as “public procurement in construction” or “sustainable procurement,” which suggests that there is a tendency or that this is direction-specific focused on environmentally oriented, market demand, and policy-influenced procurement practices. For example, LOVE PED and CHAN APC emerged as key players with strong networks based in the UK, USA and Australia. The regional breakdown exposed variations within the research focus, which indicated disparities in policy and development concerns. During the last 10 years, the research activity in this field has drastically increased, and some manuscripts have been published in the International Journal of Procurement Management, Journal of Cleaner Production, and Public Money and Management, among others. Despite these findings, a restrictive collaboration network exists among authors and institutions, with a marked North-South divide, suggesting limited cooperation between developed and developing nations. Topic modeling revealed essential themes—innovation, corruption, green procurement, procurement contracts, and SMEs—providing a foundation for future research directions that emphasize enhanced international collaboration, green procurement impacts, and nuanced policy analyses across various levels.*

*Keywords: Public Procurement Outcomes, Sustainable Procurement, Policy Impacts, Sustainability, Digital Transformation, Cross-sector Collaboration*

### Introduction

Public procurement outcomes (Liu, Ma, Appolloni, & Cheng) are one of the significant indicators on how to view the performance of the government with respect to its expenditure as well as the procurement process as it relates to economic, social, and environmental objectives. Defined as the results achieved through public procurement activities, PPOs comprise value for money in the procurement, quality of goods and services procured, fairness in the procurement processes, and even satisfaction of chosen policy objectives like environmental protection and social justice (Kajimbwa, 2023; Klingler, 2020). It is easy to see why these effects matter, as public purchasing accounts for a substantial share of government spending around the world, around 10–15 percent of GDP in most cases, see: Bosio, Djankov, Glaeser, and Shleifer (2022); Fazekas and Blum (2021); Petersen, Jensen, and Bhatti (2022).

Research in PPO showed that effective procurement outcomes are contingent on a number of

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elements, such as regulation, competition in the market, and the institutional framework (Sönnichsen & Clement, 2020). Other studies explain the need for enabling legal frameworks and competition in procurement in order to achieve desirable procurement outcomes (Cheng, Wang, Zhang, & Zhao, 2024). For instance, transparent bidding and competitive tendering along with proper control and audit of procurement ensure that public procurement is less corrupt and more accountable, thereby ensuring the taxpayers get good value (Mabillard & Zumofen, 2021). Furthermore, the increasing digitization of public procurement holds some promise in improving outcomes through efficient processes and lower administrative costs, though challenges still exist, particularly in under-resourced environments (Saeed, Kohler, Cuomo, & Mackey, 2022).

Another emerging area of interest in public procurement office studies is the use of public procurement to achieve government policy objectives,... for example, environmental protection, social concerns, and economic resilience (Wu & Tham, 2023). For example, the sustainable public procurement (SPP) policies aim at making buying decisions that have low environmental costs while also achieving social goals, such as employment of fair labor practices. This has caused governments to start implementing sustainability provisions for the evaluation of tenders, thus integrating public expenditure into a wider policy framework (Miller & Lehoux, 2020). Studies have suggested that SPP can lead to the creation of positive economic and social externalities that, when combined with the parental development goals, lead to the realization of sustainable development goals while addressing pressing needs such as the lack of access to food and increased pollution, among others (Yue, Wu, Wang, & Guo, 2021).

The interdependence of competent governance structures and capacities, however, suggests how complicated it is to achieve positive procurement outcomes. Considerations like the knowledge of procurement officers, adherence to policies and procedures, and integration of relevant parties are very important to achieve satisfactory PPOs (Prior, 2021). These elements, in fact, can be the reason as to why public procurement targets are not achieved, which in turn breeds wastages, cost overshoots, as well as the absence of expected economic and social benefits. Hence, there's been a growing focus of governments towards strategic federal procurement and enhancing procurement agglomeration from other sectors as well (Tan, Teng, & Teng, 2024).

Therefore, the context of public procurement of late has been shifting, and there is an urgent need to expand the horizons of understanding of how PPOs work and what influences them. This study utilizes the structure equation modeling technique, including a bibliometric style analysis, in order to assess key developments, dominant subfields, and major authors in the area of PPO from the year 2000 to the present. This study will identify the major determinants and constraining factors that lead to successful POR outcomes. It is anticipated that these insights would assist public policy makers, practitioners, and scholars in a more strategic way to improve the processes of procurement in order to achieve maximum social, economic, and environmental outcomes.

## **Literature Riview**

Public procurement outcomes include effectiveness, equity, policy compliance. Among scholars, there is a broad interest in the issues of effective public procurement since the rising importance of public procurement in promoting economic growth, social and environmental goals. One such study was done by C. Wang, Qiao, and Li (2020) and they emphasize on the fact that transparency and competition are fundamental in enhancing the value of public procurement arguing that open bidding practices reduce concentration of competition and corruption and promote competition among vendors. These observations stress the necessity of legal rules which require the use of

public procurement methods that are open to scrutiny and thus strengthen the responsibility of government spending.

The literature places great emphasis on the enhancement of the institutional capacity towards attaining favorable PPOs. In its place, the Nantongo, Kalubanga, Ntayi, Bagenda, and Nyakeishiki (2024) asserts that there are better placed institutions with procurement competent staff and supervision mechanisms in place to yield better results. In their view, it is central to 'overhauling' procurement systems to include such things as training of procurement officers and upgrading of technological systems to enhance efficiency and accountability in other phases of the procurement cycle. Also, the study has identified the communication of procurement as one of the significant factors in achieving the desired objectives of procurement. The authors Raghul, Jeyakumar, Anbuudayasankar, and Lee (2024) e-procurement is an ideal solution because it simplifies processes and procedures, reduces costs and increases transparency but warns such advantages depend on adequate regulation and involvement of stakeholders.

An important developing theme in the research literature on PPOs is the incorporation of social and environmental requirements into purchasing processes. Sustainable public procurement (SPP) has emerged as a strategic means in addressing global problems like the fight against climate change and social inequalities by taking the environmental and social factors into account during purchasing decisions (Al Ahmari & Brika, 2025; Lindgreen, Antico, Harness, & Van der Sloot, 2009; Paliwoda, Matuszak-Flejszman, & Ankiel, 2024). The empirical evidence indicates that SPP is instrumental leading to environmental and economic benefits through the utilization of green products and services and the development of local industries. Nevertheless, as Pouikli (2021) point out, achieving these goals depends on appropriate policy frameworks, enforcement mechanisms, and engagement of relevant actors to ensure compliance of procurement practices with sustainability principles.

The respective economic condition under which procurement takes place is one of the factors that determine the performance of PPOs besides the legal and regulatory and institutional frameworks. For example, Benton Jr (2020) noted that procuring entities located in countries which have stable and competitive markets are able to perform better in their procurement as they have more suppliers and are able to obtain products at variable prices. On the other hand, in a monopoly or underdeveloped market, government bodies can be faced with a limited number of suppliers, but the price will be higher, giving rise to the inefficiency of the procurement process. This economic dimension indicates that procurement policies are designed to address the specific characteristics of the local market in order to enhance performance.

According to Eckersley, Flynn, Lakoma, and Ferry (2023), working with international institutions as well as importing concepts from other countries can enhance the impact of a country's procurement policies. For instance, organizations like the World Bank and the European Union have promoted standardized procurement frameworks that enhance efficiency and transparency. Liu et al. (2021) emphasize that international standards can be helpful; however, they are not sufficient and must be modified to the local political and social extend in order to be applied satisfactorily.

Hsueh, Bretschneider, Strich, and Darnall (2020) funding a large number of documents, that special purpose progressive procurement policies that enhance the involvement of SMEs may trigger economies especially in the developing areas. These policies are shown to increase access to government contracts for SMEs, which in turn fosters job creation and economic resilience.

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There still are however, problems, for some SMEs do not tend to compete in public procurement markets because of the substantial tender requirements and the lack of information.

To begin with, it should be noted that the measurement and evaluation of PPOs have not been simple tasks. Though metrics have been suggested such as cost savings or procurement cycle times as well as assessing supplier performance, literature suggests that a more comprehensive view encompassing qualitative factors such as stakeholder satisfaction and the achievement of strategic policy objectives is warranted. Some researchers suggest that various forms of the Multi-dimensional Trade-Off Model would be appropriate in this situation (e.g., (Zupic & Čater, 2015)). Such frameworks may encapsulate the total picture as far as procurement effectiveness is concerned and thus allow policy makers to adopt the research evidence approach and enhance procurement practices.

Bibliometric analysis has not only helped to map the intellectual landscape of public procurement research, but it has also provided methodological advancements in the field. N. Van Eck and Waltman (2010) introduced the VOSviewer software for bibliometric mapping, which has become widely used in procurement research. VOSviewer allows researchers to visualize relationships between research themes, authors, and institutions, offering a clearer picture of how knowledge evolves within the field.

Aria and Cuccurullo (2017) developed the Bibliometrix R package, another essential tool for conducting bibliometric analyses. This tool enables researchers to analyze citation patterns, co-authorship networks, and thematic evolution in public procurement research. These tools have significantly advanced the methodological rigor of procurement studies, allowing for more nuanced insights into the field.

Bibliometric perspectives on public procurement outcomes have significantly advanced our understanding of this critical area of public sector management. Foundational works by scholars such as Thai (2001), Knight et al. (2012), Arrowsmith (2010), and Telgen, Harland, Knight, and Thai (2007) have laid the groundwork for much of the current research. In parallel, bibliometric reviews by Anthony Flynn and Davis (2014), Eadie, Perera, and Heaney (2011), and Johnson (2011) have structured the analysis of key themes and trends in public procurement. So, the future of public procurement research is likely to focus on strategic procurement, innovation, and sustainability. As governments increasingly recognize procurement as a tool for achieving broader policy objectives, researchers will need to explore how procurement can adapt to shifting economic, technological, and social conditions. Topics such as artificial intelligence, blockchain technology, and global economic trends like protectionism and trade liberalization will likely shape future research on public procurement.

This bibliometric analysis's objectives and contributions go beyond a retrospective examination of public procurement outcomes research. They aim to provide actionable insights, facilitate informed decision-making, and inspire a new generation of scholars to contribute meaningfully to the dynamic and vital field of public procurement. As a result, the study's research objectives are as follows:

- RQ1. Which keywords appeared the most frequently in Public Procurement Outcomes published in the Scopus database?
- RQ2: Which authors are most mentioned in Public Procurement Outcomes published in the Scopus database?

- RQ3: Which documents and sources are most cited Public Procurement Outcomes published in the Scopus database?
- RQ4: Which nations are most interested in seeing Public Procurement Outcomes published in the Scopus database?
- RQ5: Which institutions are most interested in Public Procurement Outcomes published in the Scopus database?

## Materials and Methods

Research methodology is a systematic approach and technique used in conducting a study or investigation, including the overall design and data collection processes. Bibliometrics, a statistical technique within library and information science, is essential for examining scholarly literature across various forms, such as books, papers, and other written materials (De Bellis, 2009). Scientists have developed bibliometric studies to document and assess their outputs in response to the evolving landscape of research and journal publication indices. This approach evaluates the caliber and significance of research domains by analyzing citations in scientific articles or books. The frequency with which scholarly works cite academic writings serves as a gauge of their quality (Said Khalfa Mokhtar Brika, Chergui, Algamdi, Musa, & Zouaghi, 2022; Campbell et al., 2010). Moreover, bibliometric investigations can identify prominent keywords and authors, as well as the associated topics under discussion.

Scopus is a widely recognized bibliographic database that indexes a broad spectrum of peer-reviewed literature across various scientific disciplines. As noted by Said Khalfa M Brika, Algamdi, Chergui, Musa, and Zouaghi (2021); Shah and Mahmood (2017), Scopus provides extensive coverage of scholarly outputs, including articles, conference papers, book chapters, and reviews. Researchers particularly value it for its comprehensive indexing of both international and regional journals, which provides access to a diverse range of scientific studies.

Scopus's capacity to facilitate detailed analysis of scientific literature through its robust indexing and citation tracking capabilities underscores its relevance in bibliometric research. Researchers can query Scopus according to numerous criteria, including subject area, author, keyword, publisher, year of publication, affiliation, and country, which makes it highly suitable for conducting nuanced bibliometric studies. The database's comprehensive coverage and advanced search functionalities make it an invaluable tool for examining trends and patterns in research output over time (Chen & Song, 2019).

The use of Scopus in bibliometric studies provides several advantages, including a broad coverage of disciplines and a large volume of indexed content. As highlighted by Pranckutė (2021), Scopus includes a significant proportion of non-English language journals and publications from emerging economies, making it a more inclusive database compared to others like Web of Science. This inclusivity is particularly beneficial for interdisciplinary research fields, such as public procurement outcomes, which draw from a wide range of disciplines and geographical contexts. Also, Scopus's comprehensive dataset allows for various types of bibliometric analyses, including citation analysis, co-citation analysis, bibliographic coupling, and co-authorship analysis. Each of these methods provides unique insights into the structure and dynamics of a research field. For instance, citation analysis identifies influential works and authors by counting the number of times others have cited a publication. Co-citation analysis reveals the intellectual structure of a field by analyzing the frequency with which subsequent

publications cite two documents together (Zhao & Strotmann, 2011).

This study used VOSviewer, a specialized software for constructing and visualizing bibliometric networks, to analyze the bibliometric data retrieved from Scopus. VOSviewer allows researchers to create visualizations based on co-citation, bibliographic coupling, co-authorship, and co-occurrence data. The software is particularly adept at handling large datasets and producing clear, interpretable visualizations, which are essential for identifying patterns and trends in scientific literature (N. J. Van Eck & Waltman, 2014). Additionally, Aria and Cuccurullo (2017) used Biblioshiny, an extension of the Bibliometrix R package, to provide a user-friendly interface for conducting comprehensive bibliometric analyses. Biblioshiny supports a wide range of analyses, including citation analysis, thematic evolution, and network analysis, making it a versatile tool for bibliometric research. These tools enable researchers to map the intellectual structure of a field, identify emerging trends, and explore the evolution of scientific topics over time.

Database selection to collect high-quality data was the first step of this bibliometric analysis. This study used several previous bibliometric and systematic studies as references, including those by Rejeb, Rejeb, Appolloni, and Seuring (2024), G. Kabra, S. K. Srivastava, and V. Ghosh (2023), Changalima and Mchopa (2024), L. Wang, Song, Yang, and Han (2024), and Garcia Cardoso, Ragnini Picoreli, dos Santos Arenas, and Prestes de Souza (2023); however, the area of analysis differed, and this study utilized Scopus for data collection. Data extraction and filtering were the next steps. This paper employed the search strategy developed by Green and Green and Lawson (2020) and Harrison and Martinez (2019), using the following retrieval string: PPO = 'public procurement outcomes'. The search was conducted in April 2023, thus covering the period from 1976 to December 2023.

This search uses the keyword "public procurement outcomes" in the title and abstract and author keywords to obtain data from the Scopus database. Data extraction was limited to annual data to obtain complete published data for twelve months each year. Table 1 (Appendix) shows the main information about the selected sample.

The data extraction process used the following search query option: Title-ABS-KEY (public AND procurement AND outcomes) AND PUBYEAR > 1975 AND PUBYEAR < 2024 AND (LLIMIT-TO (LANGUAGE, "English")) AND (LLIMIT-TO (SUBJAREA, "SOCI") OR LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "ENGI") OR LIMIT-TO (SUBJAREA, "ECON" OR LIMIT-TO (SUBJAREA, "ENVI") AND (LIMIT-TO (DOCTYPE, "ar") OR LIMIT-TO (DOCTYPE, "cp") OR LIMIT-TO (DOCTYPE, "ch") OR LIMIT-TO (DOCTYPE, "re"))) and retrieved 582 publications. This study retrieved Scopus results metadata in CSV dataset format.

The literature was restricted to articles, conference papers, book chapters, and reviews, as these publication types generally provide significant and high-quality research (Siddaway, Wood, & Hedges, 2019). An initial list of 1,171 publications resulted from this search. Titles, abstracts, and keywords in these records were verified manually to exclude irrelevant publications (Bengana, Brika, & Mili, 2025; Rathbone, Hoffmann, & Glasziou, 2015). This data-cleansing procedure eliminated 589 documents without a clear connection to public procurement outcomes. The final bibliographic dataset contained 582 records, which were used for analysis. The research framework applied in the study is presented in Figure 1.

This study uses bibliometric methods from the perspective of domain and intellectual structure.

Data were collected from 1976 to 2023 from information sources in the Scopus database. The use of the Scopus database in this study was determined by considering the productivity of publications by researchers and institutions. In addition, this function calculates the number of annual publications, publication citations, subject area, and document sources. To search for relevant papers in the Scopus database worldwide, this study identified the primary keywords related to research on public procurement outcomes.

By utilizing bibliometric analysis techniques and strategies, the research employed five key methods, including co-occurrence, citations, co-citations, co-authorship, and bibliographic coupling, to establish the necessary networks, overlays, and densities for revealing the most notable authors, references, research institutions, and countries in the field of PPO studies, as demonstrated by the publications available in the Scopus database. To carry out this analysis, the study utilized software tools such as Biblioshiny from Rstudio and VOSviewer, as noted by Zupic and Čater (2015).

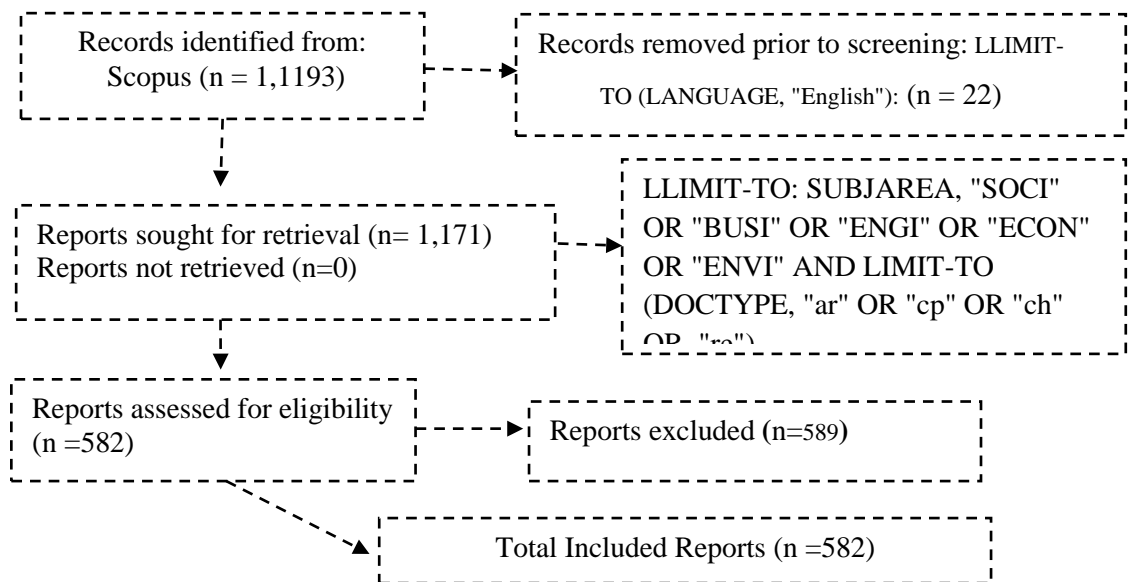


Figure 1. Flowchart of documents selection

## Results

### Keywords' Analysis Results

The annual distribution of public procurement outcomes research publications reflects their development status, knowledge accumulation, and maturity. The first article was published in 1976, and recent years have seen exponential growth.

Research on public procurement has been on the upward trend for the last couple of decades, which is indeed justified by Kristensen, Mosgaard, and Remmen (2021), who claim that there is a growing interest in the policy of procurement in addressing socio-economic concerns. In general, the overall research output still suggests that the study of public procurement progresses in distinct phases, from its outset to its current developmental period, which is characterized by the growth of the number of publication documents per year. According to the data sets analyzed

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in the Scopus database, studies on public procurement outcomes have been authored in four successive phases, which include the initial stage, developmental stage, maturity stage, and growth stage.

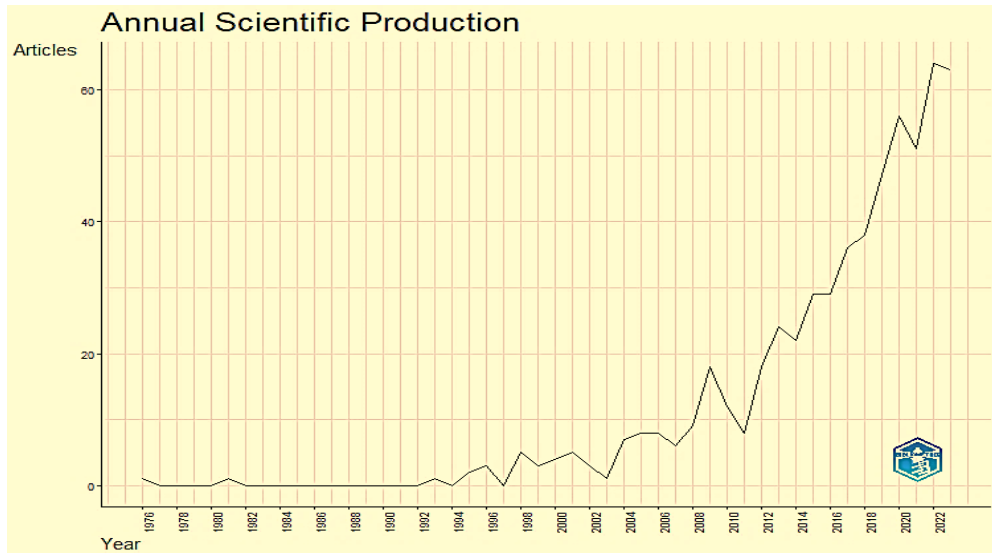


Figure 2. Annual scientific production

#### **Initial Stage (1970–1995):**

The period of 1970-1995, which is the initial phase of the public procurement outcomes research, is the timeframe when the strive to achieve public procurement outcomes was quite a remote topic with not more than a few writings made over the years. As can be depicted in Fig. 2, for an average of 2 documents a year in the growth rate towards this definitive study, the total worded material on this subject-up to law and politics was less than 50. The year 1995 also recorded a bad day, with sparse concentration on the studies being the order of the day. This stage is also marked by very limited research on public procurement, which was an emerging field within the wider discipline of public administration. It's worth mentioning that time spans of inaction around publications were detectable during those years, and this can be taken as a particular sign of the early and chaotic nature of this area.

#### **Developmental Stage (1996–2005):**

Between the years 1996 and 2005, a new interest emerged in the field, and research on public procurement outcomes started the developmental stage best characterized by an increase in publication activities. During this era, there was an average of six documents published in a year, with some years being able to peak at 15 publications in a year. In this period, there were 100 total documents completed and published, which indicated that the academic discipline was indeed expanding. Such research topics of this stage started to crystallize around such subjects as procurement reform, transparency, and governance (Elvira Uyerra, Edler, Gee, Georghiou, & Yeow, 2014). The boost in the number of publications can be explained as the formative stage in the development of the body of knowledge during which public procurement was established as



an important aspect of public policy and governance.

#### Maturity Stage (2006–2015):

Between the years 2006 and 2015, which is the maturity stage, there was a decline in publication numbers in comparison to the developmental stage. Even though there was fluctuation in the number of annual documents, during this period an approximate 10 documents were produced on a yearly basis. Ideas started becoming consolidated, and research themes in this public procurement outcomes research stage underwent a degree of consolidation and changes. The overall number of publications reached 90 documents, and although this figure was not as high as expected, the studies started becoming focused on specific issues such as corruption and sustainability of procurement practices (Raymond, 2008). In this stage, the studies were no longer exploratory but rather focused on the analysis of specific procurement outcomes.

#### **Growth Stage from 2016 to 2022:**

The growth stage starting in 2016 saw an increase in the number of studies regarding public procurement outcomes. The number of publications grew significantly to an average of 25 documents every year. A high was achieved in 2021 with 45 documents published, mainly owing to the upsurge care on procurement activities as a result of the COVID-19 pandemic (Hamilton, 2022). The nondecreasing trend during this phase corresponds to the growing dependency and role of procurement in the resolution of fundamental worldwide problems such as the one concerning health security, environmental sustainability, and economic recovery. There has been a constant increase in publication activity during the growth stage, with the majority of the current research directed towards the implementation of more sophisticated procurement tools such as GPP and innovation procurement.

The volume of publication documents per annum regarding public procurement outcomes shows quite clearly the history and the stage that this area of knowledge is in, from neophytes now to an era of very fast growth. In the last few years it has also been the case that there was both enhanced scholarly focus as well as increased output towards this area; this has been as a result of more visibility of public procurement as an instrument with utility for many wider public policy aims. The bibliometric analysis conducted herein is helpful in contextualizing the evolution of the public procurement research and brings out the major events and their implications that have marked the evolution of this area of scholarship.

Figure 3 showcases the most frequently recurring words in a range of studies and investigations pertaining to public procurement outcomes.

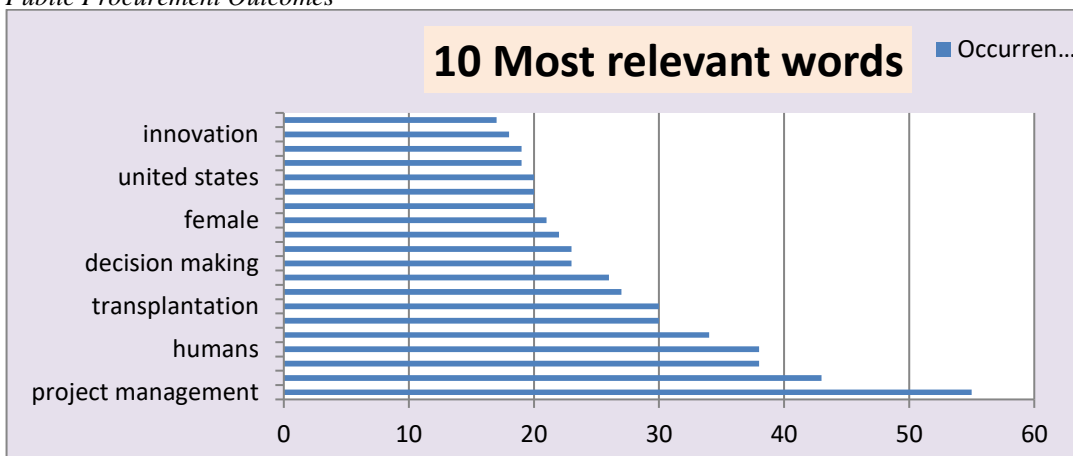


Figure 3. 10 Most relevant words

A bibliometric examination of public procurement outcomes assessments presents issues based on the use of keyword links among different publications as an area of research topic mapping. This entails the setting of a keyword-based framework for the purpose of creating publication theme maps and making use of the VOSViewer program for analysis and visualization purposes (N. Van Eck & Waltman, 2010). For the present study, thematic analysis of the texts was conducted by identifying keywords and setting a minimum occurrence of five occurrences for a word to be included in the analysis in order to minimize noise in the analysis. Also, the minimum number of keywords for each cluster was set at five. Consequently, out of a total of 3561 keywords, 174 keywords qualified out of the set threshold and were able to form clear thematic clusters (6 clusters), which cut across the intellectual framework and the major focal points in the study of PPOs.

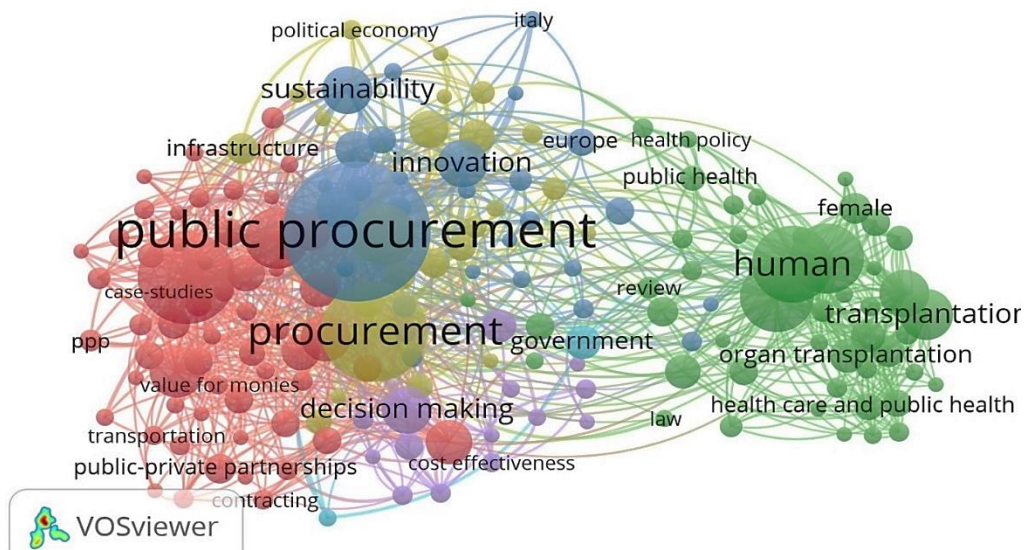


Figure 4. Network of keywords

Figure 3,4 and Table 2 (Appendix), provides a list of the most important keywords appearing in research that highlights public procurement outcomes. It is fascinating to note the trends in the field. “Project management” (55 occurrences), which is the most commonly stated term, is understandable since it is important for the completion of the public procurement projects. As Kundu and Roy (2020); Ruth (2023) note, project management is indeed important in the framework of the public procurement process, especially for megaprojects, where it makes sure efficient use of public funding and achievement of the defined time, cost, and quality parameters of effects is realizable. The context is well defined. In this regard, the frequency of public procurement (34 occurrences) and procurement (20 occurrences) commensurates with the anticipated focus of research in this area. Having noted previous links, these terms underline the significance of procurement in the management of the public sector and its relationships with other sectors like construction and infrastructure. Similarly, Nelson and Woods, it appears, have also identified public procurement as an enduring theme within governance studies, with the bulk of the studies looking at procurement processes in terms of their efficiency, transparency, and accountability (Nelson & Woods, 2015).

It’s very interesting that some of the key words that appear in the documents include “tissue and organ procurement,” which appeared 23 times, as well as the terms “organ transplantation or transplantation,” which recorded 30 and 27 occurrences, respectively. This supports the notion that there is a growing interest in healthcare-related procurement where ethical and procedural issues are crucial. The expansion of the term ‘health care and public health’ to 20 occurrences also goes along with this trend, as it shows that there is a growing focus in research on how to procure services in the health sector, such as organ transplantation, which is a critical area. The frequent use of the word “human” (frequently used 43 times) as well as the words “humans” (which were used 38 times) on many occasions also provide insights with regards to the issues of ethics as well as medical considerations that abound in relation to healthcare procurement.

A 26-time occurrence of the term "public-private partnerships" suggests the need for further investments in the research, as it implies that there appears to be a growing trend towards more collaborative approaches in executing public procurement projects between the public and the private sector. Green and Lawson (2020) emphasized that such partnerships are important in overcoming procurement barriers, in particular, in the construction of facilities, since the private sector usually has the required knowledge and also finances the projects. Some of the other issues that have emerged include the increasing occurrence of terms such as "innovation" (18 occurrences) and public policy that was mentioned 19 times, which indicate a wider area of focus determining how procurement processes and practices can be transformed and integrated to enhance policy objectives in terms of technology and policy objectives.

Figure 5 illustrates the current themes within the realm of public procurement outcomes and the history of the development of research areas. For instance, in 1995, the authors coined the terms “health care rationing,” “treatment outcome,” and “organ transplantation” in 1998. These terms serve the purpose of highlighting the importance of procurement in the healthcare industry, where ethical, legal, and procedural issues such as “medical ethics” in 1998 and “patient selection” in 1995 are important. This resonates with the work of Segev and Israni (2018), which indicated procurement to be important in organ donation, and the difficulty of procurement posed several issues, including any problems relating to ethics as well as logistics.

At the same time, at the later stages (2002 and subsequent years), there appears to be a shift

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towards expanding discussions on governance and policy-related topics. The increasing focus on terms such as “public policy” and "government," as well as the practice of public-private partnerships, exemplifies the growing concern with the efficiency of the public sector and its intersection with procurement practices. This agrees with Nelson and Woods (2015), who remarked on the broadening view of public procurement as a component of strategic policy implementation to be applicable in instances of public-private partnerships aimed at enhancing value for money.

Another tendency is the environmental awareness, indicated with "sustainable economic growth" (2017) or "sustainability" (2018). This is consistent with Green and Lawson (2020) findings, who also regarded sustainable procurement as one of the key issues at the global as well as local level, as it has started to emerge out of the need to integrate procurement practices with environmentally responsible and socially beneficial policies.

Other tendencies that are said to be recent include “uncertainty” (2022) and “risk assessment” (2019), which imply that the area is now tackling the issue of conducting procurement in volatile and intricate settings. Such a focus is timely considering the fact that at present, the world seems to be so dynamic and the current economics and politics are able to add much to the various results of the procurement function.

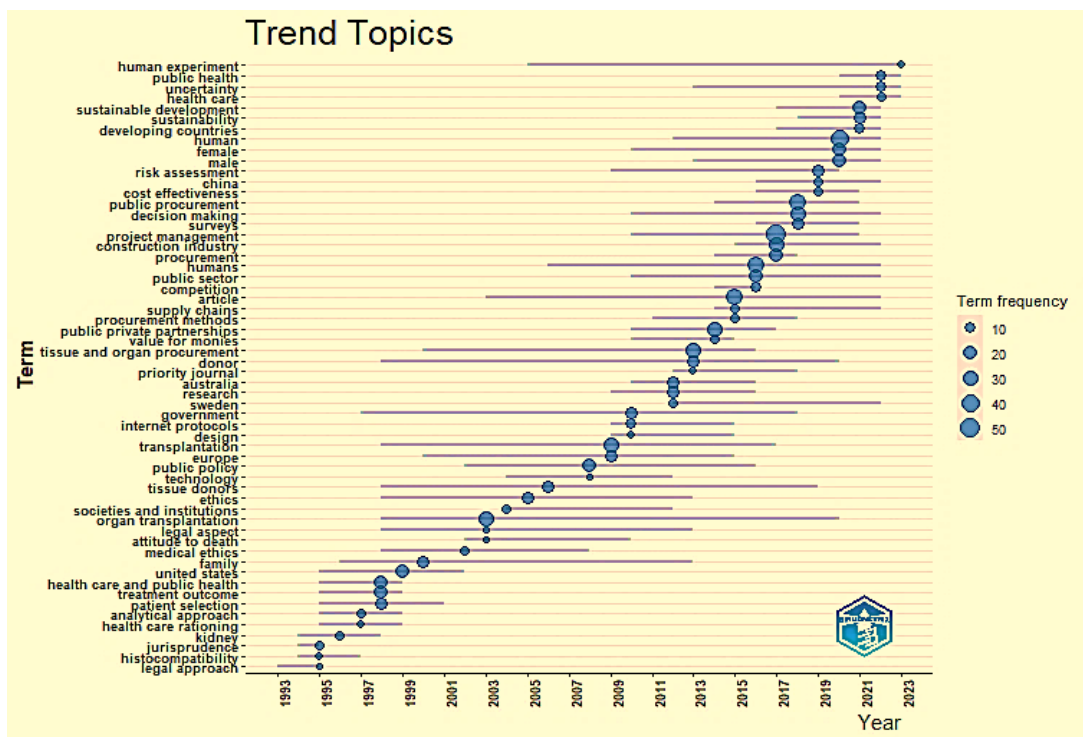


Figure 5. Trend topics

Authors' Analysis Results

According to the number of articles they have published and their fractionalized article counts, Figure 6, which lists the most pertinent authors in a dataset, highlights those who have made

significant contributions to the field, presumably related to public procurement outcomes.

The Most Relevant Authors figure offers insight into the people who have published the most in the area of public procurement outcomes. Among those writers is LOVE PED with 7 articles, which have a fractionalization count of 2.033; CHAN APC, who has published 5 working pieces with a fractionalized count of 1.241; and REGAN M, who has also published 5 working pieces but has a fractionalization count of 1.533. The frequency at which these authors publish shows how able and willing they are to push the boundaries of research on public procurement, and the fractionalized counts show how much more one author collaborates on different papers.

The sheer number of publications submitted by LOVE PED also indicates that they have stronger chances of influencing the direction in which PPO research takes, as was observed in other bibliometric studies where the majority of the prolific authors tend to dominate the research agenda (Nelson & Woods, 2015). In the same fashion, neither is the contribution made by CHAN APC and REGAN M to the goal of this paper off the mark considering the past research that points them out as major contributors in the fields of procurement management and project results. As Green and Lawson (2020) observed, the participants in public procurement research usually cluster around certain key individuals.

In addition, the presence of authors such as DUFFIELD C and JEFFERIES M, each responsible for writing 4 articles, enhances this collaborative aspect of the field since a few select individuals are responsible for a great deal of knowledge production. This assertion is in line with the literature on research collaboration in public sector projects, which predominately stresses the influence of certain academic networks over the research output Kundu and Roy (2020).

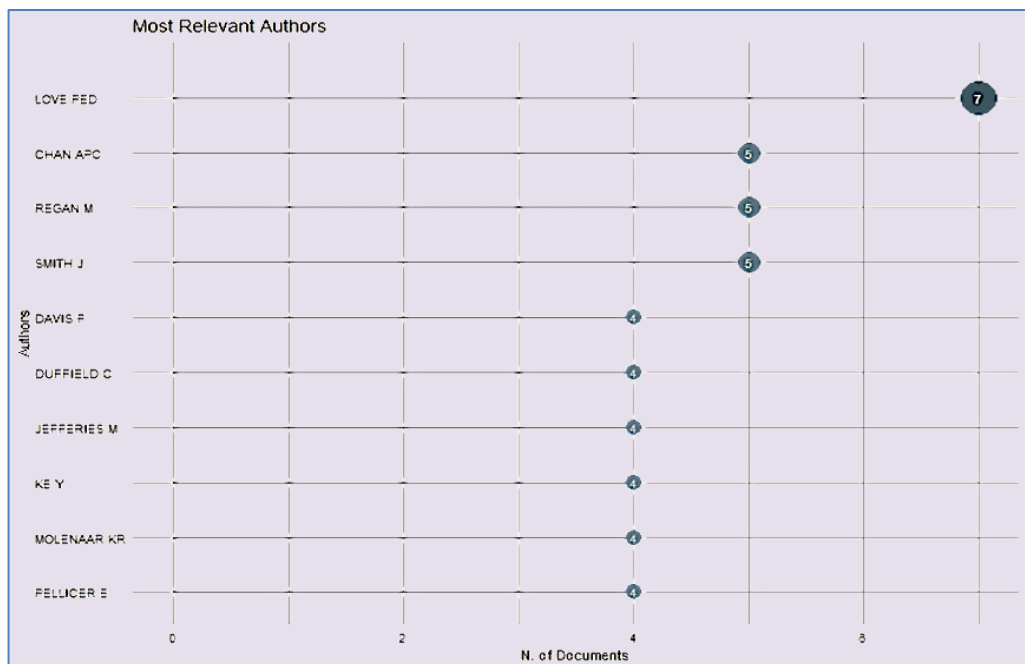


Figure 6: Most relevant authors

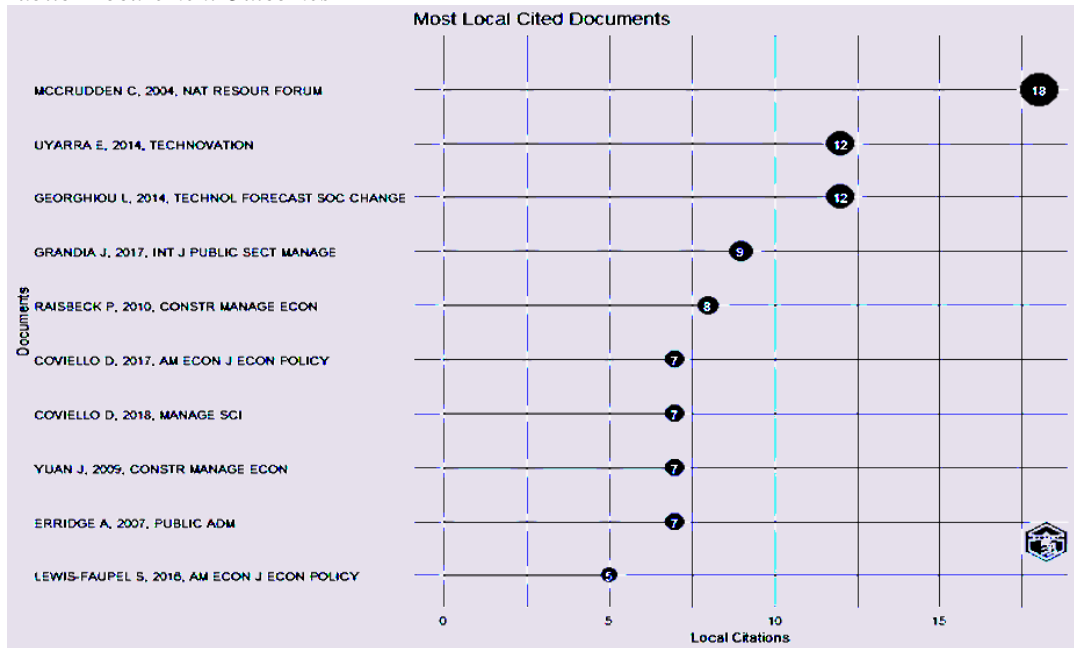


Figure 7. Most local cited authors

Figure 7, Most Local Cited Authors, outlines the analysis of authors who are more likely to be cited in public procurement. For instance, McCrudden ( 2004) has 18 local citations, while E. Uyarra, Edler, Garcia-Estevéz, Georghiou, and Yeow (2014) has 12 of the same, which suggests that these are important individuals as their work largely shapes the local research on public procurement. Furthermore, the global citation counts reinforce that these authors are recognized widely in their field, with McCrudden being cited 350 times and Uyarra being cited 242 times globally, which shows that their research has an impact outside of the local area.

This trend confirms the bibliometric pattern whereby key publications not only stimulate the academic discourse on a specific topic in the region where the research was carried out but spread to other regions of the world and impact the pattern of research within the field. Therefore, McCrudden’s post on resource forums as well as Uyarra’s article on acquisition practices are excellent sources, as understanding the global and national citation trends helps to reveal the primary sources and researchers relevant for public procurement.

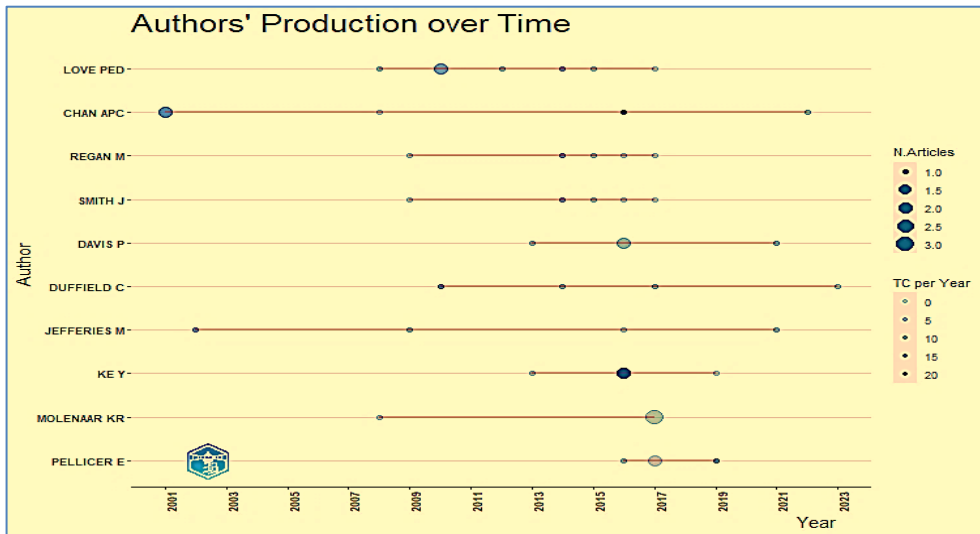


Figure 8. Authors' production over time

Figure 8 shows us the authors' production over time. The contributions of different authors concerning the public-private partnership and procurement research are considered. Mentioned are also Love PED, who was active for several years in publishing, including the year 2010, with a well-cited paper entitled Price Competitive Alliance Projects that got 104 citations, and Chan APC, who made a great number of contributions, one of which was Design and Build Project Success Factors published in 2001 and got 227 citations. Too, NRC-M and Smith J regularly have published works in PPP, procurement, and also in the finance of infrastructure, which indicates the freshness of ideas and their relevance in the research works in the above-mentioned areas.

Such cycles of publications demonstrate growing tendencies in the sphere of procurement research, as researchers are 'building on what has been done' and simultaneously attempting to address new practical issues through new concepts, frameworks, and project delivery systems, especially for public infrastructure and private investment.

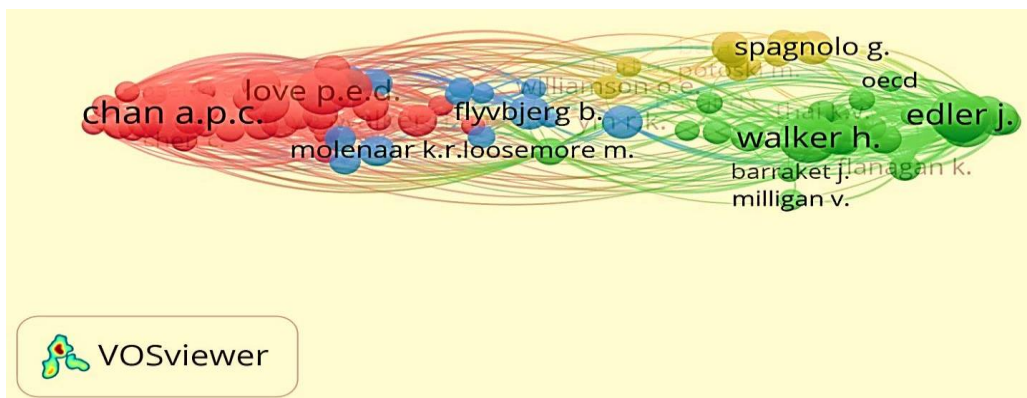


Figure 9: Authors' network

In Figure 9, which shows an authors' network associated with the Public Procurement Outcomes research, some authors are regarded as major contributors by virtue of their citation counts, which indicate their position and affiliations within the field. So, Chan, A.P.C. (126 citations, 3684 total link strength) and Zhang, X. (63 citations, 1591 total link strength) appear to dominate the network as a result of the public procurement and other recessed works they have been able to achieve through networking and research. The significant total link strength indicates that these writers are not only more creative writers but also more doers who collaborate with other major authors in order to influence the course of events in the field of PPO.

In the same vein, Smith, J. (59 citations, 1479 total link strength) and Peach, P.E.D. (83 citations, 1839 total link strength) are also among the authors with good publications on enhancement of public sector projects, especially in relation to project management and procurement processes. The sheer number of their citations indicates the magnitude of the relevance and significance of their work, which has been cited and acknowledged by numerous other researchers. This view is further substantiated by high values of LIN proxies, which point to a high degree of inter-collaborated agreements.

Other eminent participants, such as Edler, J. (92 citations, 1819 total link strength) and Georghiou, L. (77 citations, 1594 total link strength), are also important in the network. Their studies, which may focus on innovation and procurement policy, show or highlight the way procurement results relate to other concerns, such as policies of innovation and public sector reform. This cross-cutting perspective significantly expands the boundaries of PPO research and appeals to a number of the fields of academic interest.

The inclusion of authors such as Akintoye, A. (46 citations, 948 total link strength) and Coviello, D. (31 citations, 227 total link strength) suggests that there is an interest in public-private partnerships and procurement efficiency, which are key in improving the outcomes of public procurement. Their relatively lower citation counts than the most cited authors do not take away their relevance because their total link strength implies that they are connected to many others in their fields.

### **Sources and documents analysis results**

There is a wealth of references and sources available on the public procurement outcomes, but the most relevant ones are highlighted below.



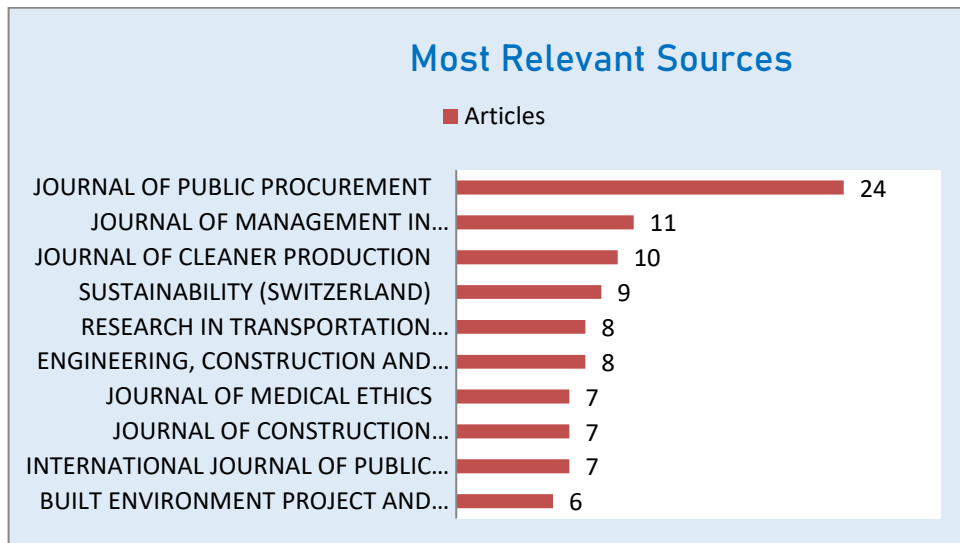


Figure 10. 10 Most influential sources publishing PP outcomes

Figure 10 and Table 2 (Appendix) highlight the 10 most influential sources publishing public procurement (Liu et al.) outcomes, and it reveals several important trends within the academic landscape. The dominance of the Journal of Public Procurement, which leads with 24 articles, is highly consistent with its role as the leading outlet for research in this field. Per Nelson and Woods (2015), this journal serves as an important outlet for those studying reforms in public procurement, governance, and the effects of procurement in different spheres. Nelson & Woods (2015) reported that this source is unmatched in prominence among the ultimateness category, only that it is expected from the position in which it is ranked.

This shift in the research emphasis to sustainability in public procurement is evidenced by the presence of articles in broad-based journals such as Sustainability (Switzerland) and Journal of Cleaner Production with 9 and 10 articles, respectively. Green and Lawson (2020) argue that in the last decade, there has been more talk around these practices as a result of increased concern for the environment and the quest for a sustainable green public procurement environment. Their inclusion of these journals also increasingly stresses the need for consistency between publicly funded procurement strategies and the general objectives of sustainable development. On the other hand, the Journal of Medical Ethics has 7 articles, which is rather surprising since it deals with ethical issues in healthcare and not procurement processes. Undoubtedly, also in healthcare, there are ethical aspects of public procurement, but its being among the 10 top sources is a rare occurrence. This appears to suggest either limited interest in ethical issues in procurement practices or particular issues of procurement in the medical field.

Previous research by Harrison and Martinez (2019) identified policy- and governance-focused journals as the dominant sources in procurement research, which suggests that the inclusion of a specialized ethics journal may reflect a specific subfield or emergent topic rather than a broad trend. The integration of construction and engineering journals such as the Journal of Construction Engineering and Management and Engineering, Construction, and Architectural Management is consistent with the already well-supported, unobstructed position of public

procurement in infrastructure projects. As stated by Kundu and Roy (2020), public procurement is fundamental in the strategic operational management of mega public works projects due, [...] in most cases, to the engineering and/or construction nature. The 8 and 7 articles published in these journals confirm that procurement research is essential to improving project delivery, contract management, and ensuring value for money in these sectors.

In addition, the appearance of *Research in Transportation Economics* with 8 articles highlights the sectoral specialization within procurement research. Public procurement is critical in the control of expenditures and the realization of set public policy objectives when dealing with transportation infrastructure. As indicated by Nelson and Woods (2015), there are also transportation construction sectors where public procurement research seems to cross over into.

Interestingly, however, there is an unexpected prevalence of journals related to areas not traditionally associated with public procurement, such as the *Journal of Medical Ethics* and the *Journal of Construction Engineering and Management*. It's rather interesting to note, however, the outcome of public procurement, which one would expect typically to be dominated by journals that are governance and policy-oriented. Healthcare in particular seems to be a special focus, especially in those areas that are ethics sensitive, such as the procurement of medical supplies or organs for transplantation. A particular accent might help explain such phenomena with respect to medical ethics, such as the *Medical Ethics Journal*, for instance, which has 7 articles in print. Overall, it would suggest that healthcare as a sector is increasingly seeking to add its voice, albeit every other sector's voices remains intact, to the policy discourse around public procurement. One can infer this outcome to the critical role that procurement is known to play in this sector, explaining perhaps the coexistence of medical ethics, procurement, and other issues in journals.

As much as this seems to be true, there are still some journals, for instance, the *Journal of Public Procurement* or the *Journal of Management in Engineering*, which deal with public procurement outcomes, that can be found on the list, although they have fewer articles than the journal on healthcare and ethical issues. For wherever the *Journal of Public Procurement* comes into the picture, the case is always the same where there are 24 articles. The case is always the same where there are 24 articles. It can, however, be observed that its dominance is not so pronounced as one might expect in context to its purpose. This possibly suggests the indeterminate adoption of public procurement as a practice in all sectors, while some sectors like health care seem to be more specific in presenting a particular type of issues that propel them into significant amounts of research being done.

By the same token, the emergence of journals, for example, *Journal of Cleaner Production* (10 articles) and *Sustainability (Switzerland)* (9 articles), indicates increasing interest in the relationship between public procurement outcomes and sustainability dimensions. Such an approach corresponds with the efforts made worldwide in seeking for more sustainable procurement practices as per the recommendations of Green and Lawson (2020). Public procurement is increasingly seen as a tool for advancing sustainable development goals (SDGs), and these journals reflect the expanding scope of procurement research into ethical and environmental dimensions. Public procurement research has changed as scholarly tools such as public procurement journals evolve, which started to feature more sub-sector journals such as in health and sustainable journals. This is because it seems that sectors that are heavily ethical, for instance, health care, or those that are very sustainable focused, seem to be the source of most of

the current academic trends in public procurement outcomes.

Figure 10 gives a quick overview of the major sources in public procurement research. Most of these sources seem to fall under the main sectors, which include construction, supply chain sustainability, and governance, but the *Journal of Medical Ethics* raises concern on the paper's topic focus and ethics in public procurement research. So, this figure also emphasizes the interdisciplinary characteristics of this field, as there are emerging issues of sustainability as well as circumstantial issues.

The Sources and Documents Networks represented in Figure 11 in relation to public procurement outcomes studies in the procurement area provide information about important sources and documents that are frequently cited in the discipline. Noteworthy sources such as the *Journal of Public Procurement*, with 188 as the number of times cited and total link strength 21, underscore its ease of access as the publication with the highest attention relating to the PPO research output. Nelson and Woods (2015) also noted the significance of this journal in procurement studies. It is similar to the *Journal of Cleaner Production* (415 citations) and the *International Journal of Public Sector Management* (211 citations), which do not just suffice on making PANP research but also incorporate elements regarding sustainability and good management of the public sector in quite a number of PPO-related papers, which is also supported by Green and Lawson (2020). that indeed the emphasis of the field is shifting towards more sustainable paradigms.

Such works as the ones by Coviello (2017, 94 quotations) or Bach-Mortensen (2022, 8 quotations) are considered to be among the most influential and representative of such areas as procurement law, transparency, and governance. These documents provide a basis for the body of knowledge and guide future research questions in PPO, consistent with the works of Kundu and Roy (2020), who focused on procurement and project management and transparency in the public sector sufficiency of the research. Thus, the sources and document networks assert the interdisciplinary character of PPO research, where sustainability, governance, and public policy become the main focus, each supported by a set of frequently cited researches.





Figure 11. Sources and documents networks

**Institutions and Countries Results.**

The network of research institutions and countries with the highest citations in the field of public procurement outcomes is displayed in the following figure.

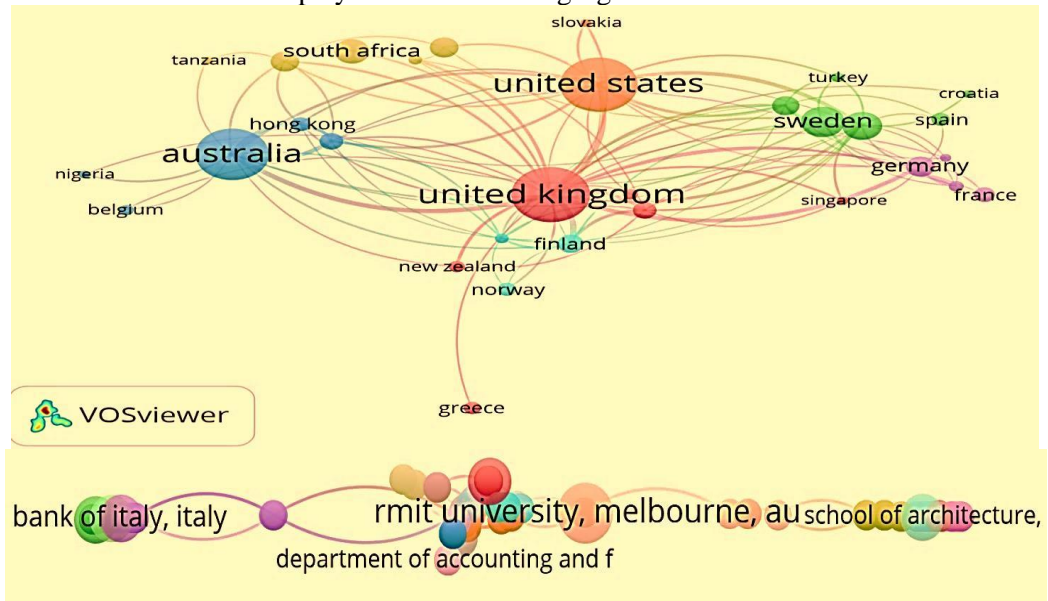


Figure 12. Institutions and countries networks

According to **Figure 12**, the network of institutions and countries engaged in research on public procurement outcomes depicts the best collaboration areas as well as major contributors. Looking specifically at institutions, we have also noted superbly high total link strengths for Aalborg

University in Denmark, Bocconi University in Italy, and Griffith University in Australia, which suggests they are likely to have understood the extent to which intra-institutional partnerships are beneficial.

This corroborates with Green and Lawson (2020), whose research also suggested, as Green notes, that these institutions participate in interdisciplinary research and hence become active participants in the public procurement projects, especially concerning issues with global nature such as sustainability and efficiency. At country level, the United Kingdom and the United States come out as the main contributors, the former recording the highest number of documents, citations, and collaborations with other countries, with a total link strength of 95 and a link strength of 3034. The United States follows closely with 91 documents and a link strength of 46, suggesting that the country continues to be active in international PPO research networks.

This tallies with Nelson and Woods (2015) who observed that English-speaking countries are usually the ones spearheading collaborative program research on public policies and governance issues, including procurement practices. Other notable contributors like Australia (50 link strength), Italy (41 link strength), and China (29 link strength) all show great research output and international linkages, especially in regard to infrastructure and construction where procurement. The rising involvement of countries such as Sweden (676 citations, 20 link strength) also demonstrates an increasing attention to the issue of environmental sustainability in procurement, which is consistent with current directions of public procurement policies around the world. This network illustrates the collaborative spirit of PPO research, where key organizations and nations act as core centers on the map of research, promoting invention and cost-effective improvements in various fields.

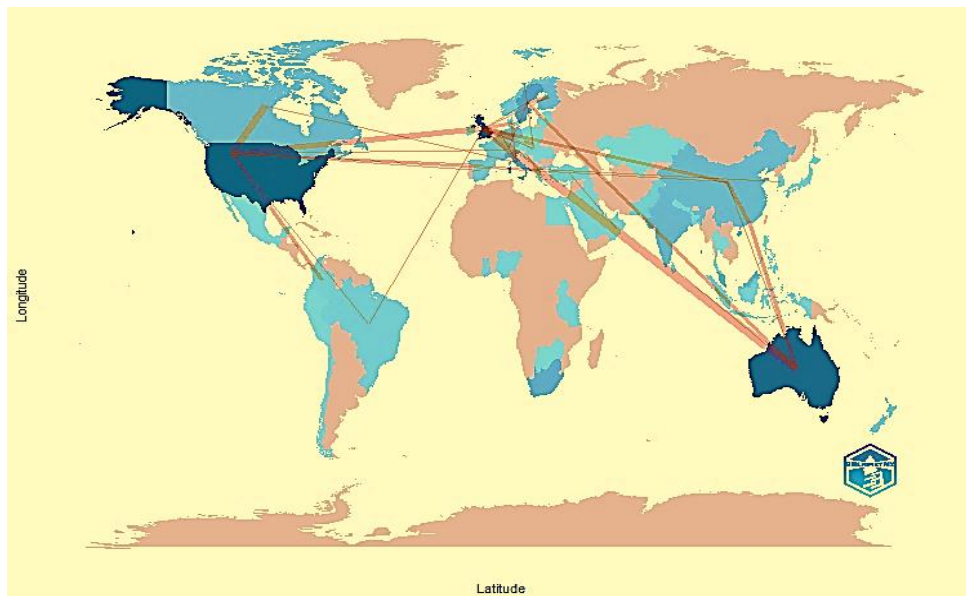


Figure 13. Countries' collaboration world map

Figure 13, Comprised of international partnerships on public procurement, the Countries'

Collaboration World Map portrays the worldwide picture of the countries' efforts regarding public procurement outcomes research. The high frequency of collaborations between countries suggests that the PPO research is on the globalization trend as countries form networking systems to tackle myriad challenges in the procurement of commodities. A case in point is the Australian and the United Kingdom's direct ties with regard to 6 collaboratives, which seek to promote governance structures, enhance efficiencies, and improve policy orientation, corroborating Nelson and Woods (2015), who see a tendency of similar practices among English-speaking countries on procurement practices if their public sectors faced similar problems.

Three joint research collaborations between China and Hong Kong and Germany and Denmark point to country clusters that are economically or sectorally linked, as in construction and infrastructure common themes in public procurement-oriented studies. These practices could be driven by the need to achieve similar goals in a region and having comparable regulations considering that the countries could get information on procurement from each other.

The strategic partnership in the areas of procurement between Saudi Arabia and Egypt, Qatar, and the United Emirates shows an inclination towards procurement in the regions specific economic areas such as energy and construction. This trend is consistent with Kundu and Roy (2020), whose elaborate cases demonstrated that procurement research in the countries of the Middle East is predominantly motivated by major public sector initiatives in particular, the construction industry.

Another surprise is that Canada as a country is strongly connected with the USA and UK, who have 4 and 5 collaborations with Canada, respectively. This is perhaps policy-related procurement reform and efficiency improvement interest. This finding corresponds to Edler, looking peculiarly for the relationship between easy access to finance and the public procurement system in Romania, and Georghiou, who focused on public procurement policy and its implications across borders in the context of public service provision.

Such trends draw attention to the dynamics of international collaboration in the context of common procurement problems that a number of sectors ought to solve and demonstrate how countries utilize collaboration to improve procurement performance and hence add to the pool of information on procurement.

### **Thematic Map**

Figure 14, Thematic Map, provides an insightful overview of the research focus areas, demonstrating the diversity and depth of topics being explored. The figure is arranged by various clusters, with metrics like Callon's centrality and density, as well as rankings for centrality and density and the frequency of each cluster.

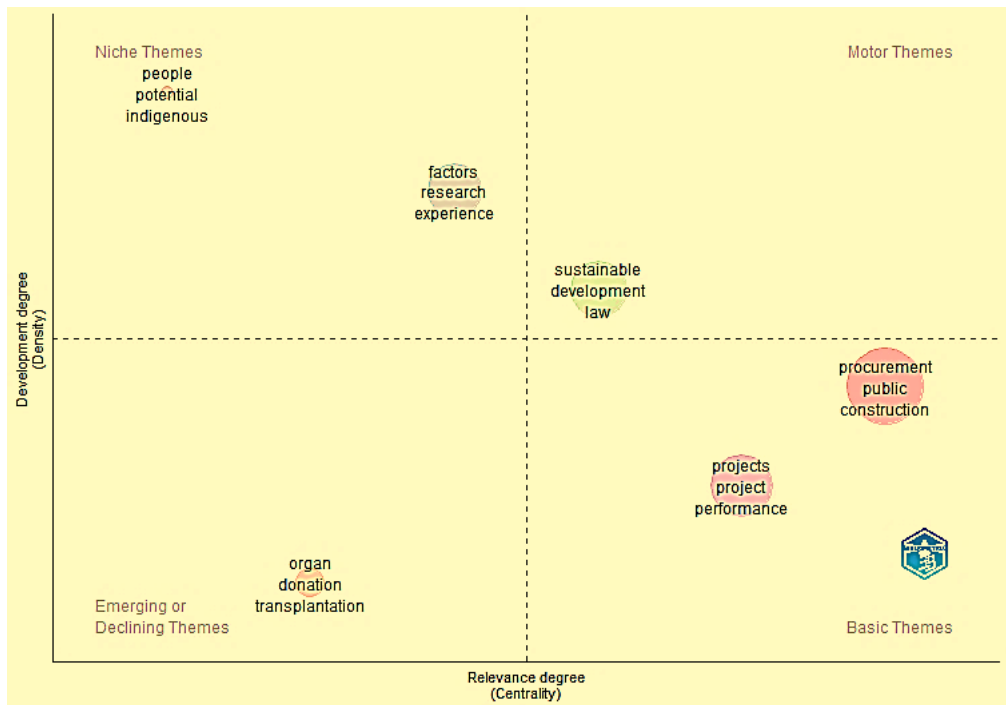


Figure 14. Thematic map

The cluster-based thematic map clarifies the major gaps in public procurement outcomes investigations, as the different colors denoting the clusters do. It is predominant in each cluster's centrality as determined by Callon (which indicates the importance of the cluster in relation to other clusters) and density as defined by Callon (which shows the strength and cohesion of the cluster internally).

Labeled "Procurement public constructions," the red cluster has the highest centrality reading of 11.23, accompanied by a fairly high density figure of 27.43. This implies that this cluster is one of several dominant areas in the context of PPO research. The high centrality indicates that public construction procurement serves as a mitigating factor in other disparate sectors and areas of research. These are in line with the study by Kundu and Roy (2020), which highlights the role of public procurement in megaprojects in a bid to enhance effective management planning of resources across the project.

On the other end, the blue cluster ("Factors research experience") has much lower figures for centrality (2.13), suggesting that while it is indeed appertaining to the domain as a whole, its scope is quite narrow. Nevertheless, its high density of 29.39 indicates that this cluster is quite integrated in terms of the factors it seeks to examine, which in this case seem to be the factors influencing procurement outcomes. That could include an analysis of how the different individual skills and experiences shape the procurement decision-making process, a premise that Georghiou and Edler (2020) contend in their work on the development of procurement capability in organizations.

The green cluster titled "Sustainable Development Law" exhibits both moderate centrality (4.08)

#### *24 Public Procurement Outcomes*

and high density (28.86), suggesting that the issue of sustainable development as it relates to the laws of procurement is also a crucial one, and it is adequately researched in the PPO literature. This validates the claim made by Green and Lawson (2020) that sustainable public procurement practices are gradually emerging to be central in public procurement policy and the general sustainability debate.

The pink cluster ("Projects project performance") is also quite significant with centrality of 6.11 and density of 25.92. This suggests that more concern is devoted towards research projects focusing on project performance, probably how procurement processes affect the project success rate, which is part of the wider PPO research agenda. This is found in the work of Brammer and Walker (2019), who looked at the relationship between public procurement strategies and project results.

On the other hand, the orange cluster named "Organ donation transplantation" (centrality 0.54, density 23.95) is quite peripheral to the field, but the coastal region's internal density shows that the scholarship in this area is principled and well-articulated. Its low centrality implies that though projects dealing with medical procurement, particularly organ donation and transplantation of organs, are a focus, they are less integrated with the rest of the PPO discourse. This is consistent with the fact that public procurement medical resources belong to a specific, though important, area of public procurement.

The yellow cluster ("people potential indigenous") IPR social network disseminates a similar and unique centrality with 37.5 indicating a high sociocentric density; this suggests that while this cluster may be defined solely as a cohesive body of work, it has little to do with the main tenets of PPO research. This may represent a distinct or nascent area of research that still has to find its place within the broader arena of public procurement.

The thematic map demonstrates the multiparadigmatic nature of PPO, with construction and sustainability seemingly dominating, while some areas like organ transplantation and indigenous potential, while still important, remain extreme side factors and more isolated.

### **Discussion of Research Findings**

#### **Thematic Clustering and Core Areas:**

In analyzing public procurement outcomes from a thematic clustering standpoint, it is clear that the focal point is on 'Procurement public constructions,' which emerges as a salient theme owing to its multifunctional character across industries. The interrelationships between construction and sustainability are prominent in this research area, which implies the procurement practices are more and more environmentally oriented and are geared towards assisting the overall policy objectives on sustainability. This thematic emphasis, in turn, is consistent with the observations of Green and Lawson (2020), who noted a comparable transition towards sustainability in public sector procurement. In this case, the bid for construction and sustainability taken together reflects the sector's response to demand and supply aspects such as the growing need for infrastructure and also policy imperatives designed to minimize pollution caused by procurement processes.

Moreover, the analysis confirms that, apart from construction, public procurement serves as a tool for facilitating interdisciplinary connections. For example, in many countries, the medical industry has started to embrace sustainable medical procurement for purchasing equipment and services, thus integrating ecological thinking into heavily resource-consuming activities. Such



cross-sectional linkages are in accord with international policies that are more and more perceiving public procurement as an instrument for not only economic effectiveness but also the provision of other socially useful outputs (McCrudden, 2007). The introduction of procurement in healthcare services exemplifies the versatility of sustainable purchasing approaches in verticals or fields with unusual operational contexts, suggesting the potential of the discipline to change and morph to meet the demands of certain industries.

On the other hand, thematic distribution of concerns in public procurement shows spatial and sectoral shifts that bear different economic and policy objectives. For instance, Osei-Kyei and Chan (2017) established that for developing regions, PPPs for infrastructure development projects focus on the financing arrangements, while in developed regions, there are more concerns with sustainability and indefinite efficiency. This means that it is true that construction as well as sustainability are shifted to the center stage of all international engagements, but the scope of development and policy focus tend to fuel regional bias.

In recent times, there seems to be a consolidation of the effects of the change in the role of procurement in public politics, whereby procurement provides an opportunity for addressing various aspects of society as opposed to purely being regarded as a cost resource. This change is particularly noticeable in certain sectors, such as health care and infrastructure, where the purchasing function has a much wider scope than only social policy. The results support the growing perception of public purchase as a strong tool of policymaking, further supporting Brammer and Walker (2019) argument that, if well embraced, sustainable procurement approaches will help achieve strategic and societal goals. This changing role implies that procurement is no longer confined to transactional roles but is quickly adopting policy-oriented and market-oriented roles where sustainability and multi-disciplinary integration shape its future.

### **Emerging Themes in Healthcare and Sustainability:**

Aspects concerning health care and its connection to sustainability through the public procurement lens highlight an intricate yet growing focus, particularly on sensitive topics like “Organ donation and transplantation.” This sub-cluster identifies the ethical and operational issues that are characteristic of the medical sector’s procurement practices. Procurement of organs is said to be a complex area, as it touches on ethical issues such as the right to fair treatment, the right of the donor, and the efficient allocation of such scarce resources. Such issues call for a delicate compromise between terribly stringent regulatory policies and practical policies that save lives. This thematic focus is similar to that of Segev and Israni (2018), who highlight the ethical issues that concern healthcare provision in this case procurement, even when it comes to organs, which are the most sensitive resources.

The approach to organ procurement as one of the elements in the appendices of the defense-related public procurement outcomes PPO traces the hype of the healthcare perspective gradually creeping into the procurement perspective. This merger of procurement and healthcare policy does not only emphasize the need for legal compliance but also the procurement culture and practices, which are key to delivering health care services. Other authors in the same line of research, for instance Shroff (2019), prevail on such guidelines in healthcare procurement that are firm in context and contextually sensitive to ethics and fairness.

Furthermore, the relevance of the coupling of healthcare and sustainability themes in the procurement function signals a shift in public sector priorities. New policies begin to require

environmentally friendly purchases in healthcare to encompass such areas as medical consumables and health facility management. This integration is consistent with larger environmental objectives and the research work of Kassahun, Lamech, and Flanagan (2020), who further state that there is a prospect of utilizing sustainable procurement measures to minimize adverse environmental impacts and yet maintain adequate health care services. These observations imply that. The purchasing of goods and services in the health sector is beginning to shift from a pure transactional function to one of fulfilling the moral and environmental needs of society, thus improving the social output of healthcare.

Other regions have also procured sustainably, though the health region distinguishes itself with its more ethical aspects. We are now Segev and Israni (2018) that state that with regard to sectors such as construction and energy, where procurement aims at economic and environmental sustainability, in healthcare, procurement should support patients and other ethical issues as well. Therefore, the addition of organ harvesting in PPO studies seems to emphasize a greater scope, which pertains to procurement as the solution to many ‘problems’ of different sectors, including environmental and ethical aspects, among others.

### **Influence of Key Authors and Institutions:**

The legacy of dominant scholars, including LOVE PED, CHAN APC, and REGAN M, has greatly shaped the evolution of research in public procurement outcomes, showing the role of established scholars in the topical development and consistency of research work. These authors’ substantial contributions in some cases through ‘high impact’ publications and in other cases through joint ventures have helped remain ‘fit in’ the umbrella. This collaborative aspect is consistent with evidence presented by Anthony Flynn and Davis (2014), who note that the core contributors play the role of the intra-field and interdisciplinary integration in public procurement research. Their influence is not only felt in the large number of their works but also in their innovative models, which other researchers frequently cite and build upon in their work.

Besides the contribution of prominent scholars, organizations from Denmark, Italy, and Australia also participate in the advancement of PPO research. More specifically, regional organizations such as the Copenhagen Business School, Politecnico di Milano, and the University of Melbourne strengthen international networking and integrate procurement policy innovation and analysis into practice. Their research environments highlight relations between procurement policies and other dimensions, including efficiency and economization but also sustainability. The concentration of these institutions in countries with strong legal controls over public procurement practice suggests a strong relationship between the volume and type of institutional research in the area and the regional procurement policy, as Loader (2013) puts it. In the case of Denmark, furthering purchasing transparency and sustainable development goals is also reflected on the priority areas of the most strategic universities—hence, a good practice for other nations.

Also, other institutions in Italy and Australia appear to be more oriented in terms of the structure of the law and the regulation of procurement as well as its linkage with public policy. Studies done in these regions tend to consider procurement within the context of social and economic policies, which is consistent with the trends noted by Eadie et al. (2011) in which the regional policy has a bearing on the thematic area of focus of procurement research. Also, interactions of these institutions with other international leaders in procurement accentuate the global perspective of the field. Research activities across institutions create networks through which ideas and methodologies are transferred, which enhances the international dimension and impact

of the field.

Therefore, the combined impacts of core authors and leading institutions encourage an organized, cohesive setting of research in PPO. They have contributed to the formation of a body of knowledge that guides and is guided by the domestic needs and international problems in the area of public procurement and therefore forms the basis for further development in research, policy, and practice.

### **Global and Regional Collaborative Patterns:**

Public procurement outcomes studies indicate a strong international and regional network of collaboration, especially among the UK, USA, and Australia. This interdependence manifests the growing role of procurement development through the interaction of different countries. Nelson and Woods (2015) emphasized that the presence of common governance structures based on regulatory and ethical principles improves procurement outcomes on a global scale. The recurrent partnerships of these countries suggest the existence of a willingness to advance the level of international cooperation in the areas of transparency, efficiency, and accountability of procurement processes while stimulating innovations that can fit in different levels of regulations across the globe.

This cooperative tendency goes further than Western countries, for the study demonstrates strong intraregional ties among the Middle East region in particular energy and construction sectors. Such cooperation emphasizes a localized approach in procurement where investments in infrastructure and resource management are needed for R&D. Kundu and Roy (2020) noted that in developing areas, procurement focus is more related to areas that stimulate growth in economic activity like energy and public works. This propensity of regional clustering in relation to industry-driven procurement objectives is a part of higher-level national strategies where procurement is viewed as a means of enhancing economic growth and development instead.

Furthermore, the sharing of insights with regard to PPO research on a global scale paves the way for more effective methods that expand the field with practices that address different socio-economic circumstances. For instance, legal structures and procurement technology fashions in Western collaborations, while in the Middle East, joint ventures prioritize the building of resources and their optimal use. This regional difference corresponds with the one identified by Loader (2013), where he said, in most instances, local characteristics, resources, and institutional frameworks affect the procurement strategies adopted, hence the need to have flexible frameworks.

The trends that have been evolving in PPO research collaboration also point to the concern towards looking for solutions to real world problems such as sustainability, which are relevant regardless of the geographical location; it seems that these solutions ought to be diverse. The international aspect of PPO research so as not only to diversify the field in terms of the available tools to use in the area but also to emphasize the need for variation in procurement approaches across different economies and environmental settings.

### **Policy, Transparency, and Digital Transformation:**

Within the procurement process, policy matters, especially regarding transparency and digital transformation, have started to influence how it's done today. Terms like 'public-private partnerships' (PPPs) and more commonly 'e-procurement' seem to continue increasing as the best way to enhance openness and answerability in the procurement process. As governments further

embrace the digital evolution, e-procurement has come as one of the best solutions for maximizing operationalization and minimizing corrupt acts. He notes, further, that digital procurement systems simplify the administration and provide a record that can be verified, which controls opportunities for fraudulent practices and improves responsibility. This is consistent with the increased focus in the public procurement outcomes literature on the use of information technology to ensure the required standard of transparency is met, which indicates that procurement is heading in the right direction with more improvements to robust and ethical practices in the field.

E-procurement bolstered by the policies in the public sector is one of the signs pointing towards the trend of a future with more digital governance, as Panayiotou, Gayialis, and Tatsiopoulou (2004) have noted. Their findings also indicate that the adoption of digital technologies in public procurement revolutionizes the business notion as it allows process completion within a short period of time, efficiency improvements, and better information management in terms of improving analysis, decision-making, and compliance tracking throughout the different agencies. This is in tandem with the developments observed in the purchase of goods and services in the private sector. It has been argued that greater coordination of activities of the stakeholders and partnership is witnessed with the introduction of electronic systems. Such similarities suggest that there are no reasons why public procurement should not be influenced by private sector developments, especially for those jurisdictions that have a high level of supervision and control systems, with which NMS regards Davies, Hart, and Bowman (2018) on PPPs and collaborative governance.

Furthermore, as the governments try to improve their procurement methods, the role of policy frameworks that guide the digital evolution becomes clear. A. Flynn and Davis (2015) observed that regulatory frameworks surrounding e-procurement can ensure compliance, mitigate cybersecurity issues, and promote privacy and data access requirements. Such frameworks promote the adoption of standardized procurement practices, which facilitate tracking expenditure, managing supplier performance, and ensuring compliance with ethics by public entities. Thus, policy- and transparency-oriented digital transformation in procurement should be viewed from a broader perspective other than just a technological change but also a transformation towards ethical leadership and fiscal responsibility.

### **Trends in Environmental and Social Sustainability:**

The enhancement of concepts such as “sustainable economic growth” and “risk evaluation” in public procurement outcomes signals an enhanced commitment to the core principles of environmental and social sustainability within public procurement systems. This is consistent with the trend of global policies that seek to regard social and environmental concern in procurement as a strategy to achieve the SDGs. G. Kabra, P. R. Srivastava, and R. Ghosh (2023) point out that the scope of sustainable procurement definition has expanded from a cost and efficiency focus to include social and environmental well-being in the longer perspective. Such a change demonstrates an evolution that the government is making in its efforts to employ procurement as a tool for sustainable development targeting policies that improve the effectiveness of public expenditure within society.

The findings of Brammer and Walker (2019) on the gradual coherence of public procurement with environmental and social standards are in harmony with the value of integrating sustainability into public procurement. Regulations create standards that encourage procuring

entities to source from suppliers whose activities enhance sustainability and reduce the green footprint, thus creating an environment where integration of sustainability within competitive bidding for contracts and during the performance of the contract is the norm. The increasing awareness of the government on their role to preserve the environment has seen the inclusion of sustainable materials, energy efficiency, and waste-minimizing solutions as minimum participation requirements in procurement policies. Government regulation serves as a motivation for suppliers to develop innovative sustainable solutions, which in turn sends a chain reaction across sectors, as pointed out by McCrudden (2007), that such criteria make it necessary to transform market policies so that suppliers competitive offers are supported by sustainable business practices.

Sustainable development in procurement management is another important direction that shows the principles of government purchases as a means to generate social benefits (Epstein, 2018). posits that socially responsible purchasing can solve problems of fair employment practices, more inclusion, and diversity, especially among the local communities where the procurement processes are conducted. Such an approach boosts the respect of the citizenry towards government undertakings and provides a direction for the practice of the private sector. The trend towards sustainability in PPO is in the same way as what is happening in the procurement function in the private sector, in which businesses increasingly consider environmental, social, and governance (ESG) factors when selecting suppliers, indicating intersectoral complementarity in the usage of sustainable practices.

The move towards sustainable procurement signals that governments are beginning to see the procurement function as more than just purchasing but rather as an opportunity to improve society and the environment, because the more the procurement is seen strategically, the more it is not operational. Thus, it is expected that sustainable procurement will keep progressive in nature as dictated by global climate change agreements and economic agendas, as well as the requirement for strong supply chains with respect to global order sustainability.

## **Conclusion**

The analysis provides a number of important points of interest with regards to the results of public procurement. Some of the key issues are the changing nature of sustainability, the effect of the digitalization process, and the ethics issues with respect to healthcare procurement. Major writers and university departments play a fundamental role in the shaping of research, while thematic clustering indicates a plethora of possibilities for PPO research that involve different forms of use in many countries. The multidisciplinary of PPO is well illustrated in its intersections, such as with policy, economic development, and social responsibility, thus marking the sophistication of the field.

The strengthening of the collaborative international network enhances the knowledge of the field and generates creativity and strategic enhancement of the practices in procurement in the public sector. Nevertheless, remaining major concerns include ethical issues in health care acquisition, regional variations in the approaches used for acquisition and procurement, and instruments. These are important barriers to progress, and therefore more focused investigation and social responsibility action are warranted.

## **Limitations & Implications**

The analysis is limited in scope due to the focus on indexed works, especially from Scopus, since a lot may be omitted from the analysis concerning emerging regions, which are not the center of indexed publications. Also, the dominance of publications in English can constrain viewpoints from non-English countries which might skew the results towards the western viewpoints in terms of research orientations.

### **Academic Knowledge:**

The purpose of this study is to advance knowledge of public procurement outcomes by highlighting new areas of concern, such as healthcare ethics and digital procurement within public procurement, thus guiding the course of future studies. However, the thematic clusters suggest opportunities for interdisciplinary studies across the procurement discipline and environmental and social science.

### **Practical Application:**

This analysis enables practitioners to work on the policies, finally improving their best practice of procurement, especially regarding the use of IT tools for improved accountability. Sustainable practices have to be adopted not only by top management buy-in but also by suppliers' management in line with corporate environmental sustainability policies.

### **Policy Development:**

International cooperation on such insights will enable borders to be crossed in procurement in other areas like healthcare and infrastructure. In addition, the attention to sustainability and ethics in procurement gives scope on how policies can be formulated that will be socially beneficial rather than economically only in the short term.

### **Future Research:**

In the future, the area of public procurement outcomes can be studied at different levels: micro, meso, and macro, so as to provide a full understanding of areas practiced and relevant applications.

At the micro level, the research should focus on specific procurement processes and practices, such as sustainable method adoption, use of digital tools, and innovative procurement processes within organizations. This level could also study behavioral aspects and decision-making factors that might affect the choices made by procurement officers.

At the meso level, inter-organizational relations, especially between the public and private sectors, e.g., public-private partnerships, are important to examine. Studies might be able to show how regional procurements subsidize the success and sustainability of the projects when implemented in certain regions prior, especially in healthcare and construction.

At the macro level, research on PPO in the future should relate to and place emphasis on the national and international contexts in which isolation of policy objectives, endorsements, and the political scope takes place. This level could evaluate the ability of multinational policies and trading blocs to redefine member countries' approaches to national procurement regulations and, in the process, achieve globally sustainable procurement.

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## Appendix

Table 1. Main information about the selected sample		Table 2. most relevant words	
Description	Results	Words	Occurrences
<b>MAIN INFORMATION ABOUT DATA</b>		<i>project management</i>	55
<i>Timespan</i>	1976:2023	<i>public procurement</i>	34
<i>Sources (Journals, Books, etc)</i>	392	<i>construction industry</i>	30
<i>Documents</i>	582	<i>transplantation</i>	30
<i>Annual Growth Rate %</i>	9.22	<i>organ transplantation</i>	27
<i>Document Average Age</i>	7.68	<i>public private partnerships</i>	26
<i>Average citations per doc</i>	17.11	<i>decision making</i>	23
<i>References</i>	25449	<i>tissue and organ procurement</i>	23
<b>DOCUMENT CONTENTS</b>		<i>public sector</i>	22
<i>Keywords Plus (ID)</i>	2356	<i>health care and public health</i>	20
<i>Author's Keywords (DE)</i>	1687	<i>procurement</i>	20
<b>AUTHORS</b>		<i>united states</i>	20
<i>Authors</i>	1384	<i>public policy</i>	19
<i>Authors of single-authored docs</i>	143	<i>treatment outcome</i>	19
<b>AUTHORS COLLABORATION</b>		<i>innovation</i>	18
<i>Single-authored docs</i>	149	<i>sustainable development</i>	17
<i>Co-Authors per Doc</i>	2.64	<i>government</i>	16
<i>International co-authorships %</i>	17.87	<i>costs</i>	15
<b>DOCUMENT TYPES</b>		<i>patient selection</i>	14
<i>article</i>	423	<i>resource allocation</i>	14
<i>book chapter</i>	41	<b>Table 3. Major sources in top 10</b>	
<i>conference paper</i>	85	<b>Sources</b>	<b>No. Of Articles</b>
<i>review</i>	33	journal of public procurement	24
		journal of management in engineering	11
		journal of cleaner production	10
		sustainability (switzerland)	9
		engineering, construction and architectural management	8
		research in transportation economics	8
		international journal of public sector management	7
		journal of construction engineering and management	7
		journal of medical ethics	7
		built environment project and asset management	6

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