Performance Management in Public Sector Organizations: A Bibliometric Analysis

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ABSTRACT

The field of performance management in public sectors has witnessed substantial growth in its literature, indicating the need for a systematic literature review. Over time, scholars have employed diverse approaches to reviewing this body of work. Previous systematic reviews conducted in 2004 and 2014 have shed light on the changes in research and practice that have occurred since then. In order to explore the most recent advancements in performance management in the public sector, bibliometric analysis of the research papers indexed in the Scopus database are reviewed and presented in this paper. This study aims to identify emerging research directions in this field by performing content analysis on relevant articles. In recent years, bibliometrics has gained significant traction as a prominent area of research. Scholars have increasingly turned to literature reviews and keyword analysis to synthesize and integrate the vast body of work accumulated over the past three decades in this field. By employing bibliometrics techniques, the aim is to explore the trends and patterns prevalent in literature. Following the study's objectives, the authors conducted a comprehensive literature review using relevant keywords to capture the breadth and depth of research in the field. Using Scopus, a well-established academic database, 868 documents were initially identified. However, after applying strict exclusion criteria, the list was refined to 209 documents, ensuring the selection of the most relevant studies. To further refine the selection and focus on articles with a strong academic standing, the research papers of journals having Australian Business Deans Council (ABDC) ranking of B and above were considered. Consequently, a subset of 88 articles emerged as the final sample for detailed analysis using VOS Viewer, a powerful tool for conducting thorough bibliometric investigations. The findings of this study present a comprehensive bibliometric analysis of the available literature on performance management in public sectors. While conducting a systematic examination of the available research, this study presents the major thematic clusters within the performance management domain in public sectors. Additionally, the analysis sheds light on the research fronts, providing valuable insight into the current research areas in performance management in public sectors and a roadmap for future research.

Introduction

India is becoming one of the fastest-growing economies in the world, and to sustain this momentum, organizations need to perform effectively. The most important factor contributing to the performance of an organization is its human resources. Human resources' individual and collective contribution grows multi-fold through an effective performance management system. Performance parameters for different types of organizations may vary. However, the relevance of performance management is unquestioned whether it is a business for-profit or not-for-profit, in the industry, services or agriculture sectors, traditional or new age, education or research, or any ownership. Performance management is relevant to any business where we can think of a product, service, or customer and where human effort is involved.

An effective Performance Management System (PMS) enables organizations to provide direction to their employees in alignment with their strategic objectives through efficiently utilizing resources, systems, and processes. Regular review and feedback of these systems provide early alarms to the managers of any possible issues or roadblocks for them to take immediate corrective action and avoid any pitfalls.

Most competitive enterprises have established effective PMS. For example, GE's CEO Jack Welch was successful in transforming his organization and taking it to much greater heights mainly because he could provide direction to all the GE employees to work towards the same objective and to their best efforts, resulting in achieving their top performance (Amernic et al., 2007). A similar quote from Henry Ford also describes the same sentiment: 'Coming together is a beginning; keeping together is progress; and working together is a success.'

Despite the importance of effective PMS, it still needs a relook in several organizations. One part is that such organizations need help to perform efficiently. The other critical part is that they need more agility to respond to technological advancements, market changes, or ensuing competition (Carpi et al., 2017).

The first principle for an effective PMS is, 'what gets measured gets done.' (Wilson et al., 2006). The performance of all employees and teams of an organization must be measured objectively and accurately. In order to achieve this, each individual and team should have a clearly defined job description reflected in key result areas, objective targets, and measurement standards for each job role. They should be aligned from top to bottom with the organization's strategic objectives. Actual performance should be reviewed against respective targets periodically by the managers, and any deviations, especially on underperformance, should be discussed for implementing corrective action. It is equally important that overperformance is duly acknowledged and periodically rewarded.

India's public sector organizations contribute around 14% of the gross domestic product. Large capital-intensive infrastructure projects developed by public sectors attract investments, create employment and other opportunities, and strengthen the economy. Public sector organizations began as envisaged in the second five-year plan (1956-60) and industrial policy, 1956, focusing on building the economy through industrialization.

Public sectors in India have grown from 5 numbers in 1951 to 389 numbers in 2023, which forms a large profitable setup of central and state government organizations and their

subsidiaries (BSE PSU website). In order to maintain and enhance performance on a sustained basis, public sectors need to learn how to assign targets, measure, evaluate, and suitably punish or reward employee performance. The public sector must also deal with these performance management challenges like any other private organization since they are under continuous pressure to demonstrate improved performance year-on-year.

Public sector employees have much longer tenure in the organization than private sector employees, who change jobs every 3-4 years. This is because the public sector recruits only at the junior level and employees are internally promoted till the senior level with very limited lateral recruitments, only for specialized roles. Moreover, the public sector is governed by the policies formulated by a government that are uniform across all public sectors; salary structure, promotion policy, increments, and other perks and benefits are fixed and predefined. Even policies related to performance management are administered by the government, e.g., implementation of a bell curve in rating while evaluating employee performance, vacancy-based promotions, no rewards, etc. This leaves little room for the public sector to improve performance management systems.

Additionally, public sectors have an obligation towards society, for which certain projects are undertaken purely for the benefit of society, without getting into a cost-benefit analysis. Still, the public sector has to compete with the private sector, which puts additional pressure on the performance of public sector employees. Hence, performance management challenges and methodologies are completely different in the public sector vis-à-vis the private sector, and identifying factors contributing to performance management specific to the public sector is of utmost importance.

Though the challenges faced by all public sector organizations are similar, there is no standard model or technique to address these in different types of organizations, different geographies, cultures, sizes, and nature of business or use of technology by these organizations (Pulakos et al., 2008). Academicians and industry have put forth diverse forms and models of PMS that have evolved over the years. There are numerous concepts, opinions, theories, and practices; therefore, there is a need to review the literature on performance management in the public sector.

Though authors have earlier reviewed the literature in this field using systematic or narrative review methodology or paradigm funnel approach (Schleicher et al., 2018), the number of publications on the topic has been increasing since then. Today, more efficient approaches like bibliometric analysis can handle large amounts of data (Ramos et al., 2004).

Bibliometric analysis is conducted for voluminous contents, using statistical tools and visual analytics to depict the topic overview and carry out a study using scientific methods (Donthu, Kumar, Mukherjee et al., 2021). A study of many publications spread over a long period is best conducted using bibliometric analysis (Baker et al., 2021; Cuccurullo et al., 2015). Rodríguez-Bolívar et al. (2018) conducted a bibliometric analysis of the last 5-year publications in JCR journals to study e-Participation research's evolution and analyze its impact using science mapping.

The trend of publications for the last 30 years has been analyzed for their citations, methodological preferences, intellectual structure, and research fronts of authors in the field to review the literature on performance management in the public sector using bibliometric analysis (Donthu, Kumar, Pandey et al., 2021, Tiwari et al., 2022, Bahuguna et al., 2023).

Keyword co-occurrence and science mapping are used to identify major clusters and central themes of clusters.

In the following sections, we discuss the research methodology, performance analysis, methodological and research analysis, and intellectual structure of the topic through cluster identification and research front themes. Following the analysis, we suggest future research directions and research questions for future study.

Method

We conducted a bibliometric analysis to review the research undertaken on performance management in public sector organizations, as bibliometric analysis is an effective technique to review and map the research.

Techniques for Analysis

Donthu, Kumar, Mukherjee et al. (2021) suggest that bibliometric analysis comprises performance analysis and science mapping. Therefore, this study also presents its findings in two parts. The first section presents the findings in terms of the most contributing authors, most influential journals, most prolific universities, and most contributing countries, followed by a subsequent section on science mapping to identify themes based on keyword network clusters and arrive at research fronts (Cobo et al., 2011).

The top 20 contributing authors and the top 20 most influential articles are identified based on their publications and citations. Likewise, analysis of the methodological and research focus of the publications is undertaken to study the most preferred research approaches, statistical techniques used, and types of data collection methods. The publications are also studied for their global coverage and sectoral focus (Gupta et al., 2006).

Science mapping includes the articles' intellectual structure and research fronts through keyword co-occurrence study. It is implicit that the same keyword appearing in two or more publications indicates that, conceptually, those publications have a co-relation (Callon et al., 1983). Thus, the analysis of the same keywords appearing in multiple articles leads to gaining insight into the similarity of their topics (Castriotta et al., 2019). Based on the keyword co-occurrence analysis, the main topics are segregated into different clusters, and the central theme of research for each of these clusters is ascertained (Zou et al., 2018).

Degree Centrality is used to study the centrality of the co-occurrence of keywords in multiple articles. The degree of a keyword node is the number of social connections (connections with other keywords in the network) it has. Another measure of the co-occurrence of keywords is the Total Link Strength, which has weight attributes based on the number of connections to other linked keywords. These measures are calculated for the bibliographic data using VOS Viewer to arrive at the clusters. The central themes of clusters are defined through the highest occurring keywords within the cluster, their degree of centrality, and total link strength in the respective clusters. Figure 1 details the research methodology used.

Figure 1

Methodology Used for Bibliometric Analysis
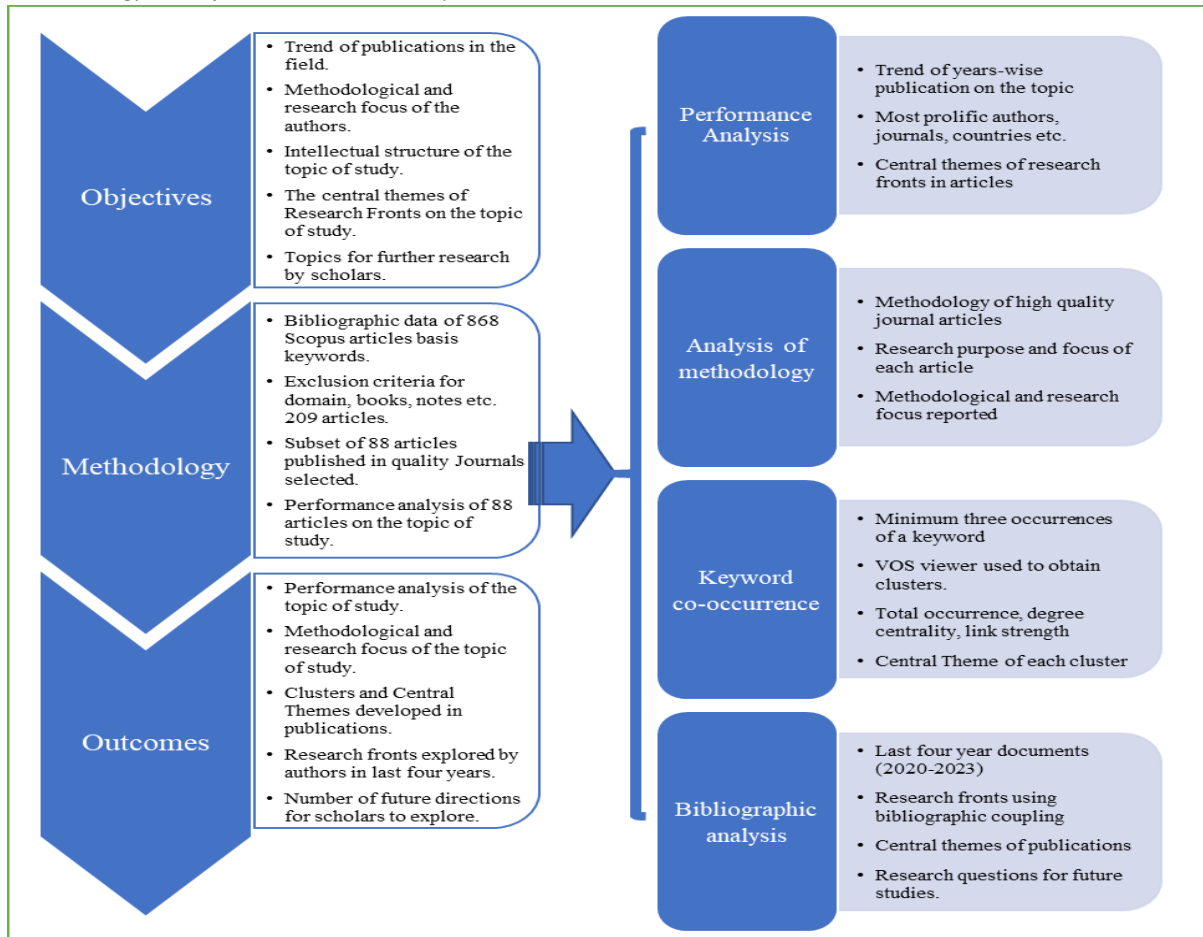
We have used the Scopus database for sourcing literature in this social science study in line with accepted norms. We used an approach with three stages that involved the formulation of search terms, article extraction, and data cleaning to find articles that comprise a majority of public sector performance management research literature from 1990 to 2023.

Web of Science and Scopus are the primary and most comprehensive databases that offer citation indexing of social science publications. Both databases index their journal holdings on a cover-to-cover basis and offer the best coverage at a journal, article, and cited reference level. However, Scopus has 60% more coverage than Web of Science (Comerio & Strozzi, 2019). Scopus comprises the largest peer-reviewed literature of abstract and citation databases. It offers the best choice among databases considering recall and average citation count at the article level (Norris & Oppenheim, 2007). Scopus database also contains the keywords used by authors in their publications (Pesta et al., 2018). A total of 868 publications were displayed by Scopus for search in the titles and abstracts using the keywords 'performance management' and 'public sector'.

Literature Search Criteria

To identify clusters and their mutual inter-relation, bibliographic data extracted from Scopus was analyzed. The publications were shortlisted using the keywords 'performance

management' and 'public sector'. While searching the Scopus database, synonyms and related words have also been considered, thereby expanding the publications considered while carrying out bibliometric analysis. The keyword strings and variations considered are 'performance measurement'; 'performance appraisal'; 'performance assessment'; 'performance evaluation'; 'job performance'; 'personnel management'; 'key performance indicators'; 'balanced scorecard'; 'human resource management'; 'organizational performance'; 'public administration' and 'government'.

The Scopus library displayed a total of 868 publications covering the topic of performance management in public sectors. Filters were applied to include only social science research and exclude articles in a language other than English. While eliminating articles other than English, the number of publications not considered for analysis is 17 out of 868 (1.9%). The analysis of non-English papers could not have been very accurate in view of language limitations and dependence on translation would have added another possible inaccuracy. Considering very limited number of publications not evaluated, the impact on the accuracy of analysis is not very significant.

After applying inclusion-exclusion criteria, 228 articles were extracted. Further strict exclusion criteria were applied to include only the articles after removing reviews, books, conference papers, and notes. Thus, 209 articles were shortlisted for further processing. To further refine the selection and focus on articles with strong academic standing, the research papers with an ABDC listing B and above ranking were considered. Consequently, a subset of 88 articles emerged as the final data set for bibliometric analysis using the VOS Viewer, a powerful tool for conducting thorough bibliometric investigations (van Eck & Waltman, 2010). Articles published in the last four years were studied to arrive at the research fronts of the authors (Andersen, 2021).

Performance Analysis
Publication Trend

Figure 2 presents the year-wise trend of publications from 1990 till 2023 on performance management in public sectors. As can be seen, the number of publications per annum has increased considerably since 2005. There were only 0.8 publications per annum from 1990 till 2004 (initial 15 years), which went up to 4.0 from 2005 till 2023 (last 19 years). The number of citations per annum has also increased from 46.4 to 121.6 between the two corresponding periods. This increase in publications and citations after 2005 is attributed to increased competition for public sectors from Private Sectors because of increased globalization. The trend would have resulted in pressure on Public Sectors to improve performance, and thereby need for much more focus on effective performance management in Public Sectors, which reflected in the interest of scholars and academicians through a higher number of publications.

Figure 2

Trend of Year-wise Number of Publication and Total Citations

Performance Management in Public Sectors
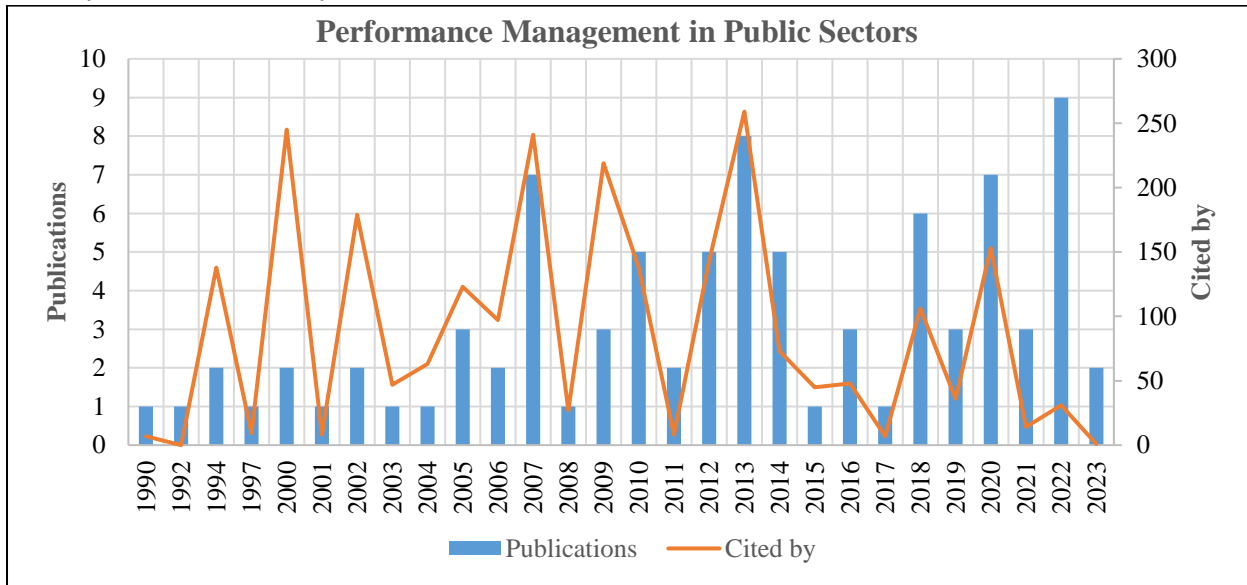
Most Prolific Authors

Figure 3 presents the details of the top 20 most prolific authors. The most cited authors in the field are Boland and Fowler (2000), with 167 citations. One hundred forty-four authors cite Fryer et al. (2009), Linna et al. (2010) published two articles and got 67 citations, followed by Nyamori and Gekara (2016). A total of 902 authors cited the publications of the top 20 most prolific authors. Thus, on average, each publication by the top 20 authors has been cited by 90 other authors. More than 124 other authors cite the top 5 publications of most prolific authors.

Figure 3

Top 20 Most Prolific Authors with Their Citations and Publications

Author wise Publications and Citations
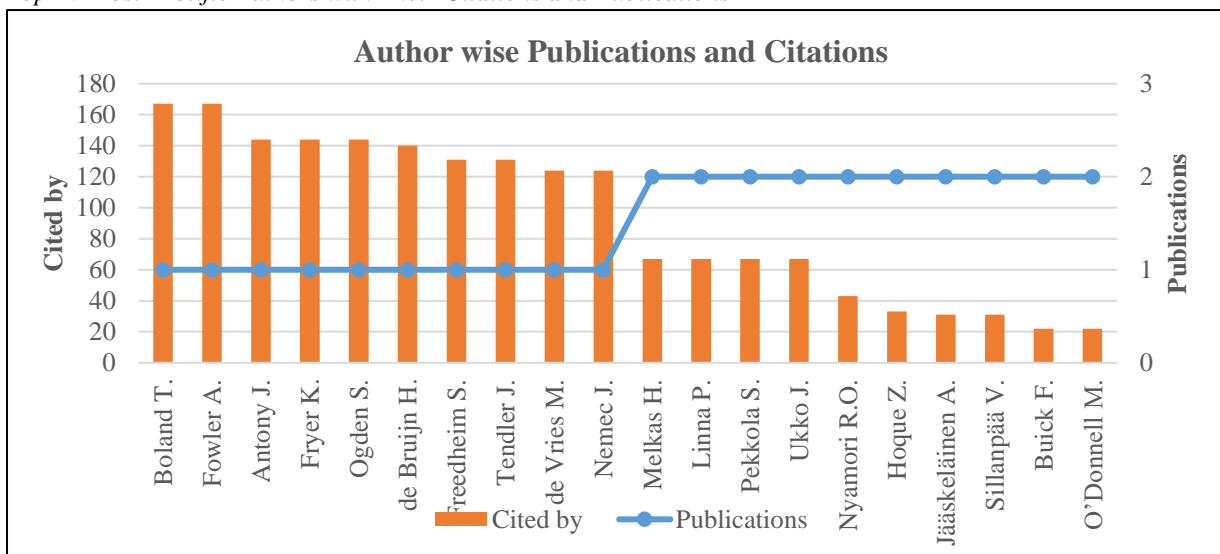
Most Contributing Universities

The Top 20 most Contributing Universities, to whom publications are affiliated for the development of topics covering performance management in public sectors, were identified

through analysis of shortlisted publications. Figure 4 outlines the graph providing names of the top 20 universities.

The Tampere University of Technology, Tampere, Finland, tops the list. Tampere University contributed four articles on this topic and got 102 citations. The next highest contribution is through Glasgow Caledonian University, Glasgow, United Kingdom, with three publications and 208 citations, followed by The World Bank Group, Washington, DC, United States (N = 3, 142 citations).

Other affiliations with a high number of citations are from Radboud University, Nijmegen, Netherlands, and the University of Newcastle upon Tyne, United Kingdom. It is noteworthy that almost a similar number of authors have also cited some universities that have contributed less in publications than those with more publications. This trend signifies that these universities have also focused on the relevant issues faced by others on the topic of study.

Figure 4

Top 20 Most Contributing Universities with Their Publications and Citations
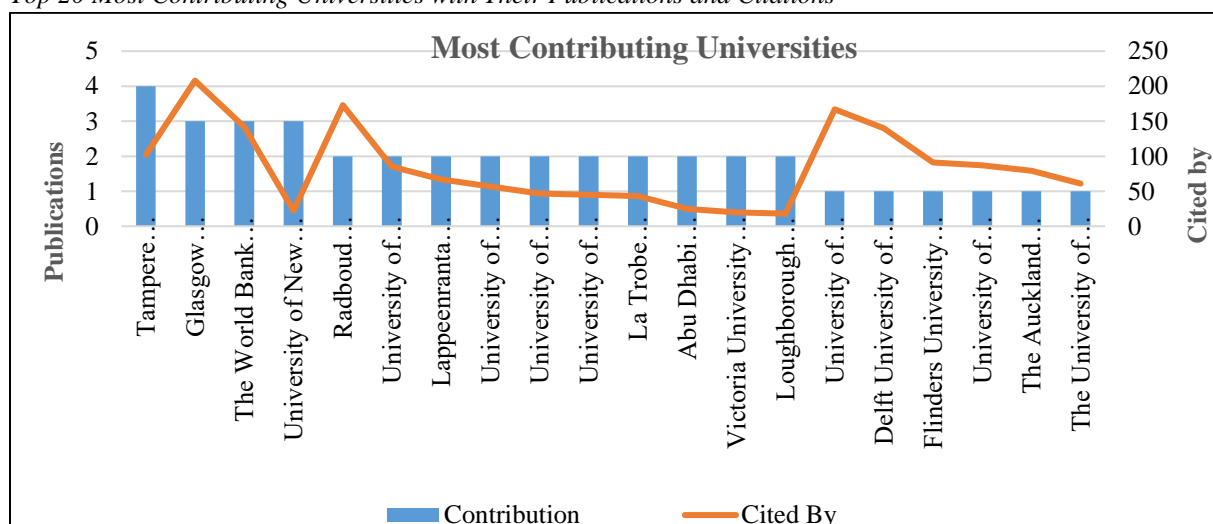
Most Contributing Countries

Figure 5 presents the details of the top 20 most contributing countries. The most prolific country from which authors have contributed the highest number is the United Kingdom. A total of 20 publications cited by 755 authors are from the United publications Kingdom. The second highest contributing country is Australia, which authored 11 publications with 265 citations.

The next on the list is the USA. Authors from the United States have published 10 articles with 208 citations. The noteworthy point is a positive association between the number of publications and citations. This trend indicates these countries' concerted efforts to promote performance management in public sectors.

Figure 5

Top 20 most Contributing Countries and their Publications and Citations
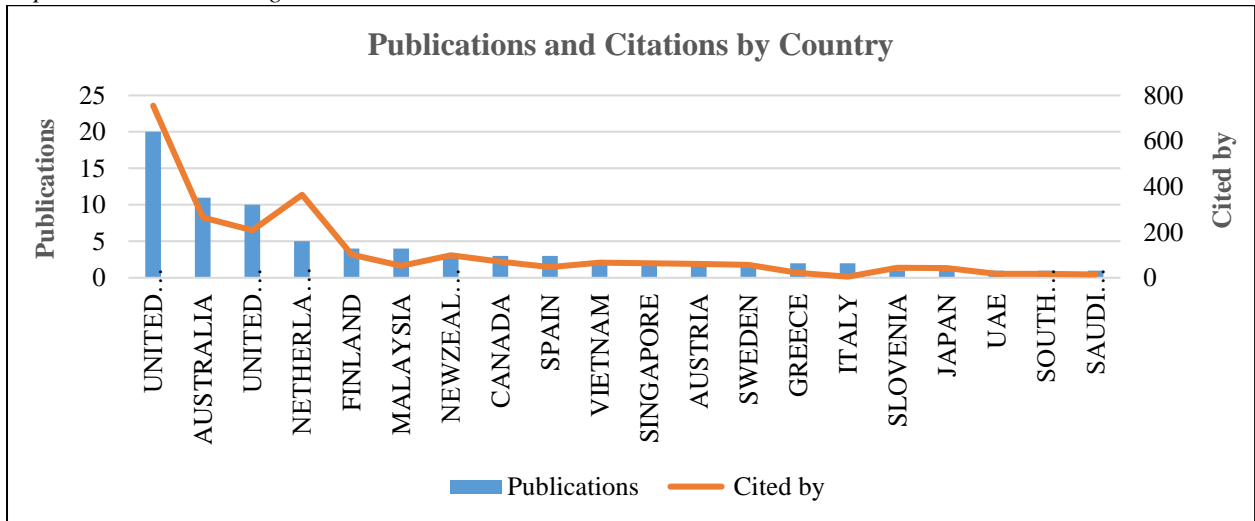
Most Contributing Outlets

Figure 6 presents the details of top 20 most contributing journals. International Journal of Public Sector Management is the topmost contributor, with 28 publications and 1416 citations. The next on the list is Public Administration and Development, with contributions of 11 publications and 178 citations. The data is further analyzed for publications in journals with strong academic standing. Out of the Top 20 most contributing journals, 12 publications are in reputed journals having ABCD ranking of A or A*.

Figure 6

Top 20 Most Prolific Journals and Their Publications and Citations
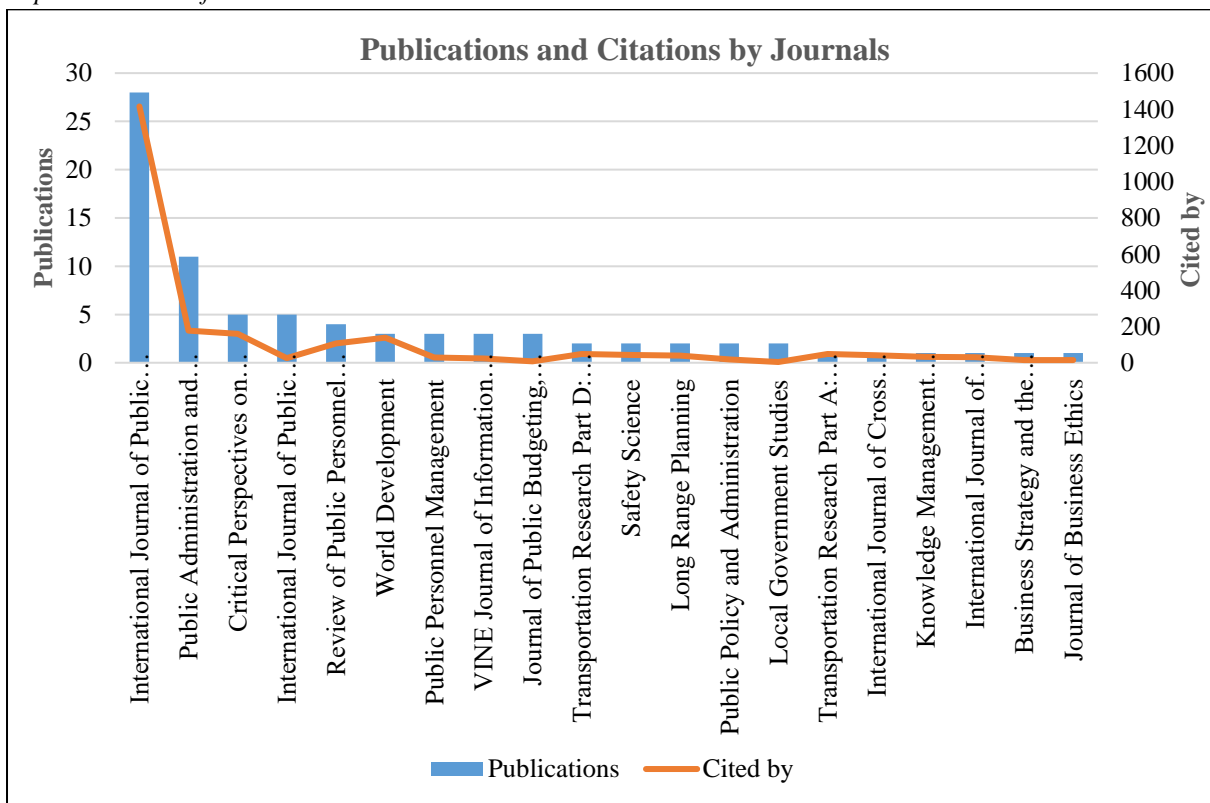
Most Cited Publications

We analyzed the **Top 20 most cited Publications** covering the topic of performance management in public sectors for all publications since 1990. Table 1 presents the top 20 most cited articles "A systems perspective of performance management in public sector organizations," "Performance Management in the public sector," "Performance Measurement in the public sector: Strategies to Cope with the Risks of Performance measurement," "Trust in a rent-seeking world: Health and government transformed in Northeast Brazil" and "Public sector reform: an overview of recent literature and research on NPM and alternative paths" are the top five articles with 167, 144,140,131 and 124 citations respectively.

Table 1

Top 20 Most Cited Publications on Performance Management in Public Sectors

Author(s)	Title	Year	Journal	Total Citations	Citations per Year
Boland & Fowler	A systems perspective of performance management in public sector organizations	2000	International Journal of Public Sector Management	167	7.3
Fryer et al.	Performance management in the public sector	2009	International Journal of Public Sector Management	144	10.3
de Bruijn	Performance measurement in the public sector: Strategies to cope with the risks of performance measurement	2002	International Journal of Public Sector Management	140	6. 7
Tendler & Freedheim	Trust in a rent-seeking world: Health and government transformed in Northeast Brazil	1994	World Development	131	4.5
de Vries & Nemec	Public sector reform: an overview of recent literature and research on NPM and alternative paths	2013	International Journal of Public Sector Management	124	12.4
Alam Siddiquee	Public management reform in Malaysia: Recent initiatives and experiences	2006	International Journal of Public Sector Management	91	5.3
McAdam et al.	Performance management in the UK public sector: Addressing multiple stakeholder complexity	2005	International Journal of Public Sector Management	87	4.8
Northcott et al.	Using the balanced scorecard to manage performance in public sector organizations: Issues and challenges	2012	International Journal of Public Sector Management	79	7.2
Mwita	Performance management model: A systems-based approach to public service quality	2000	International Journal of Public Sector Management	78	3.4
Rantanen et al.	Performance measurement systems in the Finnish public sector	2007	International Journal of Public Sector Management	70	4.4
Wisniewski & Stewart	Performance measurement for stakeholders: The case of Scottish local authorities	2004	International Journal of Public Sector Management	63	3.3
Try & Radnor	Developing an understanding of results-based management through public value theory	2007	International Journal of Public Sector Management	61	3.8
Habersam et al.	Knowledge balance sheets in Austrian universities: The implementation use, and re-shaping of measurement and management practices	2013	Critical Perspectives on Accounting	57	5.7
Leonard	'Pockets' of effective agencies in weak governance states: Where are they likely and why does it matter?	2010	Public Administration and Development	56	4.3
Blom et al.	One HRM Fits All? A Meta-Analysis of the Effects of HRM Practices in the Public, Semipublic, and Private Sector	2020	Review of Public Personnel Administration	49	16.3
Holguín-Veras	State of the art and practice of urban freight management Part II: Financial approaches, logistics, and demand	2020	Transportation Research Part A: Policy and Practice	48	16.0

	management				
Brown et al.	Change management practices: Is a hybrid model a better alternative for public sector agencies?	2003	International Journal of Public Sector Management	47	2.4
Gao	Performance Measurement and Management in the Public Sector: Some Lessons from Research Evidence	2015	Public Administration and Development	45	5.6
van der Hoek et al.	Goal Setting in Teams: Goal Clarity and Team Performance in the Public Sector	2018	Review of Public Personnel Administration	43	8.6
Ohemeng	Constraints in the implementation of performance management systems in developing countries: The Ghanaian case	2009	International Journal of Cross Cultural Management	41	2.9

Analysis of Methodological and Research Focus

We conducted an in-depth study for performance analysis of publications. For this, we analyzed the methodological and research focus of publications as detailed in Table 2, which provides the research approach of publications for three consecutive periods of 11 years each and a full period since 1991. We studied global coverage and sectoral focus of publications for similar periods, as detailed in Table 3.

Table 2 - *Section 1* shows that the publications have primarily adopted a qualitative approach in 43.2% of publications. Authors have adopted a qualitative approach in 75% of publications during the initial 11-year period. Thus, the authors are mainly using a qualitative research approach in the performance management domain.

Table 2 - *Section 2* presents the preferred data collection types, viz.; Archived Data, Qualitative Interviews, Quantitative Survey, Case Study Approach, etc. The highest 31.8% of all publications have preferred to collect data from archives. During initial publications, the authors mostly preferred qualitative interviews for data collection for 37.5% of the publications. This data collection method corroborates with the qualitative research approach adopted by the authors, as detailed above.

Table 2 - *Section 3* shows the preference of statistical techniques used for data analysis by authors, viz.; descriptive methods, regression analysis, etc. It is noted that mainly descriptive methods are used by authors in 53.4% of the publications. The authors' use of descriptive statistical techniques in publications is consistent with the qualitative research approach and archival data collection method and is very logical for publications in the social science domain.

Table 2 - *Section 4* presents the choice of the methodology used in the publications, viz.; systematic literature review, modelling, and analytical method, conceptual method, etc. The analysis reveals that authors have given equal importance to a conceptual method and modelling at 25.0% each, consistently for the entire period. Researchers in the initial period focused on literature review in 50% of publications, which subsequently reduced to 20.5% over time, indicating that with the advent of new methodology and voluminous published data, the authors have shifted focus to adopt newer methodologies, which are more analytical.

Table 2 - *Section* 5 details the research focus of publications for three consecutive periods and for the full period. We have analyzed the purpose of the research, whether theory

building, theory verification or application of concepts in existing situations in accordance with the study carried out by Gupta et al. (2006). The research focus of the majority of publications is for application in real-life situations, though its contribution has reduced from 75.0% initially to 41.7% recently. Theory building is the next higher focus, with 35.2% of authors contributing to this area.

It is inferred from the analysis of methodological and research focus above that the publications in performance management have mainly used qualitative approach, relied on archived data in addition to qualitative interviews for data collection, and have focused on application of concepts in existing situations using descriptive methodology.

Table 2

Methodological and Research Focus of Publications

Period of Study	1991–2001	2002–2012	2013–2023	Full Period
Section 1: Research Approach				
Qualitative Research	75.0%	50.0%	33.3%	**43.2%**
Mixed (Quali and Quanti)	12.5%	31.3%	31.3%	**29.5%**
Quantitative Research	12.5%	18.8%	35.4%	**27.3%**
Section 2: Data Collection Type				
Archived Data	25.0%	31.3%	33.3%	**31.8%**
Quantitative Survey	12.5%	31.3%	33.3%	**30.7%**
Case Study Approach	12.5%	18.8%	14.6%	**15.9%**
Qualitative Interviews	37.5%	12.5%	8.3%	**12.5%**
Laboratory Data	12.5%	6.3%	10.5%	**9.1%**
Section 3: Statistical Techniques				
Descriptive Methods	75.0%	53.1%	50.0%	**53.4%**
Regression Analysis etc.	12.5%	15.6%	35.4%	**26.1%**
Others	12.5%	31.3%	14.6%	**20.5%**
Section 4: Methodology				
Conceptual Method	25.0%	25.0%	25.0%	**25.0%**
Modelling and Analytical	25.0%	31.3%	20.8%	**25.0%**
Systematic Literature Review	50.0%	15.6%	18.8%	**20.5%**
Empirical Study	0.0%	12.5%	20.8%	**15.9%**
Mixed	0.0%	15.6%	14.6%	**13.6%**
Section 5: Research Focus				
Application	75.0%	40.6%	41.7%	**44.3%**
Theory Building	12.5%	40.6%	35.4%	**35.2%**
Theory Verification	12.5%	18.8%	22.9%	**20.5%**

The global coverage and sectoral focus of publications are analyzed in Table 3. We have analyzed publications based on their global coverage and sectoral focus.

Table 3 - *Section* 1 details the percentage contributions of authors for publications with a single or multi-country focus. It is noted that 73.9% of publications cover studies for a single country. This tendency is visible throughout the period of study and indicates that multi-country studies are very limited, providing scope for future researchers to focus on the same.

Table 3 - *Section* 2 indicates that publications focus mainly on studies for Europe and Asia. 35.4% of publications cover Europe, and 29.2% cover Asia, considering an entire period of study. Other continents covered are Africa and Australia, with 12.3% and 10.8% contributions respectively.

Table 3 - *Section 3* depicts that the focus of publications on the service sector, like municipalities, healthcare, etc., is consistently higher at 53.4%. Applicability of publications to both service and manufacturing sectors is 35.2 %. The study of performance management in the service sector has been adequately covered since performance measurement in these

sectors is subjective and mainly based on feedbacks through surveys, etc. Hence, future studies may focus more on manufacturing and other sectors.

Table 3

Global Coverage and Sectoral Focus of Publications

Period	1991–2001	2002–2012	2013–2023	Full Period
Section 1: Global Coverage (Country Coverage)				
Single Country	62.5%	78.1%	72.9%	**73.9%**
Multi Country	37.5%	21.9%	27.1%	**26.1%**
Section 2: Global Coverage (Continents Coverage)				
Europe	0.0%	40.0%	37.1%	**35.4%**
Asia	20.0%	28.0%	31.4%	**29.2%**
Africa	20.0%	12.0%	11.4%	**12.3%**
Australia	20.0%	8.0%	11.4%	**10.8%**
North America	20.0%	12.0%	8.6%	**10.8%**
South America	20.0%	0.0%	0.0%	**1.5%**
Section 3: Sectoral Focus				
Service Sector	50.0%	53.1%	54.2%	**53.4%**
Both Service and Manufacturing	50.0%	31.3%	35.4%	**35.2%**
Manufacturing Sector	0.0%	15.6%	10.4%	**11.4%**

Intellectual Structure through Science Mapping

The bibliographic data of 88 abovementioned articles from quality journals were further analyzed using VOS viewer to identify and study the clusters. The cluster summary of articles on performance management in the public sector is presented in Table 4. The central theme of clusters and the ranking of keywords in each cluster is detailed in Table 5. Total occurrences (TO) of keywords, their degree centrality (DC), and total link strength (TLS) for relative importance are studied to decide the central theme of each cluster.

Table 4

Cluster Summary of Performance Management in Public Sector

% Connection	Performance Measurement	Public Sector	New Public Management	Local Government	Performance Management
Cluster #1	59.5	13.5	8.1	8.1	10.8
Cluster #2	16.7	58.3	8.3	12.5	4.2
Cluster #3	9.4	34.4	31.2	12.5	12.5
Cluster #4	5.9	35.3	17.7	23.5	17.6
Cluster #5	31.0	33.3	14.3	7.1	14.3
%K	23.1	23.1	19.2	19.2	11.5
%DC	24.8	22.7	18.7	18.7	13.1

Note. %K = percentage of keywords and %DC = percentage of links in the cluster.

The inter-relationship among different clusters is summarized in Table 4. The data reveals that 31.0% of keyword links in cluster #5 (performance management) are related to keywords in cluster #1 (performance measurement), meaning that the topics are strongly related. An organization's performance management encompasses performance evaluation, which consequently is possible through performance measurement. Similarly, the relation between cluster #4 (local government) and cluster #2 (public sector) is established, as 35.3% of keyword links are connected. Hence, the connections seem very logical.

Cluster Analysis

Cluster #1: Performance Measurement: Most used keywords in this cluster are 'public sector organizations' and 'performance measurement'. 23.1% of total keywords and 24.8% of

network links are connected to the keywords in this cluster. This cluster's top two most used keywords appear in 20 articles and are connected to 21 unique keywords. The total link strength of these two keywords is 41, indicating the high importance of these keywords in the cluster. Other keywords in the cluster are 'change management,' 'performance measures,' and 'performance management systems.'

Keyword analysis of Cluster #1 reveals that public sector organizations adopted several tools to measure performance over the years but failed to incorporate performance information into their management practices or to properly use it for either internal or external purposes (Melo & Mota, 2020). This indicates that useful strategies and tools are developed for public sector performance improvement, but implementation has been a challenge in developed as well as developing countries. It is important to better understand how to overcome the challenges in implementation. Two key factors are the commitment of the operative level and the suitability of the chosen measurement tool (Jääskeläinen & Sillanpää, 2013).

Cluster #2: Public Sector: The Highest occurring keyword in this cluster is 'public sector'. 23.1% of total keywords and 22.7% of links in the network are connected to the keywords in this cluster. The keyword 'public sector' occurs in 29 documents and is connected to 18 other unique keywords. Other related keywords in the cluster are 'accountability', 'knowledge management', and 'organizational performance'. These keywords indicate the factors that have a major impact on the performance of public sectors. Employees' performance management is often promoted as an innovation to improve public sector performance, but it is hard to implement globally. Performance management conflicts with the aspects of traditional culture. Accountability positively impacts performance management innovation, and interpersonal relationships rooted in traditional cultures negatively impact it. Servant and entrepreneurial leadership styles moderate these relationships (Anh et al., 2022).

Public sector organizations implement knowledge management processes to a great extent. Knowledge management processes have a significant positive impact on innovation, quality, and operational performance of the public sector, but the strength of this impact is found to differ across different public sector organizations (Balasubramanian et al., 2020). The importance of public sector performance has increased multifold over the last two decades, owing to increased competition. Thus, authors have started focusing on factors that have a major impact on the performance of the public sector.

Cluster #3: New Public Management 'new public management' is the topmost keyword in this cluster. This cluster contains 19.2% of the keywords, with 18.7% of links in the network connected to its keywords. 'New public management' appears in 11 articles and is connected to 12 unique keywords. According to the link strength criterion, another important keyword is 'public sector reform' with a total link strength of 19. Thus, this cluster's central theme is related to public sector reforms through new public management policies. Other keywords in the cluster are 'civil service reform', 'governance', and 'public administration.'

Countries have adopted and implemented New Public Management (NPM) public sector reforms based on the business models of organization and management. Experiences in various countries demonstrate that the inherent individualistic aspects of NPM-related

performance management do not suit the context of countries with a collective culture (Ugyel, 2021).

The authors have deduced that NPM has two dimensions: minimization of the role of government vis-à-vis society and improvement of the internal performance of the public sector. The approach has to be different from one-size-fits-all recommendations, as witnessed in past decades (de Vries & Nemec, 2013). During the last two decades, the public sector has come under increasing pressure to improve performance and demonstrate greater transparency and accountability, resulting in a shift of focus on performance (Brown et al., 2003).

Cluster #4: Local Government: The Most occurring keywords in this cluster are 'performance' and 'local government.' It contains 19.2% of the keywords, with 18.7% links connected to the keywords in this cluster. These top two most occurring keywords appear in 21 articles and are connected to 33 unique keywords with a total link strength of 41. According to the total link strength criterion, the most important keyword in the cluster is 'local government.' Other keywords in the cluster are 'service delivery' and 'public sector management.' Accordingly, the cluster's central theme is the performance of local government and the impact of public sector management in service delivery.

Due to the change in needs and demands of a larger society and the diverse nature of business, the public sector requires environmental scanning for the successful alignment of competitive strategies (Tajuddin & Ahmad, 2013).

Governments seek to create conditions for better performance of local administration. However, the relationship between different political governance arrangements and local authorities' performance is not demonstrated (Fenwick & Miller, 2012).

Organizational capacity to perform is a measure that is positively related to the managers' perceptions of service performance (Björk et al., 2014). Hence, the reason for the focus of authors on service delivery through effective public sector management and its impact on local government is unstated.

Cluster #5: Performance Management Important cluster with 11.5% keywords and 13.1% links in the network connected to the keywords in the cluster. The highest occurring keyword in this cluster is 'performance management', which appears in 28 articles and is connected to 19 unique keywords with a total link strength of 54. Another keyword in the cluster is 'developing countries.'

The delivery of public services in developing countries is over-centralized, reducing the accountability of employees. This leads to undesirable decisions and mismanagement of performance and resources at the expense of the public. The performance management model should be adopted as a universal remedy for improving the service quality of the public sector (Mwita, 2000).

Performance management is a key parameter in modern public sector governance. However, the implementation of PMS in many countries is affected by several institutional and capacity constraints such as culture, institutional fragmentation, public apathy, and leadership support, making it difficult for many of them to realize the benefits of PMS (Ohemeng, 2009).

Performance management has failed because of employees' negative perceptions and management's exclusion of employees from its development. Studies on the relationship between employee perception of performance management and its effectiveness in the public sector are limited. Management must value employee perception since it is unlikely that employees would be willing to take an active part in implementing a change with which they disagree or see no value (Ohemeng et al., 2018).

Challenges in implementing an effective Performance management system are far too many. Authors over the years have focused on different aspects of performance management and its implementation. Though there are a good number of studies on PMS as a whole, the focus on the implementation of specific tasks is very limited.

Cluster #6: Balanced Scorecard The only keyword in this cluster is 'balanced scorecard'. This cluster contains 3.9% of the keywords and 2.0% of links connected to this keyword appearing in 3 articles and connected to 4 unique keywords. The total link strength of this keyword is 8. The balanced scorecard is a strategic planning and performance management framework that translates the strategic objectives of an organization into four categories: financial & physical, customer, internal process, and learning & growth with interconnections amongst them and is percolated down to each department within the organization.

The perceived balanced scorecard utility is dominated by performance measurement and reporting, while the performance management role of the balanced scorecard remains relatively under-exploited. The articles identify users' perceptions of key challenges impeding balanced scorecard implementation in the public sector and highlight its significance for both theory and practice (Northcott & Ma'amora-Taulapapa, 2012).

A balanced scorecard links strategic objectives and performance measures across four components, cascaded down to every department, and is a very effective tool for a common understanding of strategy across the organization (Irwin, 2002).

The authors have emphasized the implementation of a balanced scorecard in the public sector for strategic performance management.

Table 5

Central Theme of Clusters and Ranking of Keywords in Each Cluster

Cluster #1 (Performance Measurement)				Cluster #2 (Public Sector)				Cluster #3 (New Public Management)			
Ranking of Keywords	**TO**	**DC**	**TLS**	**Ranking of Keywords**	**TO**	**DC**	**TLS**	**Ranking of Keywords**	**TO**	**DC**	**TLS**
public sector organizations	13	12	27	public sector	29	18	49	new public management	11	12	23
performance measurement	7	9	14	accountability	4	7	9	public sector reform	8	12	19
change management	4	9	11	employee performance management	3	4	6	civil service reform	3	3	3
finland	4	6	12	knowledge management	3	3	4	governance	3	7	9
performance measures	4	5	9	organizational performance	3	6	6	public administration	3	3	5
performance management systems	3	8	10	vietnam	3	7	8				

Cluster #4 (Local Government)				Cluster #5 (Performance Management)				Cluster #6 (Balanced Scorecard)			
Ranking of Keywords	**TO**	**DC**	**TLS**	**Ranking of Keywords**	**TO**	**DC**	**TLS**	**Ranking of Keywords**	**TO**	**DC**	**TLS**
performance	13	11	19	performance management	28	19	54	balanced scorecard	3	4	8
local government	8	12	21	developing countries	4	3	5				
public sector management	4	4	4	ghana	3	4	7				
management	3	4	5								
service delivery	3	6	7								

Note. TO = total occurrence, DC = degree centrality, and TLS = total link strength.

Research Fronts of Publications

The study of current focus of publications on Performance Management in Public Sector leads us to understand the direction of future research. Thus, we have studied publications of last four years (2020–2023) to identify the research fronts being pursued by the authors and to understand their correlation with thematic clusters in previous section.

Research Front #1: Performance Management and Measurement in Public Sector is a major research front, with 33.3% of publications focusing on the topic in the last four years. This research front has a central theme corresponding to clusters #5 and #2 of the previous section. The authors in this research front studied the impact of behavioral components like ethical values, trust, and organizational culture on performance. In other words, the focus is on the effect of organizational culture on the motivation of employees in public service organizations (Lee et al., 2020). Knowledge sharing, empowerment of employees, and the role of servant leaders impact performance (Tripathi et al., 2021). The impact of social inclusion, poverty, and corruption is studied to understand the role of accounting and accountability mechanisms in managing uncertainties and risks (Bastida et al., 2022).

The effectiveness of performance evaluation depends on its perception by public sector employees. Vidè et al. (2022) have studied the effect of performance appraisal on the attitude of individuals. The study also included perceived justice as a factor for work engagement.

Though PMS is very effective in improving the performance of public sector employees, proper implementation of its specific tasks has always been a challenge. Public sector employees culturally have interpersonal relationships and lack accountability which adversely affects performance management. Conversely, accountability has a positive impact on performance management (Anh et al., 2022).

Vakkuri (2022) reflects on Sven Modell's (2022) study, discussing uses of institutional theorizing for studying performance measurement and management in the public sector and providing arguments for critically analyzing the assumptions and characteristics of the research. Modell's paper suggests the sociology of valuation and the discussion on hybrid governance as future developments for performance management and measurement research. Vakkuri (2022) provides a conceptual perspective to link these areas together. There is a need to modify institutional theory in view of the implications of different organizational forms, social ecology, and methodological issues on performance management and measurement systems (Polzer, 2022).

Thus, Performance Management in Public Sector is a very important research area for future researchers, with a specific focus on the implementation of individual tasks of PMS in different types of organizations.

Research Front #2: Human Resource Development in Public Sector published in the last four years have contributed to 23.8% of articles on Research Front #2. This research front corresponds to cluster #1, which has a central theme of factors affecting performance measurement in the public sector.

This research front explores issues related to behavioral training and skill development of employees engaged in the public sector. For a long time, public and semipublic organizations have borrowed Human Resource Development practices from the private sector to enhance employee performance. Based on the ability–motivation–opportunity model, a three-level meta-analysis to investigate differences in the effects of Human Resource Development practices on individual performance across sectors indicated that the differences between public, semipublic, and private sectors are not straightforward (Blom et al., 2020).

Balasubramanian et al. (2020) examine the impacts of ownership of public sector organizations on the implementation of knowledge management processes (knowledge creation, knowledge capture and storage, knowledge sharing, and knowledge application and use) and subsequent performance benefits of implementation. The results of longitudinal econometric analysis on the impact of human capital development practices on organizational performance suggest that human capital development practices have positive effects on public sector performance (Wesemann, 2022).

Researchers get a clear direction through this research front that in the future they need to focus on analyzing the impact of factors like knowledge sharing, capability building, skill, competency growth etc., on human capital development in the public sector.

Research Front #3: Performance of Public Sector 19.1% of articles published in the last four years belong to this research front and directly correspond to Cluster #4 and #2. A central theme of these clusters is public sector management. This research front may be seen from two perspectives, viz., from the standpoint of internal improvements like leveraging technology, logistics, and assets management, etc., and another from external factors like competition, policy intervention by government, etc. Holguín-Veras et al. (2020) conducted a review of the public-sector initiatives to improve freight activity in metropolitan areas and produced a ranking of suggested initiatives for performance improvement.

Existing frameworks in the public sector mainly focus on exogenous sources of dynamism or public managers' critical role in driving strategic initiatives. The mechanisms through which dynamic capabilities lead to performance improvement and antecedent organizational resources are equally important (Panagiotopoulos et al., 2023). Aldenius et al. (2022) explored the improvement of the environmental performance of public transport through electric buses to understand the influence of governance context, organizational practices, and relations between stakeholders.

This research front provides a direction for further study on the impact of the implementation of suggested internal process changes in the public sector and the external socio-political changes and other policy developments on public sector performance.

Research Front #4: Public Sector Reforms This front has lately received some focus, covering 14.3% of publications. It directly corresponds to cluster #3, 'new public management policy' of intellectual structure. The efforts of the public sector to implement several interventions for performance measurement proved futile in improving their performance (Melo & Mota, 2020). Thi-Tran et al. (2022) studied the impact of accountability on culture and performance in a new public management theory for public sectors. Though reforms gained momentum worldwide, they exhibited mixed results in different countries. Countries having collective culture clash with individualistic aspects of new public management (Ugyel, 2021)

Direction for Future Research

Performance management in the public sector will continue to remain relevant and has the capacity to directly impact performance. It will gain further importance as the world is migrating to emerging ways of workforce engagement like fixed-term employment, the gig economy, etc.

In the current ecosystem, there is a multi-fold increase in customer expectations, and simultaneously, public sectors are expected to reduce expenditure, resulting in a strain on performance (Hodgkinson, 2013). It will further increase due to fast-growing competition from the tech-savvy private sector with access to the latest infrastructure.

Publications on performance management in the public sector are growing rapidly, indicating the increase in attention of authors on the topic. The detailed performance analysis and science mapping in this bibliometric analysis have propelled the future course of study on the topic. Through a careful reading of research fronts and central themes of the latest research, key focus areas have emerged to be explored by scholars in their future research.

Alignment of Key Result Areas (KRAs) to Organizational Strategy

The advent of performance management has changed the way of working in public sector. Output focus has become more common. Other changes include decentralization and managing organizations horizontally.

Research Front #1 focuses on the measurement of performance. Defining KRAs for each job role aligned to organizational strategy exemplifies this research front. Research on KRAs of individuals and teams in public organizations is largely absent. There is ample scope for future research to better understand the alignment of KRAs to organizational strategy and goal setting in public sector teams (Van der Hoek et al., 2018).

There are three classes of problems with performance management in the public sector - technical, systems, and involvement. Externally imposed restructurings and reorganizations restrict the successful implementation of performance management (Fryer et al., 2009). Future research may analyze the system-based implementation of key result areas on various dimensions. Additional research is required to test the validity and usefulness of the theoretical model on strategic integration of stakeholder performance measures and scorecards (McAdam et al., 2005).

Thus, the impact of the alignment of KRAs to organizational strategy on the performance of the public sector and the identification of important factors in the process of alignment are identified as important future research areas.

Role of Managers in Accomplishing Performance Management Tasks

It is assumed that public services in developing countries are a drain on the wealth-producing part of their economy. Research Front #2 covers human resources development in the public sector, and managers can make a difference by investing their wisdom in developing their teams. Performance management model coupled with practical econometric and managerial techniques may accelerate new public management. The 'new' role of management systems for modern public sector managers is a potential area for future research (Mwita, 2000).

Managers adopting a risk-based approach of factoring the context and external not-controllable factors during goal setting process mitigate the side effects of performance management practices in public organizations (Capaldo et al., 2018). It provides direction for future exploratory research on the adoption of a risk-based approach for goal setting and monitoring by public managers.

An under-researched field is the assessment of public value theory in understanding results-based management from the perception of public sector managers (Try & Radnor, 2007). Future research should engage public value theory in developing an understanding of executive managers' perceptions, behaviors, and responses to changes introduced by results-based management.

The factors affecting success of measurement system implementation with the objective of productivity and the experiences described can assist public managers to avoid pitfalls in the implementation of measurement systems (Jääskeläinen & Sillanpää, 2013). This connecting-the-dots exercise for identifying the role of managers in implementing performance management tasks would be useful in creating insights during future research. Thus, further study on the role of managers in accomplishing performance management tasks provides a direction for future researchers to explore.

Mechanism to Monitor Performance Management (PM) Task Accomplishment by Managers

Research Front #3 and #4 explore the performance of the public sector and implementation of public sector reforms; both depend largely on how effectively the teams are enforcing performance management tasks. Managers have a major role in providing direction to their respective teams for the implementation of reforms, thereby enhancing performance. Activities of managers need monitoring and audit to identify gaps in their effectiveness in performing intended tasks. Wide variation is found in pertinent characteristics of audit methods and programs in the public sector (Robson et al., 2012). Further research is needed to precisely determine the impact on the performance of audit programs to monitor the managers in the accomplishment of performance management tasks.

de Vries and Nemec (2013) call for explanatory research to explain the increasing variance in reforms among countries by investigating the determinative factors to monitor managers' performance. Future research should specifically examine the factors that support and impede the effective implementation of a balanced score card by managers in the public sector context for alignment of performance measurement of all teams with the organizational objectives (Northcott & Ma'amora-Taulapapa, 2012). In addition, researchers may also explore the anxiety, fear, and trust issues among managers in accomplishing performance management tasks.

Thus, further research is required on monitoring the effectiveness of managers through a mechanism that could be an improvement over a balanced scorecard to ensure the implementation of intended tasks by managers. This research area will largely address the gaps identified in publications on the performance of the public sector and implementation of public sector reforms as detailed in reach front #3 and #4.

In order to provide specific direction to future researchers, the following section covers the suggested future research questions for each of the areas identified under the directions for future research mentioned above.

Future Research Questions

A list of future research questions has been developed in line with the identified themes for future research and based on the detailed review of all articles for their subsequent research directions. These questions were shortlisted to exclude questions already addressed by prior researchers. A list of such future research questions is summarized in Table 6 for each promising research theme.

The central theme for future research was identified based on the similarity of topics covered by the articles. Names of authors having publications in similar fields of research as that of the central theme suggested for future research have also been provided against corresponding research questions.

In addition to the research questions suggested in Table 6 derived from the bibliometric analysis, some more future research areas are suggested.

First area that needs attention is to identify interventions to motivate disgruntled employees. Scholars should scrutinize beyond surveys and self-reports to identify the main reasons for unfavorable views of such employees. Publications suggest ways to strengthen the employees with positive attitude, but it is silent on analysis and recommendations for converting employees with unfavorable views to positive approach toward performance measurement systems. Relation between their approach and designing their KRAs aligned to organizational strategy needs further study.

Another suggestion for future research is the level of implementation of performance conversations by managers to motivate employees by providing feedback on their performance in public sectors. There is a gap between managers' performance dialogue with subordinates versus evaluation, to avoid difficult conversations on poor performance. Thus, further research to identify factors for improving performance conversations by managers in the public sector is required.

Finally, further research is needed to understand the effect of individual manager's attitudes toward performance management tasks and how it impacts public organizations. A detailed study on the topic would identify the weightage that should be assigned to the impact of a manager's attitude as a factor of effective performance management systems in public sector organizations.

Table 6

Future Research Questions for Promising Research Themes

Research Theme	Sample Future Research Questions	Authors
Alignment of KRAs to Organizational Strategy in public sectors	What processes should be used to design (KRAs) in public sector organizations?	Van der Hoek et al. (2018)
	To what degree public sector organizations are aligning KRAs to the organizational strategy?	
	To what extent do the technical, systems, and involvement issues and externally imposed restructurings affect performance measurement in public sectors?	Fryer et al. (2009)
	How do the interrelationships between employees and managers vary for public and private sectors?	
	How does the implementation of balanced scorecard-based KRAs influence current and prospective employees?	McAdam et al. (2005)
Role of Managers in accomplishing performance management tasks	How do managers meet the information needs of performance management tasks across various public and private sectors?	Mwita (2000)
	What is the impact of grievance redressal mechanisms in public sectors on performance management tasks by managers?	Capaldo et al. (2018)
	How do managers adopt a risk-based approach in public sectors to accomplish performance tasks to meet the KRAs of teams?	
	How does the emotional intelligence of managers influence performance management tasks?	Try & Radnor (2007)
	What factors contribute to building employee trust when managers implement employer performance management tasks?	Jääskeläinen & Sillanpää (2013)
Mechanism to monitor performance management task accomplishment by Managers	How do public sector organizations ensure managers execute performance management tasks as intended?	Robson et al. (2012)
	What factors facilitate or hinder managers in carrying out performance management task-related actions?	
	What factors are evaluated by leader-manager levels for managers' commitment to performance management tasks in public sectors?	
	How do external disruptive events, viz., changes in regulations, strikes, mergers and acquisitions, natural calamities, pandemics, etc., impact a company's performance management systems?	de Vries & Nemec (2013)
	How do certifications in public sectors like 'People Capability Maturity Model' contribute to the proper implementation of performance management tasks by managers to influence current and potential employees?	Northcott & Ma'amora-Taulapapa (2012)
	What type of training interventions are provided to managers for effective implementation of performance management tasks, and how do they vary amongst organizations?	

Conclusion

We have analyzed the publications in this review paper through an extensive study of the literature coupled with bibliometric analysis to provide a recent, neutral, and objective overview of the literature. Trend analysis has indicated an increase in the number of researches on this topic, mainly from the United Kingdom, Australia, and the United States. Performance analysis of most prolific authors, universities, and journals suggest that a larger number of publications cite the articles having higher contributions. The most contributing journal is the International Journal of Public Sector Management.

The study of methodological and research focus of publications indicates a dominance of qualitative research approach based on archival and qualitative data collection methods. Authors have preferred descriptive type statistical technique with systematic literature review as research methodology. The main research focus of publications is on its application in real-life situations. Studies are mostly conducted in a single country, and service sector applicability is highest.

Science mapping of publications using keyword co-occurrence analysis for identification of clusters and finding their central themes has contributed to providing inputs to the scholars on current trends of research on the topic. Further, the research fronts of publications are

discussed to identify the themes that are less explored and need further attention of the scholars. This study has immensely contributed to suggesting research questions for each future research theme derived from the detailed bibliometric analysis in this paper.

We conclude our review by identifying some key recommendations for future research on performance management in the public sector that stem from our bibliometric analysis. These recommendations shall provide contributions to both academia and policy-making in the domain of public sector performance management.

First and most important, understanding the extensive contingencies within the public sector while implementing the critical task of setting key result areas aligned to organizational strategy necessitates the system-based implementation of tasks on various dimensions. As we noted in our summaries, this is not the norm in the extant research. Second, understanding public sector performance management necessitates more research to be conducted in the field with employee and managerial participants. Developing an understanding of executive public manager's perceptions, behaviors, and responses to changes by engaging public value theory would result in clearly defining the role of public managers in accomplishing performance management tasks. Thus, much more field research is needed for the generalizability of the public manager role definition. Third, although there is significantly large public sector performance management research that exists at the organization level across varied system components, in the recent literature compared to the older literature, there is an explicit need to better understand the mechanism to monitor the accomplishment of performance management tasks by the managers of public sector organizations. This system audit for designing systemic improvements on monitoring mechanisms for public managers with a view to strengthening the policies will be an important contribution of research and will lead to public sector reforms.

We reviewed more than 30 years of the public sector performance management literature, and our overarching conclusion is that despite progress in the study of performance management, much work is yet to be done in developing comprehensive and conclusive scientific knowledge that can better inform public sector performance management in practice.

The limitation of this study is the use of specific keywords. Publications not tagged with these keywords could have been missed out. Additionally, scholars may explore ethnography for more effective analysis (Kozinets, 2016). Scholars may also broaden their scope by including data from other sources like Web of Science, etc., in addition to Scopus.

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