

Bibliometric analysis with VOSviewer: the development of employee performance management research

ARTICLE INFORMATION

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ABSTRACT

This study aims to analyze the research trends in employee performance management using bibliometric analysis with VOSviewer, utilizing data from Google Scholar via Publish or Perish within the 2015 to 2024 timeframe. A total of 500 filtered publications were analyzed to identify publication patterns, author collaborations, and the most frequently researched topics. The analysis results revealed several main clusters dominating the literature, such as performance measurement, competency development, and human resource management. These findings indicate an increase in collaboration among authors and institutions, reflecting a collective effort to advance knowledge in the field of employee performance management. By mapping keyword and author relationships, this analysis provides a comprehensive overview of research developments during the specified period. In conclusion, this study not only confirms the relevance and importance of employee performance management in the context of modern organizations but also opens opportunities for further research that can enrich insights and practices in this field. The study's results significantly contribute to understanding the academic landscape of employee performance management and provide direction for future research.

Keywords: *Management¹; performance²; employee³*

INTRODUCTION

Research on employee performance management has become an increasingly popular topic over the past decade, in line with organizations' growing need to optimize employee productivity and effectiveness. In an effort to understand and analyze research trends in this field, bibliometric analysis using VOSviewer software can provide valuable insights. Through the use of Publish or Perish to collect data from the Google Scholar database, the 2015 to 2024 timeframe was selected to highlight recent developments in the academic literature related to employee performance management. This approach allows for the identification of publication patterns, author collaborations, and the most frequently researched topics, thereby providing a comprehensive picture of the direction and focus of research in the field of employee performance management. Although several bibliometric studies on employee performance management already exist, most cover either a narrower set of keywords or a shorter publication window; this study addresses that gap by mapping a full decade of literature (2015–2024) using a broader keyword strategy and multiple complementary VOSviewer visualizations (co-occurrence, overlay, and density) to provide a more comprehensive picture of how the field has developed.

Research on employee performance management has developed rapidly in recent years, in line with organizations' increasingly deep need to improve the effectiveness and efficiency of employee work. This topic covers various aspects, ranging from performance evaluation methods and competency development to managerial strategies that can influence individual and team work outcomes (Kurnia, 2013). With the increasing complexity of the work environment and technological change, employee performance management has become crucial to ensuring that every employee contributes optimally to organizational goals. Research in this field not only helps in understanding the factors that

influence performance, but also in formulating strategies that can be implemented to improve productivity and job satisfaction (Siregar & Nasution, 2023).

On the other hand, analysis of research trends in employee performance management shows variation in research focus and methods over time. For example, there has been a shift from traditional approaches in performance appraisal toward more holistic and data-driven models (Azizah & Mitra Gama, 2017). Recent research often explores how technology, such as cloud-based performance management systems and data analysis tools, influences the way employees are appraised and developed. This change reflects adaptation to new needs and challenges in the modern workplace, and underscores the importance of ongoing research to understand and manage employee performance effectively (Damayanti et al., 2017).

Bibliometric analysis with VOSviewer involves several important steps. First, bibliographic data is extracted using Publish or Perish from Google Scholar, which provides broad access to relevant scientific articles from the 2015 to 2024 period. Once the data has been collected, VOSviewer is used to visualize and analyze the network of keywords, authors, and institutions that frequently appear in the literature. By mapping these relationships, we can identify the dominant research clusters and observe how the field of employee performance management has developed over time. The results of this analysis not only help in understanding trends and dynamics in the existing literature, but also direct researchers toward new research opportunities that have not yet been widely explored. Beyond human resource management, this approach has also been applied successfully across diverse research domains, including mathematics education (Angraini & Muhammad, 2023), Islamic education (Busro et al., 2021), Industry 4.0 studies (Pham-Duc et al., 2021), payroll systems research (Rusly et al., 2019), social impact studies (Baraibar-Diez et al., 2020), geography (Istiana, 2022), and management journal analysis (Siregar & Baharudin, 2021), demonstrating its versatility as a tool for mapping research trends across fields.

In summary, this bibliometric mapping is expected to clarify how the employee performance management literature has evolved over the past decade and to highlight areas that warrant further investigation. The remainder of this article presents the method used, followed by the results of the citation, keyword, and collaboration analyses, and concludes with a discussion of their implications.

METHODOLOGY

This study uses a descriptive quantitative method with a bibliometric analysis approach to describe the phenomena occurring in the study of employee performance management. This topic was chosen because of the importance of understanding the dynamics of employee performance in a management context, which can provide deeper insight for policymakers and practitioners in this field. The focus of this research is to analyze publication trends related to employee performance management during the 2015 to 2024 period, with the aim of providing an overview of research developments and recent findings in this field.

Type of Research and Data Used

The type of research used is descriptive quantitative with a bibliometric analysis approach. The data used in this study is publication data indexed in Google Scholar related to employee performance management within the 2015 to 2024 timeframe. The data is limited to 500 documents with a focus on five main areas of study, namely management, performance, employees, motivation, and work discipline, to cover verified scientific articles and provide a comprehensive picture of the development of this topic.

Data Sources and Selection

Data were collected by searching for publications indexed in Google Scholar using the Publish or Perish application. Articles were included if they were published between 2015 and 2024, contained at least one of the five focus keywords (management, performance, employees, motivation, or work discipline) in the title or abstract, and had complete bibliographic metadata (author, year, title, and citation count). Articles were excluded if they were duplicate entries, lacked identifiable metadata, or were unrelated to the employee performance management context despite matching the keyword search. The collected data was then filtered based on these criteria so that only relevant and verified articles were used in the analysis.

Data Collection Technique

Data collection was carried out using descriptive bibliometric techniques through a search of publications indexed in Google Scholar. The collected publication data was then analyzed using VOSviewer software to visualize the relationships between frequently occurring keywords, citation networks, and collaboration among authors. This method is expected to identify patterns and trends in publications on employee performance management.

Data Analysis Process and Stages

The data analysis process was carried out in several systematic stages. First, the collected data was analyzed using a descriptive bibliometric method to identify patterns in the publications. Second, the VOSviewer technique was used to map the relationships between frequently occurring keywords, major contributing authors, and the citation impact received by each publication. This analysis aims to provide a clearer picture of the topics most frequently discussed in the study of employee performance management.

RESULTS

The results of this study are presented in two stages: (1) an initial search and screening of literature documents based on the specified keywords, and (2) the presentation and visualization of the screened data. In the first stage, an initial search of literature documents was conducted by entering keywords. The initial search yielded 500 documents, consisting of articles, books, conference papers, letters, notes, and editorial/book reviews, published during 2015–2024, a period of 10 years. In the second stage, Table 1 presents the results of the initial search, showing the ten documents with the highest number of citations.

The Most Cited Employee Performance Management Articles

Based on the results of the analysis of publication data indexed in Google Scholar using the Publish or Perish application, the most cited articles related to employee performance management were identified. Table 1 shows the ten articles with the highest number of citations. The most cited article is “The influence of work environment, job satisfaction, and workload on employee performance,” published in 2019 with 1,020 citations. These articles make a significant contribution to understanding the factors that influence employee performance.

Table 1. Most Cited Employee Performance Management Articles

No	Citations	Title	Source	Year
1	1020	The influence of work environment, job satisfaction, and workload on employee performance	jurnal.umsu.ac.id	2019
2	716	The influence of organizational culture and organizational commitment on employee performance	stiealwashliyahsibolga.ac.id	2018

No	Citations	Title	Source	Year
3	637	The influence of leadership style and work environment on employee performance with job satisfaction as an intervening variable	osf.io	2018
4	529	Analysis of factors influencing employee performance	jurnal.umsu.ac.id	2018
5	516	The influence of motivation, discipline, and job satisfaction on employee performance at PT. Angkasa Pura II (Persero) Kualanam Branch Office	jurnal.darmaagung.ac.id	2020
6	510	The influence of work environment on employee performance at PT. Super Setia Sagita Medan	publication.petra.ac.id	2020
7	501	The influence of work motivation, job satisfaction, and work discipline on employee performance in the Sales Division of PT Rembaka	Agora (Universitas Kristen Petra)	2019
8	455	The influence of leadership, motivation, and training on employee performance	-	2019
9	443	The influence of job satisfaction and work discipline on employee performance at Bank Rakyat Indonesia, Putri Hijau Medan Branch	jurnal.umsu.ac.id	2017
10	430	The influence of competence, motivation, and job satisfaction on employee performance	-	2019

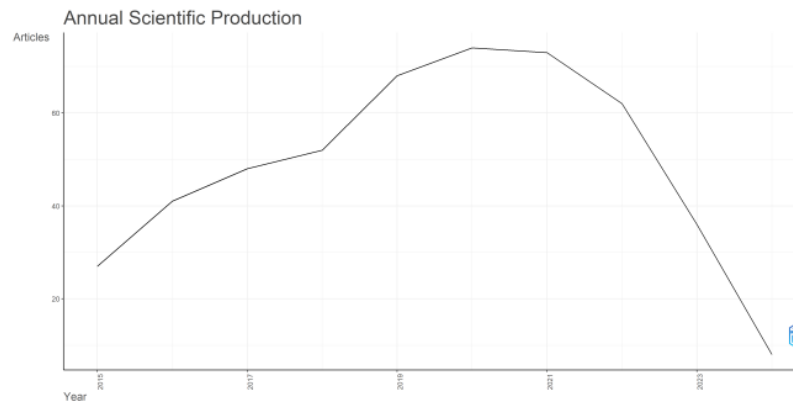
Source: Publish or Perish data, processed

Note: Author names are omitted from this summary table for conciseness; full bibliographic details, including author names, are available in the underlying Publish or Perish export. The source for entry 8 (The influence of leadership, motivation, and training on employee performance) and entry 10 (The influence of competence, motivation, and job satisfaction on employee performance) could not be reliably verified from the export and is therefore left blank.

Development of Research Publications

Figure 1 shows the trend in the development of the number of article publications related to employee performance management from 2015 to 2024. There was significant fluctuation in the number of publications each year. In 2015, there were 27 publications, increasing to 41 publications in 2016 and 48 publications in 2017. The peak number of publications occurred between 2019 and 2021, with 68 publications in 2019, 74 in 2020, and 73 in 2021. However, after this peak, there was a significant decline in 2022, with only 62 publications, and a more drastic decline in 2023 with 36 publications. In 2024, the recorded number of publications reached only 8. This decline may be due to various factors, including a shift in research focus or challenges in research funding.

Figure 1. Publications by Year



Source: Bibliometric Analysis

Mapping of Publications Based on Keywords

Based on the keyword analysis conducted using the VOSviewer application, 2,414 keywords were identified from the 500 documents analyzed. The analysis results show a number of keywords that frequently appear in articles related to employee performance management. Keyword mapping was carried out by setting a minimum occurrence of five times in relevant articles. Figure 2 shows the keyword map related to employee performance management based on the data obtained.

Figure 2. Research Based on Keywords

Create Map

Verify selected terms

Selected	Term	Occurrences	Relevance
☒	atau tidak dilakukan pegawai	8	6.52
☒	termasuk kinerja masing	9	6.35
☒	study	7	6.04
☒	manajemen kinerja adalah	12	5.26
☒	dilakukan untuk meningkatkan kinerja ...	12	4.93
☒	performance	12	4.56
☒	termasuk kinerja	8	2.08
☒	pln	10	1.57
☒	organisasi	58	1.04
☒	persero	25	0.92
☒	pengaruh motivasi kerja	5	0.78
☒	komitmen organisasi	7	0.76
☒	daya manusia	8	0.69
☒	motivasi	13	0.65
☒	pengaruh kompetensi	5	0.63
☒	hal	6	0.63
☒	penelitian ini bertujuan	5	0.56
☒	terhadap kinerja karyawan pada	29	0.56
☒	dengan	12	0.47
☒	untuk	9	0.42
☒	kerja terhadap kinerja pegawai	20	0.42

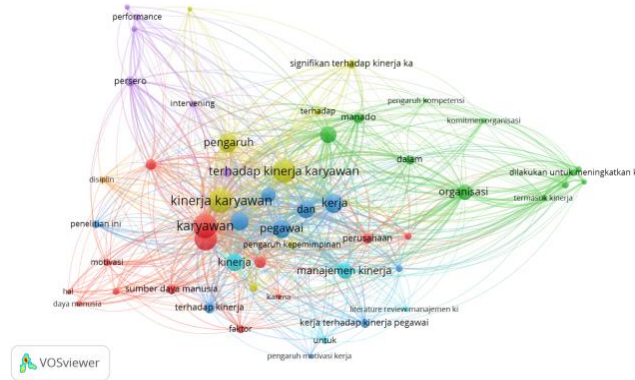
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Source: VOSviewer 2024

Keyword Network Map Visualization

Figure 3 shows the network visualization results depicting the relationships between keywords in research related to employee performance management. In this visualization, frequently occurring keywords are depicted in different colors, each representing a research cluster. More frequently used keywords such as “performance management,” “employee performance,” and “employee performance” appear with larger circle sizes, while less frequently used keywords have smaller circles. The distance between circles indicates how often the keywords appear together in an article. The closer the distance between circles, the more often the keywords appear in the same article.

Figure 3. Network Visualization of Employee Performance Management

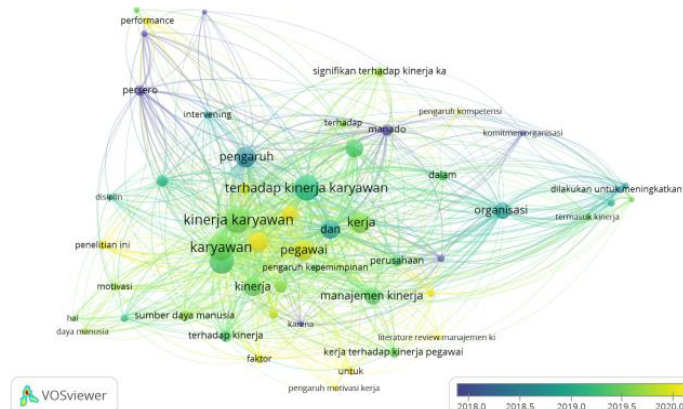


Source: VOSviewer 2024

Evolution of Research Based on Time Period

Figure 4 shows the overlay visualization results depicting the evolution of research related to employee performance management from the past to the present. Darker nodes indicate older research, while lighter nodes indicate more recent research. This shows the development and changes in research focus in the field of employee performance management, with the latest trends visible in the lighter nodes. This visualization helps identify changing trends in research and provides an overview of the direction of development of this topic over time.

Figure 4. Overlay Visualization of Employee Performance



Source: VOSviewer 2024

Density of Researcher Collaboration

Figure 5 shows the density visualization depicting the level of collaboration among researchers in the field of employee performance management. High node density indicates close collaboration among researchers. The denser a node, the more research cites one another, reflecting an interconnected research network. This visualization shows that there are groups of researchers working together or referencing each other's research, indicating a high intensity of collaboration in this field.

Figure 5. Density Visualization of Employee Performance



The results of this study are consistent with other research that has observed the development of publications related to employee performance management. For example, Garengo et al. (2021) found that research on performance measurement and management underwent significant development in recent years, with growing attention to internal drivers such as motivation, job satisfaction, and training. This finding is also supported by Mohamed et al. (2024), who show that HRM research output is strongly influenced by socio-economic and technological factors, including the changes brought about by the COVID-19 pandemic. The keyword mapping in this study reflects consistency with the results of previous studies, with a focus on frequently occurring keywords such as employee performance, motivation, and work environment.

Although the results of this study provide a clear picture of the development of publications and research trends in employee performance management, it is important to consider alternative explanations for these findings. One possibility is the influence of changes in research methodology, where qualitative studies or other approaches may have become more dominant and are not fully reflected in the data indexed in Google Scholar. In addition, the decline in publications in 2023 and 2024 may also have been influenced by changes in research funding policy or economic uncertainty leading to budget cuts for research in this field. Therefore, in addition to external factors such as the pandemic, other factors such as funding limitations and research methodology preferences may also play a role in the decline in the number of publications.

The findings of this study have several important implications. First, the growth in the number of publications demonstrates the importance of research in the field of employee performance management for improving understanding of the factors that influence performance and productivity in the workplace. Second, keyword mapping and co-word visualization provide insight into research trends and allow for the identification of areas that still require further exploration, such as the influence of technology or changes in work culture on employee performance. Researchers and policymakers can use these findings to formulate better policies in human resource management and identify research topics that remain underexplored.

Although this study makes a significant contribution, there are several limitations that need to be considered. One of them is the limitation in the data used, namely that only publications indexed in Google Scholar were analyzed. This may not cover all relevant research, particularly research that is not indexed or that is published in local journals or not in English. A related limitation concerns the Publish or Perish application itself, which retrieves metadata directly from Google Scholar and can therefore be affected by duplicate entries, inconsistent author name formatting, and occasional inaccuracies in citation counts or publication years; these data-quality issues were minimized through manual filtering but cannot be entirely ruled out. In addition, this study relies solely on bibliometric analysis and keyword mapping, which, although providing important insights, is not sufficient to deeply explore the context or quality of these publications. Further research may need to use a more comprehensive approach, such as content analysis of the articles or interviews with the authors, to gain a broader perspective on the direction of development of this topic.

CONCLUSION

Over the past decade, research on employee performance management has experienced a significant increase in interest, in line with organizations' need to improve employee productivity and effectiveness. By using a bibliometric analysis method through VOSviewer software, researchers can gain in-depth insight into the trends, collaborations, and major topics in the academic literature related to employee performance management. Data collected from Google Scholar for the 2015 to 2024 period shows dynamic development in publications, illustrating how research focus and priorities have changed during this time.

This analysis method involves collecting bibliographic data using Publish or Perish and processing the data using VOSviewer to visualize the relationships between keywords, authors, and institutions. The results of the bibliometric analysis reveal several main clusters in the literature, such as performance measurement and competency development. The significant increase in the number of publications during the peak period shows that employee performance management has become an increasingly relevant topic, particularly with changes in the global work environment, including the impact of the COVID-19 pandemic.

However, after this peak, there was a decline in the number of publications, which may have been caused by a shift in research focus or funding challenges. Nevertheless, this analysis provides a clear picture of the dynamics and direction of research development in the field of employee performance management. The visualization through VOSviewer shows how research has developed over time, with nodes depicting high collaboration among researchers, as well as identifying topics that still need further exploration.

In conclusion, this study underscores the importance of employee performance management as a continuously evolving research area, with publication patterns showing fluctuating trends of increase and decline. Through bibliometric analysis, researchers can identify the dominant research clusters and understand changes in research focus over time. These findings not only help in understanding academic trends but also open up opportunities for future research that can enrich knowledge and practice in the field of employee performance management.

REFERENCES

- Angraini, L. M., & Muhammad, I. (2023). Analisis bibliometrik: Tren penelitian RME dalam pembelajaran matematika selama pandemi. *JNPM (Jurnal Nasional Pendidikan Matematika)*, 7(2), 224. <https://doi.org/10.33603/jnpm.v7i2.7817>
- Azizah, J., & Mitra Gama, A. (2017). Pengaruh gaya kepemimpinan dan motivasi terhadap kinerja guru. *Jurnal Manajemen KINERJA*, 3, 57–63.
- Baraibar-Diez, E., Luna, M., Odriozola, M. D., & Llorente, I. (2020). Mapping social impact: A bibliometric analysis. *Sustainability (Switzerland)*, 12(22), 1–21. <https://doi.org/10.3390/su12229389>
- Busro, Mailana, A., & Sarifudin, A. (2021). Pendidikan Islam dalam publikasi internasional: Analisis bibliometrik pada database Scopus. *Edukasi Islami: Jurnal Pendidikan Islam*, 10(01), 413–426. <http://jurnal.staialhidayahbogor.ac.id/index.php/ei/article/view/1591/800>
- Damayanti, K., Mappamiring, M., & Karim, M. (2017). Penerapan sistem manajemen kinerja pegawai di Bandara Udara Laga Ligo Bua Kabupaten Luwu. *Kolaborasi: Jurnal Administrasi Publik*, 3(2), 228. <https://doi.org/10.26618/kjap.v3i2.904>
- Garengo, P., Sardi, A., & Nudurupati, S. S. (2021). Human resource management (HRM) in the performance measurement and management (PMM) domain: A bibliometric review. *International Journal of Productivity and Performance Management*, 71(7), 3056–3077. <https://doi.org/10.1108/IJPPM-04-2020-0177>
- Istiana, P. (2022). Analisis bibliometrik perkembangan penelitian bidang ilmu geografi. *Baca: Jurnal Dokumentasi Dan Informasi*, 43(2), 69. <https://doi.org/10.14203/j.baca.v43i2.854>
- Kurnia, R. (2013). Manajemen kinerja, kinerja organisasi serta implikasinya terhadap kualitas pelayanan organisasi sektor publik. *Jurnal Ilmu Administrasi*, VIII(3), 312–321.
- Mohamed, M. A., Mohamud, I. H., Mohamed, A., & Farah, M. A. (2024). A bibliometric analysis of academic trends in human resource management practice from 2000 to 2023. *Cogent Business & Management*, 11(1), Article 2427217. <https://doi.org/10.1080/23311975.2024.2427217>

- Pham-Duc, B., Tran, T., Le, H. T. T., Nguyen, N. T., Cao, H. T., & Nguyen, T. T. (2021). Research on Industry 4.0 and on key related technologies in Vietnam: A bibliometric analysis using Scopus. *Learned Publishing*, 34(3), 414–428. <https://doi.org/10.1002/leap.1381>
- Rusly, F. H., Ahmi, A., Talib, Y. Y. A., & Rosli, K. (2019). Global perspective on payroll system patent and research: A bibliometric performance. *International Journal of Recent Technology and Engineering*, 8(2 Special Issue 2), 148–157. <https://doi.org/10.35940/ijrte.B1028.0782S219>
- Siregar, N. C., & Baharudin, R. A. (2021). Bibliometric analysis for the Asian Academy of Management Journal from 2015 to 2019. *Quantum Journal of Social Sciences and Humanities*, 2(3), 1–13. <https://doi.org/10.55197/qjssh.v2i3.64>
- Siregar, N. H., & Nasution, M. I. P. (2023). Implementasi manajemen kinerja sumber daya manusia pada organisasi/perusahaan (studi pustaka). *Inisiatif: Jurnal Ekonomi, Akuntansi dan Manajemen*, 2(2), 174–182.