An Examination of Ambidextrous Leadership: Research from a Bibliometric Perspective

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Abstract. Ambidextrous leadership is essential for promoting creativity and adaptability in dynamic business environments, though its impact on organizational outcomes remains uncertain. Limited research exists on its practical applications. This study uses bibliometric analysis to explore 133 documents from Scopus, employing performance analysis, science mapping, Excel for frequency analysis, VOSviewer for data visualization, and Harzing's Publish or Perish for citation metrics. Findings highlight increased publications and citations since 2013, indicating rising interest. China leads in this research, with significant contributions from Malaysia, Pakistan, and India, showcasing Asia's influence. Europe, particularly the UK, Germany, France, and the Netherlands, also excels, with high citations from Germany. Australia is notable in Oceania. Four key research themes in ambidextrous leadership were identified through cluster analysis, providing valuable insights for researchers and practitioners.

Keywords: Ambidextrous Leadership, Bibliometric Analysis, VOSviewer, Publish or Perish.

1 Introduction

Ambidextrous leadership, a concept that emphasizes the ability of leaders to balance and integrate exploratory and exploitative activities, has gained significant attention in recent years [1]. This leadership style is critical in fostering innovation and adaptability within organizations, especially in today's rapidly changing business environments. It is required for ambidextrous leaders to handle the paradoxes of innovation by supporting both incremental improvements and drastic changes while simultaneously fostering innovation. This balance is crucial for sustaining competitive advantage and ensuring long-term organizational success.

Despite the growing interest in ambidextrous leadership, several challenges remain in understanding its implementation and effectiveness. One major issue is the ambiguity surrounding the precise behaviors and practices that constitute ambidextrous leadership [2]. Furthermore, the relationship between ambidextrous leadership and the outcomes of a company, such as innovation and performance, is not yet completely understood [3]. These uncertainties pose significant barriers to developing clear guidelines for leaders aiming to adopt an ambidextrous approach.

This study is crucial because it attempts to address these issues by offering a thorough bibliometric examination of the body of knowledge regarding ambidextrous leadership. This study attempts to map the present research environment in order to pinpoint important topics, trends, and gaps in the literature [4]. Understanding these elements is crucial for both scholars and practitioners who are interested in leveraging ambidextrous leadership to enhance organizational innovation and adaptability. The insights gained from this study can inform future research directions and practical applications of ambidextrous leadership.

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Despite the extensive research on leadership and innovation, there remains a gap in the literature regarding how ambidextrous leadership can be operationalized at various organizational levels, thereby limiting the practical implications for managers and leaders in the field [5]. Additionally, most research on ambidextrous leadership has been conducted in specific contexts or industries, such as manufacturing or high technology, and not much research has explored other contexts such as the public sector or non-profit organizations. Examples of research in the Indonesian manufacturing industry show that the application of this concept is different in each industrial context [6]. This gap highlights the need for further empirical research to explore the nuances of ambidextrous leadership. This paper attempts to close this gap and advance knowledge of ambidextrous leadership and its applications in real life. By giving a more thorough summary of ambidextrous leadership research, bibliographic analysis might assist in closing these gaps.

[7] emphasizes that bibliometric analysis is a suitable approach to methodically undertake scientific mapping to provide a thorough assessment of particular regions and to provide visual analysis and identify clusters of investigation from previous studies. It consists of just listing and basic analysis based on variable lists and theories, unlike traditional trend analysis. The clusters of study in the field are developed when bibliometric analysis enables the researcher to do network analysis on the keywords and titles. Actually, the authorship, sources, and references of the earlier studies may be thoroughly summarized by the researcher using scientific mapping and network analysis. This work aims to explore the following research questions:

RQ1. What is the state of the art and publishing pattern are there in the field of ambidextrous leadership research?

RQ2. Who are the leading researchers in the field of ambidextrous leadership and from which countries?

RQ3. Which studies on ambidextrous leadership have received the highest citations?

RQ4. What are the main research themes of ambidextrous leadership research?

In this way, the paper is organized. Research on ambidextrous leadership makes use of bibliometrics, which will be detailed in the section that follows. Included here are a plethora of Excel, Publish or Perish, and VOSviewer-based references and flowcharts for bibliometric analysis. The research questions are explored in the results and discussion sections, and subsequently, the conclusion and recommendations for future studies are presented.

2 Methods

[8] states that the bibliometric method effectively tracks and reports statistical insights on particular terms or concepts discussed in a specific subject area. This approach is essential for comprehensively understanding the current state of knowledge in the field through a systematic scientific method. Bibliometrics provides an advantage over traditional narrative reviews by relying on objective data rather than subjective perceptions, thus overcoming biases and providing more informative results. It enables researchers to systematically analyze and record metadata, facilitating the dissemination of knowledge and enabling well-grounded conclusions.

The use of bibliometric analysis has become prevalent as it provides a scientific mapping of the publication database, enhancing the researcher's understanding of the field. In order to access a large number of relevant papers and articles, these evaluations frequently use specialized internet databases like WoS or Scopus [9]. Moreover, as mentioned by [10], platforms like Scopus provide the functionality to search across various bibliographic fields.

2.1 Identification of Sources

As of April 10, 2024, a bibliographic review of published works was carried out. This research made use of Scopus, the most comprehensive database of academic citations and abstracts across disciplines [11]. The Scopus database now contains approximately 210.000 books and 39.743 titles, with over 25.000 active titles and 14.558 inactive titles (mainly predecessors of the active titles). A database of this type can compile all of the world's scientific publications into one comprehensive perspective. According to [12], the Scopus database is currently regarded as a key resource for relevant information among scientists worldwide. This study utilized Scopus, the most widely used online database for citations and abstracts in the fields of technology, social science, business, and management. Furthermore, it was suggested by [13] that data be sourced from the Scopus database, as it contains numerous esteemed and top-tier journals. Figure 1 illustrates the bibliometric analysis techniques and search approach applied in this study.

2.2 Search Strategy

In order to obtain more relevant documents, we utilized a combination of keywords based on research questions. A keyword is a specialized search term used to locate datasets within a specific field [14]. To achieve this, we used the single-term “ambidextrous leadership” query for the Scopus database. Specifically, we performed a comprehensive search by using TITLE-ABS-KEY while adding a boolean operator. Thus, we finalized the search by using the following query: TITLE-ABS-KEY ("ambidex* leader*") AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SRCTYPE , "j")).

Table 1. Criteria for Selection

No	Inclusion Criteria	Exclusion Criteria
1	IC1: Document Type (Article)	EC1: Conference papers, Review, Book, Book Chapter
2	IC2: Source Type (Journal)	EC2: Book Series, Conference Proceeding

Table 1 outlines the inclusion criteria and exclusion one used to select the gathered datasets. There is no restriction on the search period. Initially, 168 documents were obtained from Scopus from the year 2007 until 2024. In order to gather high-quality input, we considered choosing journal articles only as our sources rather than other document types such as Conference papers & proceedings, Books, Book Chapters, Book Series. Journal articles undergo a more rigorous scientific peer review process compared to other formats such as conference papers or book chapters, making them our preferred choice over other formats. Therefore, by using the inclusion and exclusion criterias in the Scopus query, we got 133 documents that published as journal articles only. Finally, these 133 articles will be analyzed further in the next section. Detailed procedures for conducting bibliometric analysis and the search method used in this study are shown in Figure 1.

3 Analysis of Data

To conduct descriptive analysis, Microsoft Excel and Publish or Perish were used, while network analysis was carried out using VOSviewer. Two types of analyses, descriptive and network, were performed to address the research questions (RQs) stated in the introduction. For

visual representation and calculating the frequency and percentage of each publication, Microsoft Excel was utilized. Meanwhile, Publish or Perish assessed the impact and performance of publications based on chosen metrics, and VOSviewer (version 1.6.20) was used for creating and visualizing bibliometric networks. These instruments were applied to achieve the study's objectives and answer its research questions.

Based on [16], performance analysis and science mapping are the two primary approaches to comprehensive bibliometric analysis. Research components in a given subject are the primary focus of performance analysis, but the interconnections between these elements are the primary focus of science mapping. Hence, a total of 133 documents were analysed following [17]'s studies: the first analysis covered the analysis of publication trends to answer RQ1. To answer the second research question (RQ2), the analysis presented the contributions of the authors and countries. The results of the 20 most cited papers were disclosed to address the third research question (RQ3). Lastly, network visualization map analysis was conducted using the author keywords to respond to RQ4.

We cleaned and harmonised the data before we ran the analysis. This is an essential part of bibliometric analysis that must be followed in order to get trustworthy results [18]. We can standardize data effectively and increase its quality with the use of a VOSviewer thesaurus file, which is an invaluable tool for this procedure. To clarify, a thesaurus file—a text file—can be used to clean up the data while constructing a map using bibliographic information. In this study, numerous spelling variations and abbreviations were combined with their complete forms, including "innovations," "investments," "patents," and "patent families," among various others, along with synonyms and other spelling inconsistencies. A thesaurus file contains two columns: one for the labels and the other for the replacement. The headers for each column are contained in the first line of a thesaurus file, known as the header line. The remaining lines in the thesaurus file, except for the first, specify a label and its alternative. The label is found in the label column, while the alternative label is in the replace-by column, indicating the label that should be replaced. After cleaning the data, the analysis is conducted.

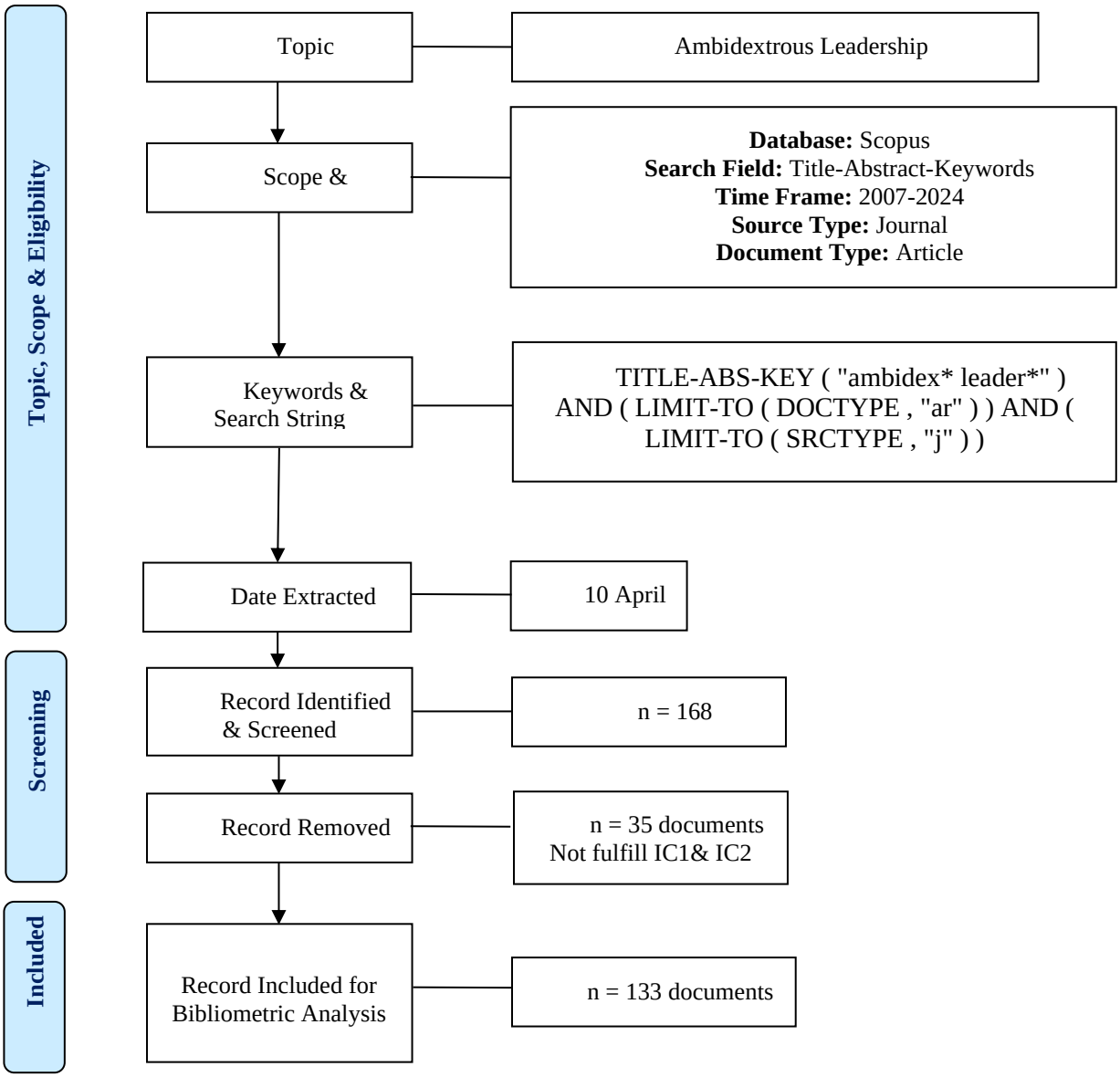

Figure 1. Flow Diagram of the Search Strategy
Source: [15]

4 Result and Discussion

The findings based on the research issues emphasized in the introduction are covered in this part. In this work, we carried out science mapping and performance analysis in accordance with [16]. Performance analysis looks at how all research components—authors, institutions, countries, publications, etc.—contribute to a certain field. This is aimed at obtaining the

landscape and development of knowledge in the area of ambidextrous leadership research. Consequently, we include comprehensive information on the publication trends, prominent authors, most active countries and highly cited papers in this area.

4.1 Publication Trend

It is revealed by Table 2 that the publication and also citation trends within ambidextrous leadership have shown a general increase in research interest and influence over the years. The total count of publications is represented by TP, and the total number of citations is signified by TC. The number of publications that have been cited is indicated by NCP. Each publication receives an average number of citations, which is denoted by C/P, while C/CP refers to the average citations per cited publication. The h-index and g-index are represented by h and g, respectively. From 2013 onwards, the number of publications has shown a rising trend, with significant growth in recent years, particularly from 2017 to 2024. The peak in publications occurred in 2022 with 31 publications, indicating heightened interest in the topic. Citation trends, while more variable, show notable peaks, such as in 2011 with 770 citations from just 3 publications, demonstrating the high impact of those works. Similarly, 2020 saw a substantial number of citations (303), underscoring the significance of the research published that year. The last five years (2019-2024) exhibit a concurrent increase in both publications and citations, reflecting a growing recognition and relevance of ambidextrous leadership in academic research. Although citations in 2024 (10 citations) are lower, this is likely due to the short time frame for new publications to accrue citations. Overall, the data highlight a burgeoning and impactful research area, with an increasing number of researchers contributing to and citing works on ambidextrous leadership.

Table 2. The Trends in Publication

Year	**TP**	**%**	**NCP**	**TC**	**C/P**	**C/CP**	***h***	***g***
2024	17	12.78%	6	10	0.59	1.67	2	2
2023	25	18.80%	20	135	5.40	6.75	6	11
2022	31	23.31%	27	205	6.61	7.59	9	13
2021	9	6.77%	9	132	14.67	14.67	6	9
2020	17	12.78%	17	303	17.82	17.82	11	17
2019	13	9.77%	12	294	22.62	24.50	9	13
2018	3	2.26%	3	167	55.67	55.67	3	3
2017	7	5.26%	6	204	29.14	34.00	5	7
2016	3	2.26%	3	186	62.00	62.00	3	3
2015	1	0.75%	1	211	21100	211.00	1	1
2014	1	0.75%	1	84	84.00	84.00	1	1
2013	1	0.75%	1	3	3.00	3.00	1	1
2011	3	2.26%	3	770	256.67	256.67	3	3
2010	1	0.75%	1	58	58.00	58.00	1	1
2007	1	0.75%	1	154	154.00	154.00	1	1
Total	**133**							

4.2 Most Significant Contributors

A ranking of the ten most significant contributors to the research field in Ambidextrous Leadership, as presented in Table 3, reveals a diverse range of contributors from various

countries and institutions. Rosing, K., from Universität Kassel, Germany, leads the field with 5 publications and an impressive 1110 citations, indicating a significant impact on the topic. Zacher, H., from Universität Leipzig, Germany, also stands out with 4 publications and 426 citations. Authors from India, including Gouda, G.K., and Tiwari, B., both from prestigious technical institutes, have contributed 4 publications each but have garnered relatively lower citations (25 each), suggesting emerging contributions to the field. The presence of authors from China, such as Hu, W., from Shandong University and Jia, R. from Fudan University, reflects growing research interest in the topic, with moderate citation counts (48 and 53, respectively). Indonesian authors, Alamsjah, F., and Bandur, A., from Bina Nusantara University have made notable contributions, though with fewer citations.

Table 3. Top Ten Significant Contributors

Author's Name	**Affiliation**	**Country**	**TP**	**NCP**	**TC**	**C/P**	**C/CP**	***h***	***g***
Rosing, K.	Universität Kassel, Tubingen	Germany	5	1110	222.00	222.00	5	5	5
Gouda, G.K.	National Institute of Technology Rourkela, Rourkela	India	4	25	6.25	8.33	2	4	4
Tiwari, B.	Indian Institute of Technology Kharagpur, Kharagpur	India	4	25	6.25	8.33	2	4	4
Zacher, H.	Universität Leipzig, Wilhelm Wundt Institute for Psychology, Leipzig	Germany	4	426	106.50	106.50	4	4	3
Alamsjah, F.	Bina Nusantara University, Department of Industrial Engineering, Jakarta	Indonesia	3	7	2.33	3.50	2	2	3
Hu, W.	Shandong University, Jinan	China	3	48	16.00	16.00	3	3	3
Jia, R.	Fudan University, Shanghai	China	3	53	17.67	17.67	3	3	3
Ahmad, B.	Silesian University of Technology, Department of Structural Engineering, Gliwice	Poland	2	16	8.00	8.00	2	2	3
Arshad, A.S.	Universiti Teknologi MARA, Shah Alam	Malaysia	2	3	1.50	3.00	1	1	3
Bandur, A.	Bina Nusantara University, Department of Management, Jakarta	Indonesia	2	4	2.00	4.00	1	2	3

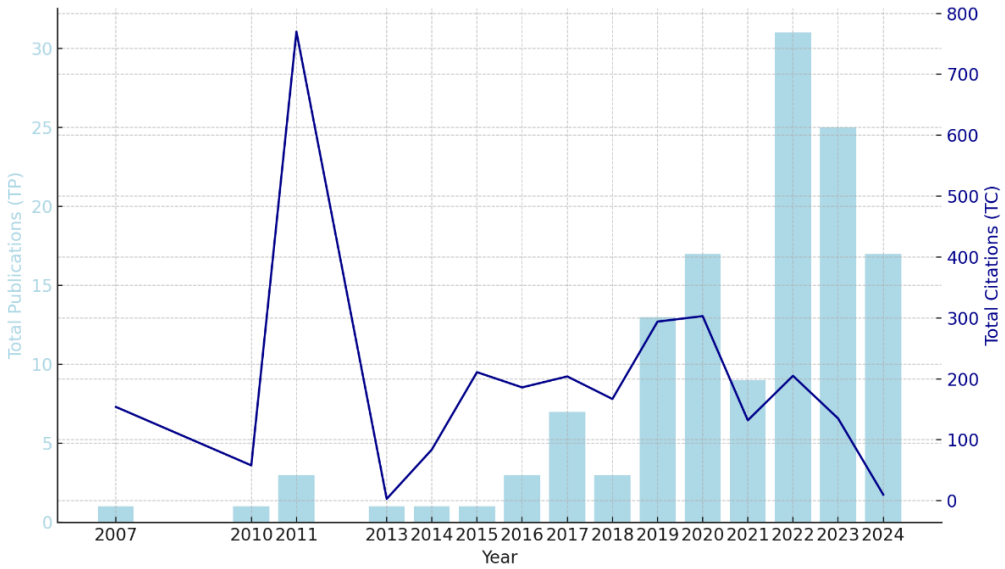

Figure 2. Annual Publications and Citation Count

4.3 Leading Countries

Focusing on the key nations that significantly contribute to ambidextrous leadership research, the bibliometric data offers valuable insights into the global research landscape and its impact. A total of 46 countries in all have published papers gathered from the Scopus database. We listed the top 10 prominent countries (Table 4) researching ambidextrous leadership, which highlights significant contributions across various continents. China leads with 37 publications and 451 citations, making Asia a notable contributor, supported by other Asian countries like Malaysia, Pakistan, and India. Europe shows strong research output with the United Kingdom, Germany, France, and the Netherlands collectively achieving high citation counts, particularly Germany with 1163 citations from 13 publications. Australia, representing Oceania, stands out with 18 publications and an impressive 735 citations, while the United States from North America has 11 publications and 228 citations. In terms of total citations and the quantity of high-impact papers, Europe and Asia are by far the most dominant regions, indicating their leading role in the research of ambidextrous leadership.

Table 4. Top Ten Prominent Countries

Country	TP	NCP	TC	C/P	C/CP	h	g	Continent
China	37	36	451	12.19	12.53	13	19	Asia
United Kingdom	20	15	424	21.20	28.27	10	20	Europe
Australia	18	17	735	40.83	43.24	13	18	Oceania
Germany	13	11	1163	89.46	105.73	6	13	Europe
United States	11	11	228	20.73	20.73	5	11	North America
Malaysia	9	6	58	6.44	9.67	3	7	Asia

Country	TP	NCP	TC	C/P	C/CP	h	g	Continent
Pakistan	9	7	78	8.67	11.14	4	8	Asia
India	8	5	27	3.38	5.40	2	5	Asia
France	6	5	53	8.83	10.60	2	6	Europe
Netherlands	5	4	228	45.60	57.00	3	5	Europe

4.4 Frequently Cited Works

Table 5 shows the ten most commonly referenced works on the topic of ambidextrous leadership research that highlight significant contributions to understanding the complex dynamics between leadership and innovation. The most cited document, "Explaining the heterogeneity of the leadership-innovation relationship: Ambidextrous leadership" by [19], has made a substantial impact with a total of 714 citations. The researchers discovered that the primary prerequisites for creativity are the processes of exploration and exploitation, together with the ability to flexibly transition between these two activities. The authors present a theory of leadership for innovation called ambidexterity, which outlines two sets of leadership behavior that work together to promote both exploration and exploitation in people and teams. Following this is "Ambidextrous leadership and team innovation" by [20], with 211 citations. This study is the first-ever empirical test of the ambidexterity theory of innovative leadership, which had just been proposed, is what this study is all about. The findings show that, compared to transformational leadership, ambidextrous leadership behaviors are a stronger predictor of team innovation. In order to boost team innovation, they propose that firms might teach ambidextrous leadership behaviors to team leaders. [21] "Ways to build collaborative teams" provides a broader perspective on creating effective team dynamics, reflected in its 154 citations. Collectively, these documents highlight The crucial significance of ambidextrous leadership in promoting innovation and adaptive behaviours across various organizational contexts and levels.

Table 5. Top 10 documents with the highest number of citations

Documents Title	Author(s)	TC	C/Y
“Explaining the heterogeneity of the leadership-innovation relationship: Ambidextrous leadership”	[19]	714	5492
“Ambidextrous leadership and team innovation”	[20]	211	2344
“Ways to build collaborative teams”	[21]	154	906
“Ambidextrous Leadership and Employees' Self-Reported Innovative Performance: The Role of Exploration and Exploitation Behaviors”	[22]	126	1575
“A daily diary study on ambidextrous leadership and self-reported employee innovation”	[23]	84	840
“Ambidextrous leadership, ambidextrous employee, and the interaction between ambidextrous leadership and employee innovative performance”	[24]	73	1217

"Do leadership styles promote ambidextrous innovation? Case of knowledge-intensive firms"	[25]	71	1420
"Reform in public organizations: the roles of ambidextrous leadership and moderating mechanisms"	[26]	63	900
"Ambidextrous leadership and TMT-member ambidextrous behavior: the role of TMT behavioral integration and TMT risk propensity"	[27]	61	1017
"Effects of leadership style on team learning"	[28]	58	414

4.5 Network Analysis

When it comes to bibliometrics, network analysis especially co-occurrence analysis is one of the most used tools. Science mapping, which investigates the connections between research components, is what [16] referred to as this type of analysis. Intellectual and structural interconnections among study constituents are the focus of the analysis. According to [29], VOSviewer is among the most popular tools used for network exploration. Cluster and co-occurrence analysis on ambidextrous leadership research is covered in the next section.

According to [30], the fundamental premise of keyword analysis is that the keywords used by the author adequately represent the article's contents. We address the final research question (RQ4) by utilizing VOSviewer's co-occurrence and cluster analysis functions, indicating a relationship between concepts when two terms are present in the text simultaneously. To map the keywords provided to each article, we utilized VOSviewer, a program for creating and visualizing bibliometric networks, to perform keyword analysis. Figure 3 shows a VOSviewer-generated network visualization of authors' keywords. The visual representation uses various elements such as colors, sizes of circles, fonts, and line weights to depict the strength of relationships among keywords. It is common practice to group related keywords together using the same color. When a term or object appears more frequently, the circle will grow in size, indicating its growing importance. The size of the circles is determined by how often they occur.

In this research, the authors identified 425 words as keywords. Table 6 highlights the most frequently occurring keywords, identified through cluster analysis, appearing at least twice. The cluster analysis shows that the study of ambidextrous leadership primarily centers around four key areas. Cluster 1 includes a total of 15 items, with the most common keyword being leadership style, innovative behaviour, creative self-efficacy, innovative work behaviour, and employee creativity. The theme representing the cluster is "Fostering Innovation through Leadership". This theme focuses on the critical role leadership styles play in cultivating an environment that encourages innovative behaviour among employees. Confidence in one's own creative abilities, or "creative self-efficacy," is a key component of effective leadership styles. Leaders who support and inspire their teams can significantly boost innovative work behavior, leading to enhanced employee creativity. By fostering a culture of innovation, leaders can drive the overall creative potential within their organizations, resulting in improved problem-solving, adaptability, and competitive advantage. This cluster underscores the interconnectedness of

leadership practices and the innovative capabilities of employees, highlighting the importance of leadership in facilitating a thriving, creative workforce.

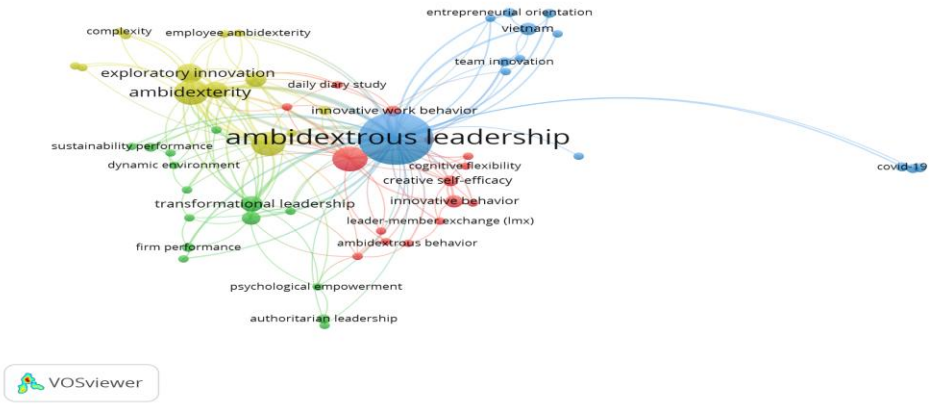

Figure 3. Network Visualisation

Table 6. Cluster Analysis

Most Frequent Keywords	Cluster	Occurrences	Total Link Strength	Total Keywords (Items)
Leadership style	1	19	33	15
Innovative behavior	1	5	10	
Creative self-efficacy	1	4	8	
Innovative work behavior	1	4	7	
Employee creativity	1	2	8	
Transformational leadership	2	8	30	15
Transactional leadership	2	6	26	
Firm performance	2	3	8	
Organizational ambidexterity	2	3	7	
Ambidextrous organization	2	2	5	
Ambidextrous leadership	3	88	143	13
Team innovation	3	3	7	
Entrepreneurial orientation	3	3	6	
Covid-19	3	3	5	
Team creativity	3	2	4	
Ambidexterity	4	19	46	13
Innovation	4	18	56	
Exploratory innovation	4	12	39	
Exploitative innovation	4	9	35	
Creativity	4	7	25	

Cluster 2, consisting of 15 keywords, is primarily characterized by the following main terms: transformational leadership, transactional leadership, firm performance, organizational ambidexterity and ambidextrous organization. We label this cluster's theme as leadership styles and organizational ambidexterity. This theme explores how different leadership styles,

specifically transformational and transactional leadership, impact an organization's capacity to effectively manage both exploration and exploitation efforts, thereby achieving organizational ambidexterity. Transformational leadership, which emphasizes visionary thinking and inspiring change, is often associated with fostering innovation and long-term strategic goals. On the other hand, transactional leadership focuses on routine and efficiency, ensuring that short-term operational goals are met. The synthesis of these leadership styles within an ambidextrous organization can enhance firm performance by simultaneously driving innovation and maintaining stability. Cluster 3 consists of 13 items. The primary keywords for this cluster include ambidextrous leadership, team innovation, entrepreneurial orientation, COVID-19, and team creativity. This cluster is characterized by the theme of adaptive leadership in innovation prompted by crisis situations. This theme explores how ambidextrous leaders, who can balance exploration and exploitation, drive team innovation and creativity, especially during periods of turmoil, such as the ongoing Covid-19 epidemic. It highlights the importance of entrepreneurial orientation in fostering a proactive and resilient organizational culture that can navigate uncertainties and seize opportunities during disruptive events. The analysis suggests the importance of adaptable leadership in maintaining team performance and innovation, ensuring that teams remain agile and creative in response to unprecedented challenges. Cluster 4 contains 13 keywords, with the most frequent being ambidexterity, innovation, exploratory innovation, exploitative innovation, and creativity. This cluster focuses on the theme of Dual Innovation Dynamics. This theme is about being able to balance and combine both exploratory and exploitative innovation, which is very important for making a place where creativity can grow. Exploratory innovation means trying to learn new knowledge and novel solutions, while exploitative innovation focuses on refining and enhancing existing capabilities. Effective ambidextrous leaders navigate the tension between these two forms of innovation, ensuring that organizations remain adaptable and competitive. This dynamic balance promotes sustained innovation, enabling teams to leverage creative processes to generate groundbreaking ideas while simultaneously optimizing current operations. As a result, organizations can achieve continuous improvement and long-term success in a rapidly evolving landscape.

5 Conclusion

Our review of the literature has given us a full picture of the body of study on ambidextrous leadership. We found important publication trends, a thorough look at the most well-known authors and countries, and network analysis based on author themes. The trend of research showed that since 2013, the number of publications has been rising, with a notable increase from 2017 to 2024. The year with the most publications was 2022, showing strong interest in the topic. Citation trends are more variable but highlight significant peaks, such as in 2011 and 2020, indicating high impact and emphasizing the importance of that year's research. The past five years (2019-2024) show a simultaneous increase in both publications and citations, reflecting growing recognition of ambidextrous leadership in academia. The two authors with the most publications and citations in the topic of ambidextrous leadership study are Rosing, K. from Universität Kassel, Germany, and Zacher, H. from Universität Leipzig, Germany. Contributors from India and China reflect emerging and growing interest, with lower and moderate citation counts respectively, while Indonesian authors from Bina Nusantara University have made notable but less-cited contributions. China leads in ambidextrous leadership research, highlighting Asia's significant contribution alongside Malaysia, Pakistan, and India. Europe also excels, with the UK, Germany, France, and the Netherlands achieving high citation counts, particularly Germany while Australia stands out in Oceania, making Europe and Asia

the dominant regions in this field. The cluster analysis based on author keywords reveals that there are 4 (four) main research themes as follows: fostering innovation through leadership, leadership styles and organizational ambidexterity, adaptive leadership in crisis-driven innovation and dual innovation dynamics. It does have the limitations that are common to bibliometric analyses. First, because our research relies solely on the Scopus database, it loses out on studies that may have provided extra information or different viewpoints but weren't included because they weren't published in Scopus-indexed journals. This restriction to a single database could affect the comprehensiveness and depth of our analysis, particularly in capturing interdisciplinary or emerging research that is not yet widely recognized within mainstream academic channels. Future research could expand upon our findings by incorporating multiple databases and possibly integrating grey literature to capture various research contributions and perspectives. This approach would enhance the comprehensiveness of the analysis, providing a more inclusive and multidimensional view of ambidextrous leadership research. Secondly, although the bibliometric approach is comprehensive, it may be seen as placing too much emphasis on quantitative metrics like publication and citation counts. This focus might neglect the qualitative dimensions of research influence and innovation within the discipline. To further our understanding of the topic, future studies could use content reviews or meta-analyses to supplement our findings.

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